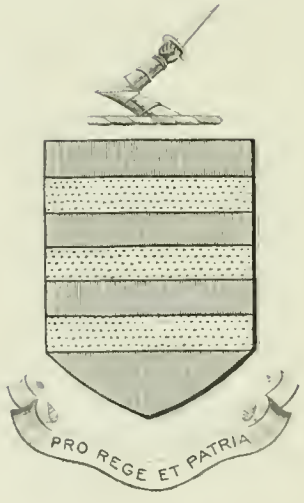
UNIV.OF
TORONTO
LIBRARY



Bequeathed to the Library of the
University of Toronto by
Irving Heward Cameron, Esq., M.B.
Sometime Professor of Surgery
in the Faculty of Medicine

MEDICAL RECORD

A Weekly Journal of Medicine and Surgery

EDITED BY

THOMAS L. STEDMAN, A.M., M.D.

EDITORIAL STAFF

CHARLES A. CLOUTING, M.D.
A. A. ESHNER, M.D.
KATHLEEN HAMBLEN
JOHN E. LIND, M.D.
EDWARD PREBLE, M.D.
R. J. E. SCOTT, M.D.
MILDRED K. SMITH
RALPH G. STILLMAN, M.D.
WESLEY G. VINCENT, M.D.

Volume 95

JANUARY 4, 1919—JUNE 28, 1919

298765
9:4:34

WILLIAM WOOD AND COMPANY

1919

Copyright, 1919
By WILLIAM WOOD & COMPANY

LIST OF CONTRIBUTORS TO VOL. XCV.

ABRAMS, ALBERT, San Francisco, Cal.
ALLEN, WALTER C., Chicago, Ill.
AULDE, JOHN, Philadelphia, Pa.

BANDLER, SAMUEL WYLLIS, New York.
BARUCH, SIMON, New York.
BASSLER, ANTHONY, New York.
BAUMANN, L., Iowa City, Iowa.
BECK, EMIL G., Chicago, Ill.
BEHREND, MOSES, Philadelphia, Pa.
BENEDICT, A. L., Buffalo, N. Y.
BIGGAR, J. L., Ottawa, Canada.
BISHOP, LOUIS FAUGERES, New York.
BLACKWELL, HUGH B., New York.
BOEHME, GUSTAV F., New York.
BOTT, E. A., Toronto, Canada.
BRADBURY, S., U. S. Army.
BULKLEY, L. DUNCAN, New York.
BRAM, ISRAEL, Philadelphia, Pa.
BURROW, J. LE FLEMING, Leeds, England.
BUSHNELL, GEORGE E., Washington, D. C.

CADBURY, WM. W., Canton, China.
CARTER, WM. WESLEY, New York.
CHAPIN, HENRY DWIGHT, New York.
CLARK, F. D., U. S. Army.
COOK, FINLEY R., New York.
COPELAND, R. S., New York.
COUGHLIN, ROBERT E., Brooklyn, N. Y.
COX, GERARD HUTCHISON, U. S. Army.
CRUTCHER, HOWARD, Tularosa, New Mex.
CUMSTON, CHARLES GREENE, Geneva, Switzerland.

DAVIN, JOHN P., New York.
DICKSON, JOHN D., U. S. Army.
DOTY, ALVAH H., New York.
DUNTON, W. R., Towson, Md.
DUVAL, EMILE, New York.

EAGLETON, WELLS P., Newark, N. J.
EARP, S. E., Indianapolis, Ind.
EINHORN, MAX, New York.
EISENBERG, I. C., New York.

FARIES, JOHN CULBERT, New York.
FERRIS, ALBERT WARREN, Watkins, N. Y.
FIELD, C. EVERETT, New York.
FOX, ELSIE, New York.
FRIEDMAN, G. A., New York.

GOLDWATER, S. S., New York.
GOODKIND, MAURICE L., U. S. Army.
GOODMAN, HERMAN, U. S. Army.
GRAHAM, DOUGLAS, Boston, Mass.
GREENE, GEORGE W., Auburn, N. Y.
GRIFFITH, F., New York.

HABERMAN, J. VICTOR, New York.
HAMILTON, ALICE, Chicago, Ill.
HARRISON, FORREST MARTIN, U. S. Navy.
HART, T. STUART, New York.
HARTWELL, JOHN A., New York.
HASKELL, CHARLES NAHUM, Bridgeport, Conn.
HERDER, S., Mount Vernon, N. Y.
HERZ, LUCIUS FELIX, New York.
HUHNER, MAX, New York.
HUNT, EDWARD LIVINGSTON, New York.
HUNTINGTON, THOMAS W., San Francisco, Cal.
HUNTOON, FRANK M., Hoboken, N. J.

JACOBI, A., New York.
JOSEPHSON, EMANUEL M., New York.

KAHN, ALFRED, New York.
KEARNEY, J. A., New York.
KEEN, W. W., Philadelphia.
KENNEDY, FOSTER, New York.
KITCHEN, J. M. W., East Orange, N. J.
KNAPP, MARK I., New York.
KRUMBHAAR, E. B., U. S. Army.

LAASÉ, CHRISTIAN F. L., New York.
LAMBERT, ALEXANDER, New York.
LANDSMAN, ARTHUR A., New York.
LANGSTROTH, FRANCIS WARD, New York.
LEIDY, JOSEPH, Philadelphia, Pa.
LEINER, JOSHUA H., New York.
LEMCHEN, B., Chicago, Ill.
LEPRINCE, A., Nice, France.
LEVBARG, JOHN I., New York.
LEVIN, ISAAC, New York.
LILJESTRAND, G., Stockholm, Sweden.
LUYS, GEORGES, Paris, France.

MACCALLUM, W. I., Baltimore, Md.
MCCONNELL, ROBERT H., New York.
MCCOY, G. W., Washington, D. C.
MACDONALD, ARTHUR, Washington, D. C.
MCKENZIE, R. TAIT, Philadelphia. York.
MCKINNEY, JOHN MCD., Ann Arbor, Mich.
MCMURTRIE, DOUGLAS C., New York.
MCNALLY, WILLIAM D., Chicago, Ill.
MANN, W. L., U. S. Navy.
MANTON, W. P., Detroit, Mich.
MARTIN, WILLIAM, Atlantic City, N. J.
MEAKINS, JONATHAN, Montreal, Canada.
MEYER, ALFRED, New York.
MEYER, WILLY, New York.
MITCHELL, CLIFFORD, Chicago, Ill.
MONTGOMERY, DOUGLASS W., San Francisco, Cal.
MORRIS, ROBERT T., New York.
MOSES, HENRY MONROE, Brooklyn, N. Y.

NASMITH, GEORGE G., Toronto, Canada.
NORRIS, M. FORD, JR., Atlanta, Ga.
NEUSTAEDTER, M., New York.
NEWTON, RICHARD COLE, Montclair, N. J.

OFRIAS, R. F., New York.

PAGET, OWEN, Fremantle, Australia.
PEARSON, C. B., Catonsville, Md.
POOCK VAN BAGGEN, N. J., The Hague, Holland.
POWERS, C. A., Denver, Col.
PUTTI, VITTORIO, Bologna, Italy.

RABINOWITSCH, H., New York.
RAHMET BEY, H. T. M. K., Cairo, Egypt.
REDFIELD, CASPER L., Chicago, Ill.
REILLY, THOMAS F., New York.
ROBERTS, H. H., White Sulphur Springs, W. Va.
ROBINSON, BEVERLEY, New York.
ROBINSON, E. P., New York.
ROSS, MARTIN, New York.

ST. JOHN, J. H., Washington, D. C.
SANDERSON, RAYMOND, U. S. Army.
SCHEFFEL, CARL, Boston, Mass.

Schorer, Edwin Henry, U. S. Army.
Seilin, J., Chicago, Ill.
Shanahan, Wm. T., Craig Colony, Sonyea, N. Y.
Sheehan, Joseph Eastman, New York.
Shufeldt, R. W., Washington, D. C.
Simpson, C. Augustus, Washington, D. C.
Sittenfield, Maurice J., New York.
Smith, J. Morrisett, New York.
Stein, Arthur, New York.
Stillman, Ralph G., New York.
Strachstein, A., New York.
Strobell, C. W., New York.
Syms, Parker, New York.

Taylor, J. Madison, Philadelphia, Pa.
Thompson, W. Gilman, New York.
Tompkins, Ernest, Pasadena, Cal.
Turck, Fenton B., New York.

Ward, E. H. P., White Plains, N. Y.
Watson, Leigh F., Chicago, Ill.
Wiener, Joseph, New York.
Willems, Charles, Bruges, Belgium.
Winter, Francis A., Washington, D. C.

Societies of which reports have been published.

American Association for Thoracic Surgery.
American Medical Association.
  Section on Diseases of Children.
  Section on Nervous and Mental Diseases.
  Section on Obstetrics, Gynecology, and Abdominal Surgery.
  Section on Practice of Medicine.
American Public Health Association.
Bronx County Medical Society.
College of Physicians of Philadelphia.
International Conference on Rehabilitation of the Disabled.
Medical Society of the County of New York.
Medical Society of the State of New York.
  Section on Medicine.
  Section on Obstetrics and Gynecology.
Medical Society of the State of New York, First District Branch.
New York Academy of Medicine.
  Public Health Committee.
  Section on Medicine.
  Section on Obstetrics and Gynecology.
  Section on Pediatrics.
  Section on Surgery.
Philadelphia County Medical Society.
Philadelphia Neurological Society.
Southern Surgical Association.
Western Surgical Association.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 95, No. 1.
Whole No. 2513.

NEW YORK, JANUARY 4, 1919.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

THE IMPORTANCE OF THE ADOPTION OF ELECTROCARDIOGRAPHY AND ORTHODIAGRAPHY AS ROUTINE MEASURES IN THE MANAGEMENT OF DISORDERS OF THE HEART.*

BY LOUIS FAUGÈRES BISHOP, M.D.,

NEW YORK.

CLINICAL PROFESSOR OF HEART AND CIRCULATORY DISEASES, FORDHAM UNIVERSITY SCHOOL OF MEDICINE, NEW YORK CITY; PHYSICIAN TO THE LINCOLN HOSPITAL, NEW YORK.

IT seems to me that the longer I am in practice the harder it becomes to lecture satisfactorily on the subject of my work. When a man first fits himself for a particular occupation his knowledge is a fairly definite entity, and can be imparted in a systematic manner. As he works year after year the systematized knowledge is replaced by acquired skill and he forms judgments without a conscious review of facts.

In the beginning he meets a medical problem by an examination and by referring the findings of this examination to a very clearly defined body of knowledge. This method is more or less conscious. After training that comes from years of work, the examination is made in a more discriminating manner, emphasizing the important points and eliminating unnecessary waste motions, and the findings are unconsciously referred to a subconscious knowledge that is not easily reproduced. The young teacher can train the young student fairly well in

*Read at the annual meeting of the First District Branch of the Medical Society of the State of New York, held at Tuxedo Park, October 17, 1918.

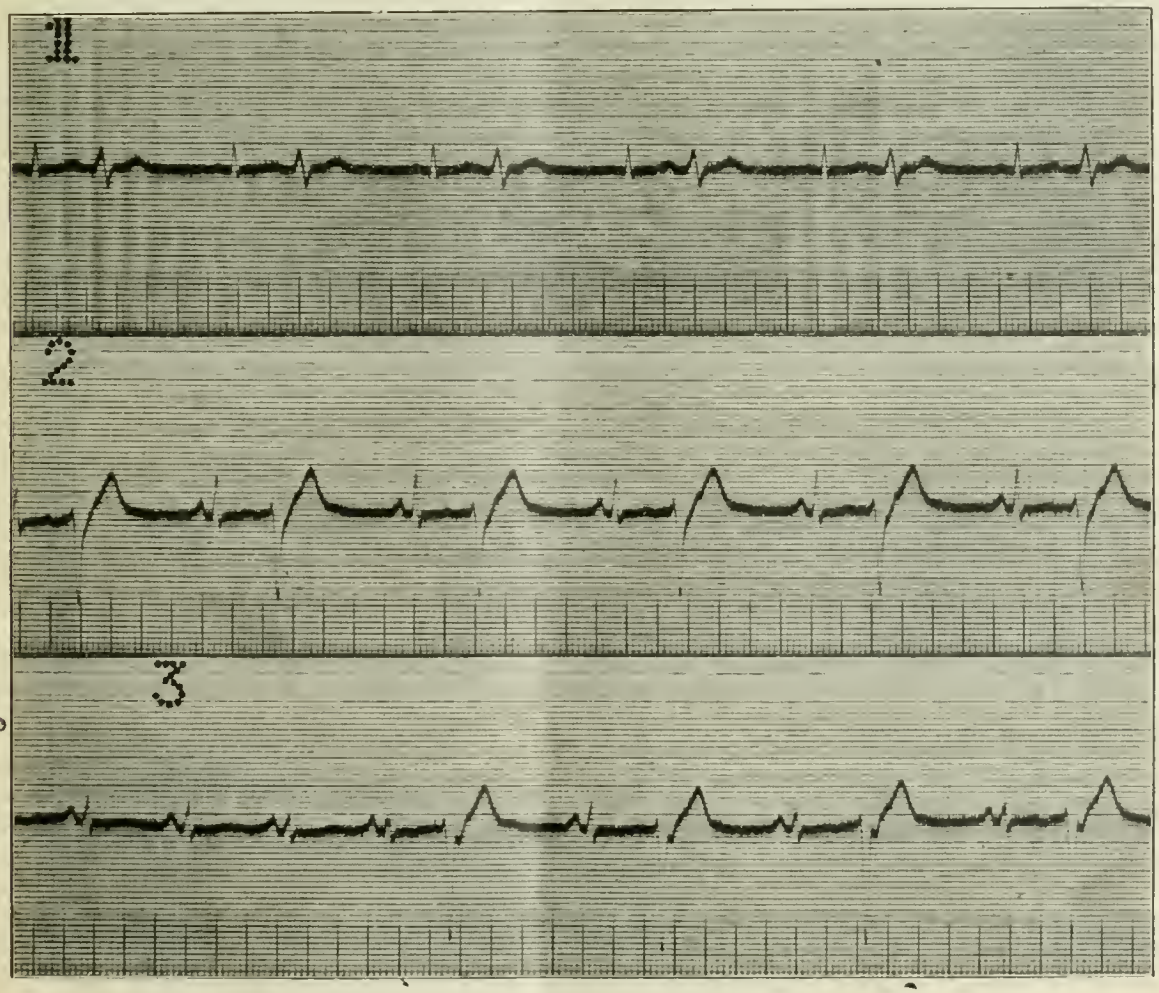


FIG. 1.—Electrocardiogram of a case of premature contractions (ventricular extra systoles).

those things which are a matter of conscious knowledge. When a man has gone far enough in his profession to acquire skill, he finds it very difficult to impart that knowledge even to practitioners of his own maturity. Indeed, in the whole history of medicine there have been only a very few great doctors and surgeons who have been able to teach the profession even a small part of their art.

With regard to the modern methods in cardiac disease it is often asserted that now at last definite methods have been substituted for the intuitive opinion, founded chiefly upon judgment and experience.

The general consultant of the old school had acquired his position in the profession and his chair of medicine in the school on account of his personality and native ability to examine and advise wisely in regard to serious medical situations. He gathered facts through as many channels as possible. In heart cases he formed his judgment from the sounds of the heart *and all the attending circumstances* and gave an immediate and categorical opinion. The profession always attributed to him a wonderful power of hearing, which he himself never claimed, knowing as he did that his judgment was founded upon all the attending circumstances.

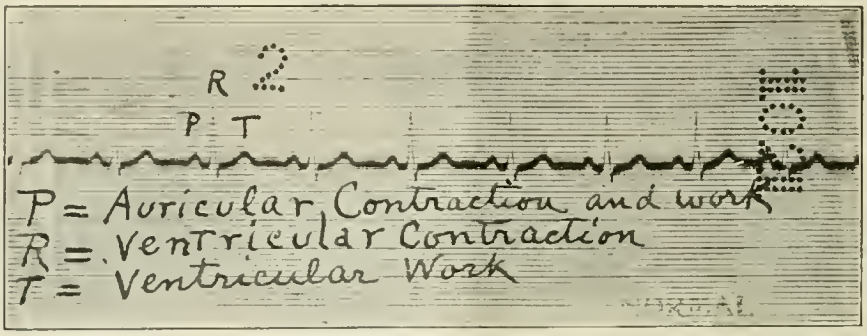


Fig. 2.—A normal electrocardiogram with a simple explanation of the three most important waves.

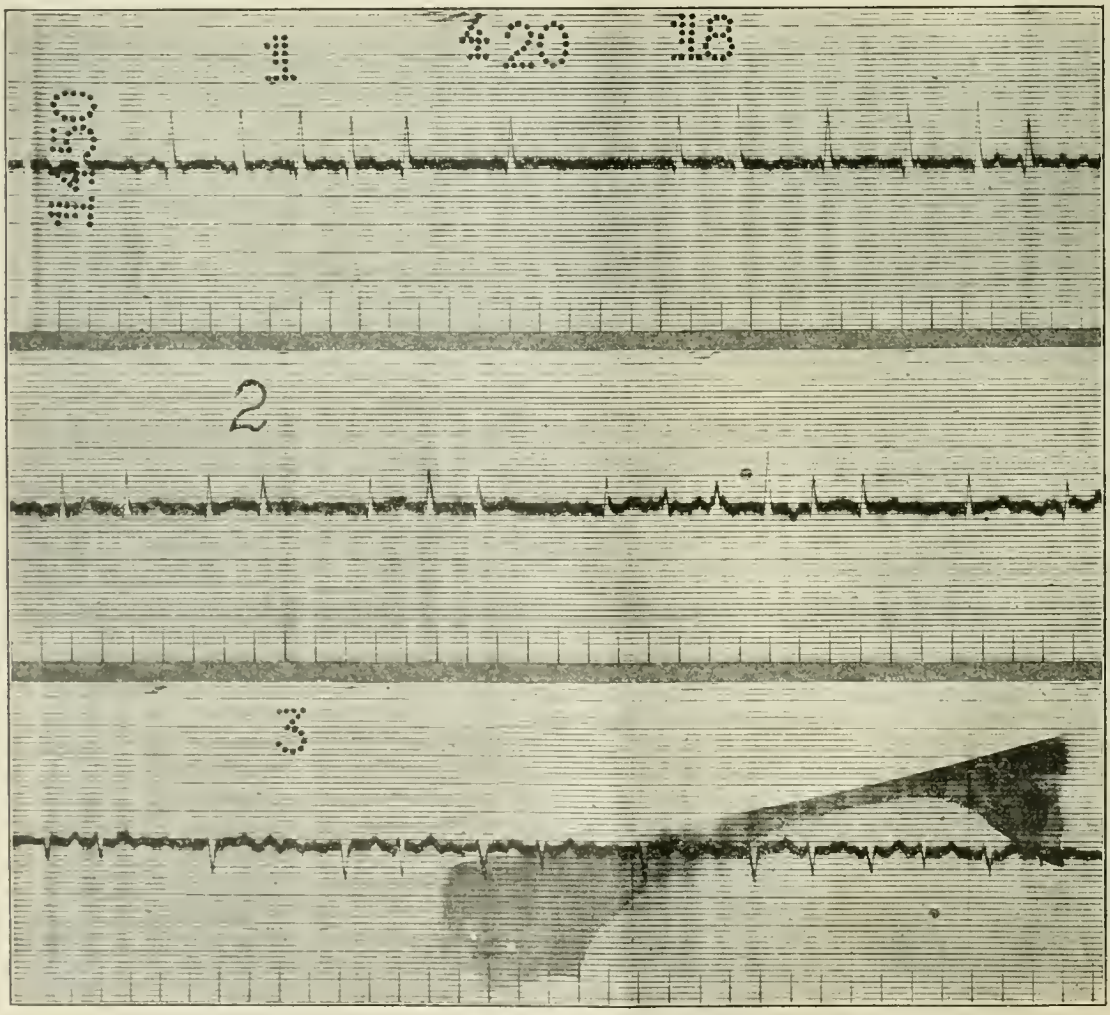


Fig. 3.—Electrocardiogram in a case of auricular fibrillation.

The same general facts remain true as to the modern examination of the heart patients by newer methods. When all is said and done, the conclusion must still rest upon the interpretation of the trained practitioner of the tracings, *x*-ray picture, and laboratory findings, as checked up by a knowledge of the patient himself.

The more findings we have the more correct is our judgment, because it is always possible that some fact may entirely modify the conclusion. The absurdity of drawing conclusions from a single laboratory fact can be no better shown than by something that happened to me some years ago.

At that time I owned and controlled a large clinical laboratory. A man had come to me with very serious heart and kidney trouble and I had sent a specimen to the laboratory. I put the man on a strict regimen and a few days later he sent another specimen. My assistant wishing to have an afternoon and evening off, had gone back to the laboratory later at night to complete the examination of the specimen. At midnight I was aroused by the telephone and my assistant said, "You had better look up your patient right away, because there has been a great diminution of urea in his urine." I thanked my assistant for his conscientiousness in notifying me immediately and turned over and went to sleep. The facts of the case were that I had temporarily stopped the nitrogen intake of my patient and, of course, there was a corresponding diminution of nitrogen output. The point is that no single technical finding is a safe guide to a conclusion, except in so far as it is interpreted in the light of attending circumstances.

With regard to electrocardiography and the interpretation of *x*-ray outlines of the heart, it is too much to expect that the profession shall master the difficult and intricate technicality of the subject. What the profession can and should do, is to study enough examples of this kind of work so that they can judge in a general way of the meaning of these pictures.

Education can come only through repetition and the profession should be taught this matter in a practical way, which is possible, rather than in a purely technical way that is impossible. I have heard within a day or two of an Englishman who claims to teach men to fly in airplanes in five days. I know, as a matter of fact, that some teachers can teach the practical use of a language in a short time and also the art of dancing.

These examinations make work with heart patients so much more definite, easy and interesting that any one who has had the opportunity of following patients with series of fluoroscopic and *x*-ray pictures and series of electrocardiograph tracings would hardly be willing to do without them. I have been using them as a routine measure with

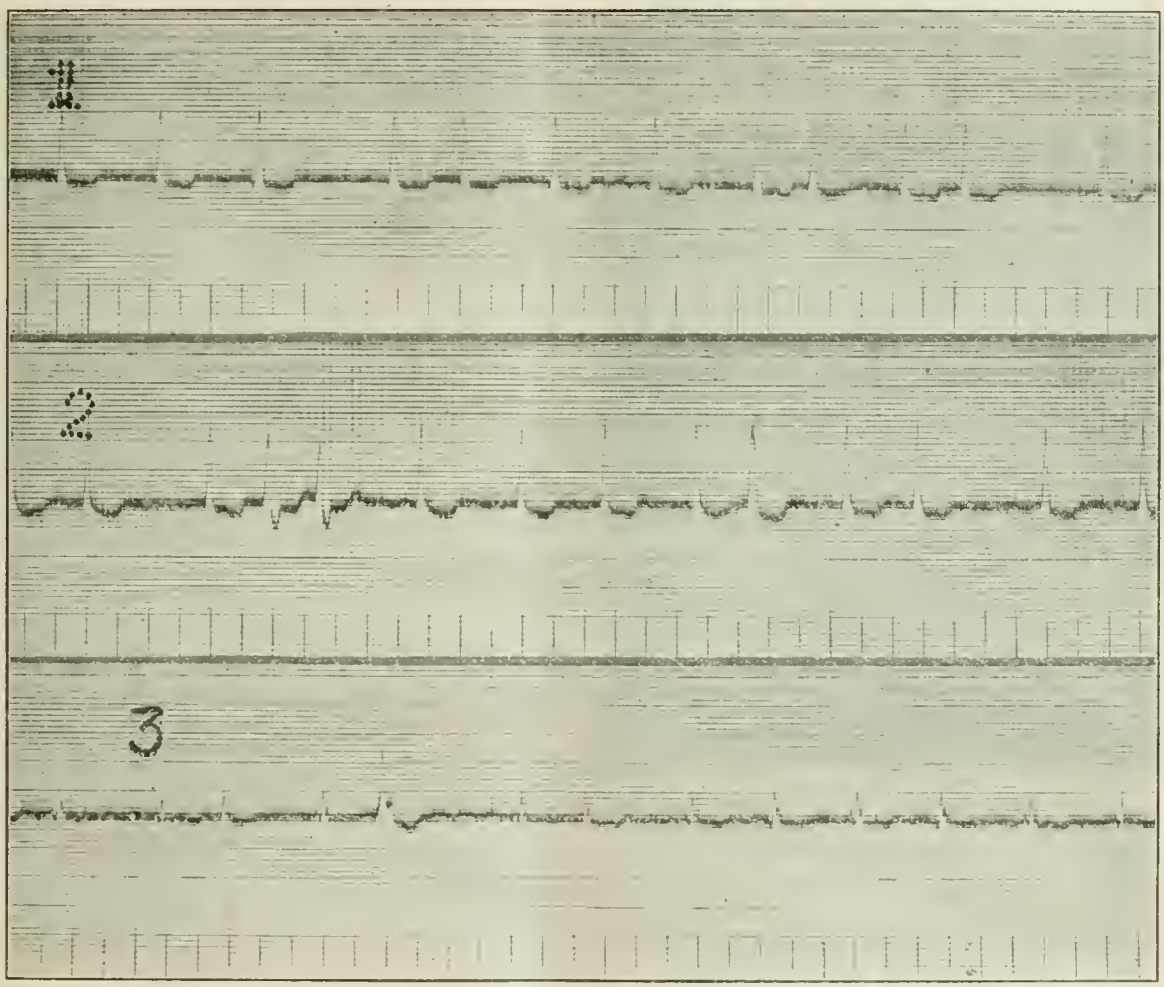


FIG. 4.—Electrocardiogram of a benign type of auricular fibrillation of many years' duration.

every heart coming under my attention and in this way have accumulated a vast quantity of findings. Every heart has an individuality of its own and every electrocardiograph is just as individual as a man's face or his signature or handwriting. If a patient comes back after a long period he can be identified by his electrocardiograph just as he could by his finger prints. As in the contraction of any other muscle, the heart muscle when it contracts becomes positive at one end and negative at the other end and thus produces an electric current, and while it is not practical to connect a wire to each muscle to demonstrate this, such a test is not necessary. The principle is similar to that of the duplex telegraph, which can carry ten messages over one wire and distribute each to the proper distributing station. In a similar way the different currents run through the heart and there is no difficulty in identifying them because they happen

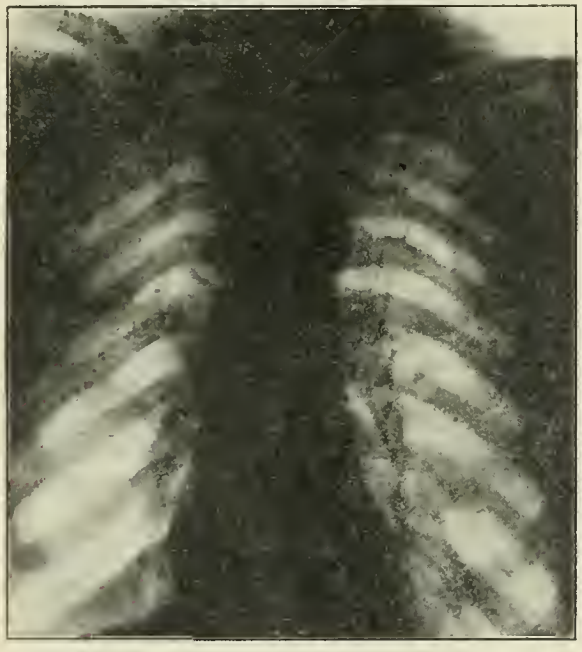


FIG. 5.—*X*-ray picture in a case of infantile heart

at different times and have certain definite characteristics.

Another interesting point that is one of the developments of the war is a substitute for the glass plates used in making radiographs. As the *x*-ray work begins directly at the front and it is inconvenient to carry glass, the Eastman Kodak Company has developed these films which are being shown here and which we are using instead of glass. They are light in weight, take up less space and are much less expensive than glass.

What I want to do this afternoon is to try to present the subject of the technical examination of the heart with regard to its influence on treatment, in such a way that I may impart something of practical value. There are a few things that must be committed to memory. You should learn the names of the seven varieties of disorders of the heart beat, as these have become the standard by which we work toward the closer classification of irregular hearts.

These are sinus arrhythmia, heart block, premature contraction, simple paroxysmal tachycardia, auricular flutter, auricular fibrillation, and alternation of the heart.

1. *Sinus arrhythmia* is chiefly important because it is not of serious import and occurs as a physiological phenomenon in young children. It can be reproduced at any time in comparatively young people by taking a long breath. It consists of a difference in the length of the interval between the beats. When exaggerated in children, it has sometimes led to the suspicion of myocarditis and the children have been treated as invalids when they should have been playing out of doors. That can no longer happen under the advice of those who understand the use and interpretation of the polygraph.

2. *Heart Block.*—The impulse of the heart ordinarily begins in the auricle and is transmitted later to the ventricle, so we have the auricle and ventricle contracting in rhythmic succession. If disease destroys the muscular contiguity or conductivity, we have the auricle and ventricle out of relation to each other. This has received the name of heart block, and is beautifully shown by the electrocardiograph and it is due to this instrument that our knowledge of this condition exists.

3. *Premature Contraction.*—In many people suffering from disturbed metabolism we find the heart apparently missing an occasional beat. The fact is, however, that the heart is not as a rule missing a beat, but the beat is occurring prematurely and may pass unnoticed, while the succeeding beat is very large and emphasizes the length of the quiet interval. This is called premature contraction. It is a condition that sometimes worries people but which is not of much account. It is caused by a contraction of the ventricle when there is no blood in it, so that there results a wide excursion of the muscle which is not represented by any wave in the circulation. Fig. 1 is an electrocardiogram of a very curious case in which every other beat is a premature contraction. The patient had a pulse of 40 as a consequence, while in reality the heart beat was 80.

I am showing you about 100 examples of the *x*-ray and electrocardiograph findings to make them familiar, but only a few can be reproduced in the transactions.

Sometimes in very sick people the heart is "all in" because of the condition of the muscles and we get a defect in one lead, but when we find a defect in more than one lead there is a serious defect in the heart muscle, a true myocarditis.

4. *Paroxysmal Tachycardia.*—When for any reason the heart abruptly becomes very rapid for a period and suddenly ceases to be rapid, we say that the person is suffering from paroxysmal tachycardia. This has been a most difficult field of investigation and is still the ground of many disputed points. However, our instruments have disproved many previously held beliefs and pointed out not a few new facts.

5. *Auricular Flutter.*—One of the most recently recognized conditions is the extremely rapid though regular auricle, usually 250 to 300 per minute. It is always revealed by the electrocardiograph and occasionally by the polygraph.

In auricular flutter the heart may beat 300 a

minute with perfect regularity. Sometimes in these cases the ventricle is regular and sometimes it is not. Many people do not know the significance of a normal electrocardiogram. I do not want anyone to go away without being able to recognize a normal electrocardiograph. This is shown in Fig. 2.

There are five waves, the P, Q, R, S, T. The P wave represents the auricular contraction; the R, the ventricular contraction; and the T, the ventricular squeeze. The auricle contracts gently and pushes the blood into the ventricle. The high point represents the contraction of the ventricle. When the heart at first contracts on the blood it does not move the blood but generates a sharp current and following this the further contraction of the ventricle squeezes the blood out and that represents the T wave.

6. *Auricular Fibrillation.*—The knowledge of auricular fibrillation is one of the most important contributions of clinical medicine that has come from the student of pathological physiology. In this condition, there is a trembling palsy of the auricle, which transmits a vast number of impulses to the ventricle and the ventricle becomes very rapid and irregular. Auricular fibrillation is the disease that yields most strikingly to the therapeutic action of digitalis.

Fig. 3 is a drawing from the case of a Brooklyn clergyman who had fibrillation of the auricle. After rest and appropriate treatment the tracing has become practically normal.

Fig. 4 shows a type of fibrillation which is quite benign. It is from a man who is the head of the accounting department in a large factory. At times he has discomfort and then he takes a little digitalis. Taking a little digitalis from time to time controls his fibrillation.

Alternation of the heart can be detected in many instances only by the polygraph. It is of extreme importance because it is a striking evidence of failure of the heart muscle. It consists of an alternation in the size of the beats.

It is sometimes said that the complete examination of the heart is superfluous in so far as it does not lead to treatment. There was formerly some truth in this impression, particularly with regard to heart troubles, because heart work in the past has always been done by men who are essentially diagnosticians, while therapeutics of heart disease was left in the main to men who were essentially practitioners.

The crude diagnosis of disorders of the heart has often led to the placing of all marked irregularity in the general category of myocarditis. This has led to the logical conclusion that because the muscles were the seat of inflammation they must be rested and subjected to as little drug treatment as possible.

The complete examination by modern methods, divides the irregular hearts into certain groups, each one of which requires a different form of management and presents a different problem. The important point is that the heart is not involved as a whole but is disordered in regard to some particular structure which constitutes but a small part of the whole bulk of the heart.

A better understanding of the irregular heart has led to much more confidence in the outcome of heart diseases.

Considering the whole group of valvular disorders, the most important method of examining is found in the *x*-ray. The *x*-ray picture taken at six feet, with the plate near the body, gives a true outline of the heart and the fluoroscope inspection of the heart gives a good idea of the activity of the various chambers. This is far superior to information obtained by auscultation and percussion. It is known to most practitioners that cardiac hypertrophy is beneficent and the only enlargement of the heart this should be a source of anxiety is that due to dilatation.

In radiography of the chest the heart and large vessels appear as a flash-shaped shadow. When observing them through the fluoroscope, the heart is seen to pulsate. The right portion, represented by the curved outline to the right, resting on the diaphragm, undergoes a slight presystolic pulsation, while the upper right border shows a slight systolic enlargement. The lower left border shows a systolic decrease in size, while the upper border shows systolic enlargement.

In the outline of the heart we should recognize two distinct curves on the right and three on the left. The upper right curve bounds the aorta, while the lower encircles the right auricle. The upper left part also marks the boundary of the aorta. The second, the pulmonary artery, while the lower represents the left ventricle. The right ventricle is concealed by the shadow of the diaphragm.

When the heart is drawn with the orthocardiograph these curves are distinctly indicated. It is quite easy, however, in a good *x*-ray picture to distinguish them.

The relative size of these curves gives valuable information as to the condition of the heart and they are so characteristic that in many instances it is possible to tell the nature of the valvular lesion by observing the heart through the fluoroscope.

The important element of this method of examination is that these pictures constitute a permanent record.

Fig. 5 is an *x*-ray plate presenting a type of individual who has been giving all kinds of trouble to the draft boards. He has a systolic murmur on the left upper side and no history of heart disease except that he is not very good in athletics and is a little short of breath on exertion. When he goes before the draft board all kinds of different diagnoses are made and an *x*-ray picture is finally taken and we find a heart like that in the illustration. The heart is situated almost in the middle of the chest and the electrocardiogram shows a relative right-sided predominance. This is an infantile type of heart.

When a child is born the heart, like that of a fish, is centrally located and the right and left sides are about equal in size. The left side gradually develops until we get the difference between them observed in the normal adult heart. Hence we may regard this as an infantile type of heart due to lack of development. Some of these hearts are perfectly good and capable of doing military service, and the only way in which to determine this is to find out what they can actually do.

109 East Sixty-first Street.

ETIOLOGY AND MECHANISM OF THE "PRISON PSYCHOSES."

AN OPINION AND SOME CASE STUDIES.

By LEON EMILE DUVAL M.D.,

WASHINGTON, D. C.

ASSISTANT PHYSICIAN, ST. ELIZABETH'S HOSPITAL.

FOREWORD.—In present-day medical literature one finds among many writers a tendency to offer as original material, a review or rehash of the opinions of other writers and to incorporate into their articles long extracts from the works of others. The reader who endeavors to keep in touch with the latest developments in medicine finds himself reading many pages to gain a single new or original idea. He finds that much of the subject-matter is that which he has read elsewhere, once or perhaps many times. With this thought in mind, the writer of the present article is giving brief space to the opinions of others, merely sketching the chief trends of thought which have prevailed, on order that any new ideas introduced may be compared and contrasted the more carefully.

The subject under consideration has not been as fully studied as many of its kindred subjects, so that the writer feels justified in considering it from a somewhat different standpoint than has been previously done. He does not claim to be the first to have considered it from this stand-point, but has failed to see it expressed in the literature, and hopes that it may perhaps bring him in touch with those who uphold or oppose his views, in order that he may see it through eyes other than his own.

The criticism may be (rather justly) made, that the writer has offered only a limited number of case studies in support of his views. His excuse lies in the fact that among scores of the criminal insane in this institution, less than a score of the psychoses encountered might be classified as "prison psychoses," and that among this number, but few have been intelligent and accessible enough to permit their study from the angle from which the following cases are presented.

While not a fanatic, the writer is an enthusiastic believer in the principles laid down by the psychoanalytic school. His belief in these principles is based upon the fact that an unbiased observation of mental cases, as well as of normal individual, constantly confirms these principles. It is entirely possible, of course, to carry them to extremes, but this does not obviate their usefulness. Only a confirmed pessimist can deny the excellent practical results observed in many cases treated by psychoanalysis. Those who oppose this method of treatment do so, in many cases, because of the complexes present in their own psychic makeup. The usefulness of psychoanalysis consists not alone in the therapeutic possibilities it presents, but fully as much in the insight it gives us into normal and pathological psychological states. Not every physician can be a psychoanalyst, but every one can make use of it in his practice, and be richly repaid by the deeper understanding it will give him into his cases, no matter for what reason they may have come to him.

Prominent among modern psychiatric trends is a growing tendency to study mental cases from the point of view of the individual, his peculiar possibilities and limitations. It is beginning to be comprehended that to make a diagnosis and to consign the case to some special group is not sufficient. We can not index or classify an individual case as we might a museum specimen. It is not to be denied that many mental cases correspond nicely to text-book descriptions of this or that disease-syndrome, and we are able, from these descriptions, to gain fairly correct impressions as to mechanism, prognosis, etc. Even in these "text-book" cases, however, we find wide individual variations which can not be explained by any hypothesis which can be applied to the group as a whole. These variations are explainable only as we study the individual, his particular difficulty, and his ability to readjust and form compensations. In every personality the psyche presents a content which varies from that of every other in its make-up, because of the mixture of factors peculiar to the individual, created by his life-surroundings, his various experiences, the content of his phantasy-life, with all of the many other influences which have been brought to bear upon him, and have molded his psychic life from birth. With such variation, we can not apply to any given case a lot of text-book generalities, and expect the case to follow a beaten pychic track.

In the study of mental cases we must, of course, have definite ideas about the various disease-syndromes, else we are unable to appreciate the mechanism of the individual case. But one must not allow himself to become biased by text-book ideas, or to think only in terms of this or that combination of symptoms. One must consider the individual and his problem first, and be content to let diagnoses and classifications be minor considerations. In institutional work, and for purposes of classification, it is of course necessary to apply recognized diagnoses to our cases. In justice to the individual, however, we must not think of him as suffering from dementia præcox or psychoneurosis. We must think of the case in the light of the individual's peculiar difficulties, and the manner in which we may aid him in solving them. I have obtained my best results by studying cases from the psychoanalytic standpoint, considering all of the factors and forces which have surrounded the individual, and exerted their influence on his mental life. My insight into the psychic mechanisms involved has been aided materially by the study of the works of Freud, Brill, Jones, Pfister, White, and Jelliffe.

With these considerations in mind, I wish to study the group of cases to which the term "Prison Psychosis" has been applied. As commonly understood, this term is applied to cases in which the cause of the mental upset was confinement in prison, and in which, as I understand it, no other etiological factors were present. I propose to show that in these cases other elements than the prison milieu are present, and that without these elements there would be no psychosis.

To the normal individual, prison life, with its strict discipline, unpleasant, unsympathetic environment, affords a situation which is hardly calculated to bring out the best that is in him; rather it tends to bring out his poorer traits. And the average prisoner is hardly normal, especially the

recidivist. It is no secret that the conditions in some of our prisons are far from what they should be. Such punitive measures as solitary confinement, dark cells, restricted diet, hand-cuffing to the cell door, to say nothing of rules which prevent conversation, smack of barbarism. The writer has had no experience in prison work, nor any first-hand knowledge of prison conditions, but he does know that all of the above-named measures are in use in this country at this time. In the conduct records of patients sent to the criminal wards of this institution, these punishments are enumerated time and again. I am not criticising prison methods, for I do not know the conditions under which prison officials work. I quote these things merely to show the kind of stresses to which prisoners are subjected. It is hardly to be wondered at that an individual of poor mental stability should break down under these conditions.

Among prison populations we find a large proportion of individuals of defective make-up, constitutional inferiors, and psychopaths, to say nothing of the morons and imbeciles. The prison milieu, like any other uncomfortable situation, tends to produce psychoses of one kind or another in these individuals. They are especially prone to brief episodes which are manic-depressive or dementia præcox-like in character, which clear up rapidly when the individual is removed from prison. But we find these same episodes in these individuals in many other situations; a common example is seen in recently enlisted soldiers and sailors. Army or Navy life, like that of prison, calls for strict discipline, unvarying routine, and the inability to escape it when it becomes tiresome. Another attribute of these situations is the homosexual environment. The individual with homosexual tendencies, or of homosexual make-up is laid under heavy stress, repression becomes more difficult and the possibilities of compensation are lessened. My reason for laying emphasis on this particular condition will be made apparent later on.

Prison life, therefore, subjects an individual to manifold stresses, loss of liberty, strict discipline, and homosexual environment. But as Dr. Bowers points out, hundreds of men suffer prison life and its burdens without developing mental disease, and he believes that the development of a psychosis in the prison milieu is indicative of "defective mental substrata, if not of actual mental disorder," and it seems only reasonable to suppose that there must be some other factor than the prison milieu alone. This is also true of other situations which are often called the exciting factors of psychogenetic disorders. Loss of a loved one, financial ruin, and the like are suffered by many, but few fail to react to them properly. Those who do break down in these situations are of defective stability, and are apt to fail to meet any serious problem successfully. I contend that any individual who breaks down as the result of prison confinement would fail to meet any strong mental stress, and would show the same tendency to seek flight in a psychosis. The individual may have successfully weathered all storms heretofore, but should he meet a sufficiently severe situation, one to which he could find no comfortable adaptation, the result would be refuge in a regression of the affects, as manifested by the same types of psychosis seen in the group under discussion. No normal individual will develop a psychosis as a result of prison environment. I feel safe in asserting that a psychosis developed in confinement, or for that matter any psychosis precipitated by such affective injuries as financial ruin, death of the mother, etc., indicates that there is present in the individual an internal conflict, hitherto successfully repressed, but brought to a climax by the added shock. The conflict is not always apparent, but it is nevertheless present, and can be demonstrated if the case is studied from the psychoanalytic point of view. I willingly admit that the prison milieu adds color to the psychosis, particularly a paranoid trend. The criminal is apt to regard himself as a martyr, and prison officials as hired bullies, and it is but an easy and natural step from this attitude to paranoid misinterpretations and delusion formation.

But even we who call ourselves normal are apt to project our difficulties upon our environment, or upon those about us, in lieu of acknowledging our own faultiness. So in a critical condition like imprisonment, it is but natural that the individual should interpret his misfortunes as the result of the malfeasance of others, rather than that of his own misdeeds.

To repeat, the fact that prison environment is able to produce a psychosis in an individual, indicates to my mind that he is of such a psychic make-up that any severe stress which affects his personal interests will produce regressive changes, a flight from reality manifested by some type of psychosis.

In discussing the place of the environment as an etiological factor in psychogenetic disorders, Pfister says, "In mental equilibrium, in suitable utilizatio nof the instincts and erotic demands, it should be noticed again that no external calamity, no stress of life conditions can bring about a serious repression." In another place he says, "The external calamity is a provocative agent, the light pressure on the button which shatters a mighty mass of rock." Again, "The external world only causes a repression where there was already present beforehand a strong internal tension—in this collision with reality we are dealing at bottom with an internal conflict." "Many maladies are nothing else than flight from a severe ethical conflict, many others represent expiations for past shortcomings, or counter-reactions to a burning feeling of shame." These opinions were expressed concerning the psychoneuroses in particular, but I believe that they are equally applicable to all psychogenetic disorders, especially the types known as situation-psychoses. That is to say, these psychoses represent flights from reality, escapes from painful situations and personal conflicts; they result from unsuccessful attempts at repression, in which the environment —in this instance the prison milieu—serves as a plausible excuse to the outer consciousness of the individual for giving up the attempt at repression or compensation. *The environment serves as a convenient medium through which to permit an easier transition from contact with reality and its unhappiness to a state in which this contact is severed, or at least obliterated sufficiently to permit escape from such conditions of reality as serve to remind the individual of his conflict.*

In the "prison psychosis" we are dealing with individuals who have had for longer or shorter periods the same types of internal conflict as Pfister describes as being at the base of the psychoneuroses. In these cases repression has been possible so long as the individual was free, so long as he was not subjected to too strong pressure from his environment.

Then there was added to the internal tension an extra demand upon his abilities an increased weight upon the already-present burden. Unable to react to this combination of factors, unwilling to face reality with its ever-present pain, there remains but one comfortable solution, flight or regression. The individual may project his difficulties upon those in his environment, with resulting persecutory ideas, he may seek lower psychological levels, or he may manifest his flight in other ways—but essentially, the symptoms he displays amount to a detachment from the discomforts represented by reality, and a seeking of comfort in a situation created for his relief.

As to the types of conflicts which underlie the psychosis, it is hardly necessary to go into details. As I have encountered them, they deal with the psychosexual life to a great extent. Unsuccessful efforts to reach the heterosexual level might be given as the essential expression of the nucleus of the trouble. In not a few cases a tendency to sexual perversion is present, frankly expressed, and the effort to subdue the tendency, or an expiation for the sinfulness of the desires is manifested in the internal conflict. The homosexual is very common among those who show this psychosis, and as noted above, the prison milieu brings to bear a very decided pressure upon these individuals. Among the prisoners are usually some frank homosexuals, and our patients may be approched by them. It is easy to imagine the effect that a homosexual approach has upon an individual who is struggling to repress these tendencies. In a case not quoted here, just such an occurrence helped to precipitate a psychosis in a boy who was struggling desperately against homosexual desires, and who had even withstood actual homosexual assault before being imprisoned.

When these individuals break down, they are usually removed to a psychiatric ward or insane hospital. The change of environment removes the factors which precipitated the psychosis, and the new environment in itself is beneficial. Provided that the individual has a certain amount of stability, he is able to readjust and form some sort of compensation. With the precipitating factor removed, there is no longer need for flight, which accounts for the sudden recoveries seen in these cases.

As I have previously said, the prison environment acts as the precipitating factor, and helps to color the psychosis. It adds the necessary weight to throw the delicately balanced psychic situation over onto the side of mental upset. But in these same individuals, any other equally strong affective injury would have the same effect. It is not the prison milieu alone which can produce the psychosis. Therefore, why should we continue to speak of "prison psychosis," as though it were due solely to the prison situation. If we must attach a name to the psychosis, let it be one which will indicate the personal factor as well as the environmental one. I have no suggestion as to what this name may be, for I do not care to add to the classifications with which psychiatry is already overburdened. My purpose is simply to call attention to the individual factors in these cases, to the part played by the patient's personal difficulties.

Having stated my own opinion in the matter, let me briefly state the opinions held by others. Dr. Bernard Glueck, in an article entitled "A Study of Psychogenesis in the Psychoses," concludes that there is a distinct type of psychosis due to the shock of arrest, trial, or imprisonment, which he designates as a defense reaction. He says that degenerative soil is not necessarily indicated by the development of this psychosis. He also concludes that the psychosis can not be classified as an attempt at malingering, and shows points of distinction between this psychosis and others which present similar phenomena.

In another article, Glueck asserts that the prison milieu is the etiological factor in these cases, and that "degenerative soil" is not a basic disorder, because of absence of progression of the psychosis to a definite end-result.

Bowers says, "The episodic psychotic symptoms which are exhibited in prison are but the kaleidoscopic picture of the criminal constitutionality which has been their heritage, or which they have acquired by evil environments, vicious habits, or low ideals during the formative period of the mind; the mental symptoms are merely evidence of underlying grave psychophysical pathology." While Bowers seems to have sensed the esential basis of this disorder, he has not stated his conception clearly, and seems to have based his conclusions on insecure theories and generalizations, rather than on practical grounds. For example, he states, "Recovery from mental disease among criminals is quite rare because their mental disorders develop on fertile and degenerative soil." This statement is not borne out by my own observations in the criminal department of St. Elizabeth's Hospital, nor by the observations of some of my associates who have had more experience than myself. I have seen recoveries among both recidivists, and those who were "criminals by chance" (the so-called "criminals as the result of passion"). It is rather a frequent occurrence in this institution to return to prison criminals who have recovered from mental disease, both of the episodic type, and of the more prolonged and characteristic types.

W. W. Richardson ends an article, "Imprisonment Psychoses," with the following conclusions:

1. The symptom-complex under discussion can not be regarded as a disease entity.

2. It develops most often in the adolescent or young criminal.

3. While it may complicate other psychoses, it very often occurs on a markedly defective basis, which in some cases amounts to imbecility.

4. It is not infrequently associated with evidences of an attempt at simulation.

5. While related to hysteria in nature, it can hardly be regarded as an hysterical psychosis, though of psychogenetic origin.

6. Great apprehensiveness, with partial stupor,

hallucinations of sight and hearing, and often mutism, are the most frequent symptoms. The rapid disappearance upon transference to a hospital for the insane is rapid and striking.

I agree with these conclusions in the main, but doubt that simulation plays a part as often as Richardson seems to think. Of course, simulation is often seen among prisoners, and even in this type of psychosis there is sometimes the added element of malingering, nevertheless in most cases where simulation is present, there will be found evidences of defective mental makeup.

Perhaps the most important recent contribution is that of Nitsche and Willmanns. After a thorough review of the history of the prison psychosis, considering them through three distinct periods, beginning with the first observations of Delbruck and Gutsch and their coworkers, through the period when they were studied in the light of Kraepelin's views, they discuss the Magnan-Moebius ideas of degeneracy, with their theories of predisposition, degenerative states and the like, with the views of Birnbaum, Willmanns, and others. In conclusion, they state that they believe "in suitably organized personalities, acute and chronic psychoses can develop, which may be placed alongside of those developing in free life in persons under the influence of strongly affective experiences. The peculiar symptomatology of these psychoses justifies us in considering them as special types, well differentiated from those developing in free life. A more exact knowledge of these psychoses would also permit gradually a greater accuracy in the limitation of smilar symptom-complexes which we frequently see as introductory phases of the juvenile demential processes."

Thus the better known authorities, such as Glueck and Willmanns, are inclined to believe that there is a definite symptom-complex, due to prison environment alone; one, however, states that it develops only in "suitably organized personalities," that is, with degenerative soil, while the other states that the development of such a psychosis does not necessarily indicate a defective soil.

I will not quote other authorities—in fact, the writings on this subject are chiefly confined to the Germans, and the German authorities are thoroughly reviewed in the work of Nitsche and Willmanns just mentioned. The conclusions reached by these writers seem to be those most generally agreed upon by the German writers.

I have stated my own opinion in the matter, and have briefly reviewed the opinions of others. I will now proceed to illustrate my opinion by five cases which have come under my observation. With the exception of the first case, all were admitted within a year and a half, and consist of two life-term prisoners, both murderers, a recidivist serving his second ten-year sentence, a five-year Army case who has returned to prison, and a sexual pervert, not a prisoner, but held here to protect the public on account of being considered a public menace. In one the psychosis has persisted, in two it cleared up before reaching the hospital, in another there is but a trace of the psychosis, and the last has been under observation only a few weeks.

The symptomatology involved is variable, but corresponds to the types of disease syndromes which has been described by various writers as belonging to the prison psychoses. Of just what this syndrome consists depends upon which authority one is to believe, as there is some variation in the descriptions given by different writers. However, this is unimportant so far as it concerns the present article. I have selected cases in which the most apparent cause of the mental upset was prison confinement, and attempted to discover some deeper underlying cause. The cases are treated from the psychoanalytic standpoint, though none of them have been psychoanalyzed. Perhaps I may be criticized as having apparently jumped at conclusions in my interpretations, but I believe that I have been justified in them, and have no apologies to make.

Case I.—M. C., a colored man, thirty years of age, a barber, having a public school education, was sent here from Leavenworth Penitentiary, where he was serving a life sentence for murder, having stabbed a colored man at a picnic. He was sent here because ot erratic conduct, delusions of grandeur and bizarre ideas. On admission he was orderly, polite, talked freely, but was slightly retarded in speech and actions. In giving his life story he freely interpolated his delusional ideas. Prominent among his delusions was the idea that he was a white man, but had been painted black by his father in a scheme to recover a large sum of money which he owned, but did not have in his possession. Auditory hallucinations were present, the voices making "sissy remarks" and cracking jokes. By "sissy remarks" he meant references to homosexual acts. Later the patient said that his victim was not dead, merely shamming, so that he was not guilty of a crime. There were many other bizarre ideas, which need not be described here. He was in poor contact with reality and talked in a vague, rambling manner. At first he was somewhat depressed, and showed some mannerisms. His dreams related to his delusional ideas. He was poorly oriented for time, was somewhat distractible, but performed the intelligence tests well.

During the years that followed his admission he has conducted himself well, has been an efficient worker, and of late has done some clever woodcarving with a penknife and piece of broken glass. He remains quite delusional. While many of his delusions are changeable, he has consistently retained the idea that he is a white man of wealth, educated, and a big contractor. He often implores the physicians to have the paint removed, that he may show that he is a white man, and obtain his freedom and money.

Superficially he makes a very good appearance. He is in fair touch with reality, in so far as it does not conflict with his comfort—before this contact reaches the painful point, his phantasies interfere. He has auditory hallucinations, and persecutory delusions, to which he does not react. In his first years he wrote many letters to prominent officials about his case, but of late has given this up and turned his attention to woodcarving and other constructive work.

Here we have a psychosis which developed in prison, when the patient had before him the prospect of a life sentence. He developed a mechanism (or psychic situation) in which he is a white man of wealth and position, innocent of the crime because his victim still lived. This he elaborated somewhat, so that he is always expecting to secure his release and enjoy the comforts of which he has been deprived of by the persecutions of others. The whole constitutes a situation which is bearable because it lifts him out of the realm of cold reality. This would seem, at first sight, a sufficiently complete explanation.

But let us inquire further into this case, studying it from the psychosexual side. The reader will ask, "Where can there be any connection be-

tween the man's sexual life and a psychosis developed in prison?" In answer, I present the result of further study of the case. The patient is frank and accessible for the most part, but had to overcome considerable resistance in speaking of his sexual life. Even then he could not bring himself to discuss the details. He has a tendency to incorporate into his account of his life some of his delusional ideas, and is slightly deteriorated.

I will omit the detailed study of his sexual life, and summarize the findings as they appeared at the end of the study. The man had passed through the usual period of onanism, and his psychosexual development had ceased at the homosexual level. On a few occasions he had participated in homosexual acts, but he was one of the better class of his race, and his moral scruples would not allow him to continue these practices. As is the case in so many other homosexual conflicts, he compensated in part for the suppression of his abnormal desires by the use of alcohol. Heterosexual congress, on the few occasions practised, was quite unsatisfactory, and he was at times heterosexually impotent.

Here, then, we have a different picture—a youth striving unsuccessfully to adjust his psychosexual life; having reached the homosexual level and being unable to attain the heterosexual level. While so struggling, he met a woman, who later turned out to be the wife of a friend. He carried on an affair with her for a short time, and then, discovering her identity, broke off the affair because of the loyalty to his friend. He had perhaps begun to make a successful heterosexual adjustment, with this woman as the instrument, when his desire for her conflicted with the conventional idea "Thou shalt not covet thy neighbor's wife." In this state of mind, he attended the picnic, and the husband's jealousy led to a fight. We do not know the details, but it is quite safe to assume that the fight was the world-old struggle for the possession of the sexual object—a primitive conflict in which the victor took the woman as his own by right of conquest.

Unfortunately for our patient, our modern laws do not recognize the right to kill one's rival in love, and said that he must spend the rest of his life behind prison bars. Prison life, with its homosexual environment, meant the renewal of the inner conflict—brought to bear added pressure against his effort to repress his homosexual desires. Combining this conflict with the prospect of life imprisonment. and the result was an exceedingly painful situation.

Another feature of his delusions as developed in the resulting psychosis, was the idea that he was persecuted by the attentions of homosexuals because he would not submit to their desires. This is a typical defense mechanism of the homosexual individual, and always denotes a reaction to a homosexual conflict.

The situation outlined above could only be met comfortably by the construction of a mechanism which would free him from the guilt of his crime, and make him a superior type of man. So the series of ideas given above were developed, and as the years passed, and he had no prospect of freedom, or of release from homosexual environments (for the institutional milieu is also homosexual), these ideas became a part of his personality. Retrospective falsification of memory has helped to fix the convictions of these things more firmly in the content of consciousness. For example, he states that he remembers being a white man until he was 39 years old, that he was a contractor and an influential man. Then it became necessary, on account of the persecutions of homosexuals, who would permit him no freedom, no intercourse with women, etc., to disguise himself as a negro, and spend a certain number of years in prison to escape them.

With such a mechanism he continues to live in a comfortable atmosphere, one from which is excluded everything which is painful; taking to himself that which is satisfying, excluding that which calls for painful adjustment. He maintains a partial connection with reality, enough to admit all comfortable stimuli, but not those which would mean discomfort. The flight, however, is not only from the prison situation, but fully as much from the homosexual conflict, the effort to adjust the psychosexual conflict. As such, the mechanism is typical of inversion. We do not know anything about the patient's mental state previous to arrest and imprisonment, but he at least had adjusted well enough so that there was no suspicion of mental trouble until after he was imprisoned. Apparently he had been able to make some kind of compensation, but with imprisonment, the possibility of compensation was lost, there was no comfortable outlet for the libido. Therefore he took flight into a phantasy world, where, with himself as the central figure of his little universe, he is able to lead a comfortable existence.

To those opposed to Freud's theories, the explanation that the patient's psychosis was a defense mechanism against the uncomfortable prison milieu is all-sufficient. To those who can look deeper into the case, the underlying factor is the man's desperate struggle for adjustment of his psychosexual life, a struggle in which he might have been the victor, had there not been added to his burdens the extra and heavy factor of life-imprisonment, and the constant homosexual environment. The prison milieu was the *precipitating* factor, but the internal conflict was the basic one, and I am unable to understand why we should call this a "prison-psychosis," and neglect the individual factors in the case.

Case II.—J. P., a white man of thirty-five, began life under serious handicaps. The youngest child of a large family in poor circumstances, his childhood was darkened by the influence of a drunken, brutal father, who forced upon the boy at a tender age the use of alcohol and tobacco. The father was in the habit of getting the boy drunk in order to be amused by his actions when in this condition. He beat and abused the boy and his mother, as well as the other children. Many times the boy was forced to leave home and live with a married sister. His school life was irregular, as he ran wild with a gang and was a frequent truant. He practised onanism in early boyhood and has never freed himself from the habit. At fifteen his brother's wife, a woman of loose morals, seduced him, and he was intimate with her for several years. He despised her and at the same time fell in love with her daughter, whom he could not, of course marry, as she was his niece. She exercised a considerable influence upon his life. At twenty-two, feeling the hopelessnss of his love for her, he attempted, while drunk, to kill her and commit suicide. She recovered, and he served

about seven years of a ten-year sentence. After his release he traveled about, working at odd jobs, but within six months was again arrested when he tried to hold up a restaurant keeper, and received a second ten-year sentence, which he is now serving.

About three years after beginning the second sentence, he began to show marked depression, was pantophobic, had delusions of persecution, auditory hallucinations, and attempted suicide. He had given information which prevented the escape of a number of prisoners, and heard the other prisoners calling him a sneak, stool-pigeon, degenerate, etc. His heart-beats seemed to be confessing all his life sins. He felt afraid of everything in his environment. His persecutory ideas disappeared before reaching St. Elizabeth's, and he showed only a few residuals of his psychosis, most notable being a lack of insight into certain of his delusional experiences, which were no longer present, but well remembered.

Here we have, in a recidivist, a brief psychosis marked by depression, suicidal attempts, pantophobia, persecutory ideas, and auditory hallucinations, which cleared up rapidly upon his removal from prison. Apparently the psychosis may be easily due to prison environment. But the man had successfully weathered a previous confinement, and while the prison officials are said to have considered him peculiar during the three years preceding the onset of frank psychotic symptoms, he apparently had managed to make a fairly normal adjustment to his environment.

A careful inquiry into his sexual life reveals the fact that he has been a life-long onanist. His heterosexual experiences have been few, and admittedly unsatisfying. Toward the latter part of his first prison sentence, strong homosexual desires began to manifest themselves, and were, for a time given free play. On his second admission to prison the same condition held for a time, to be followed by an intense psychic conflict. He had to constantly suppress these desires, and to one of his make-up, sublimation was impossible.

The only comfortable solution, and the most natural one under the circumstances, was a projection of his difficulties onto those in his environment, as manifested by the persecutory ideas and pantophobia. This was favored by the fact that he was for the time unpopular with the other prisoners, because of having prevented an escape. Even this projection was not sufficient, and the depression was in part, at least, due to the fact that he considered himself a hopeless degenerate. The suicidal attempt was a symbolic self-crucifixion, *often seen in this type of case*, and was rather superficial.

The exact mechanism of this case can not be worked out at this time. However, certain points are obvious to those versed in Freudian literature. The man has always been of latent homosexual makeup, and his difficulties were not far from the surface. They were poorly sublimated, and his chronic alcoholism was in all probability a compensatory measure. Prison life, with its homosexual environment, brought to bear such a pressure that compensation finally became impossible, and for a time the moral censorship relaxed, and his desires were frankly indulged. But not for long, for the psyche renewed its efforts at repression, and his temporary freedom between the two sentences made the repression possible for a time. With renewal of the homosexual milieu in his second prison term, the conflict was again renewed, and while he succeeded from refraining in indulging his desires, the conflict became too great to be successfully carried on without an escape from reality. As has been explained, most of his difficulties were projected upon his environment, and he regarded his depression as being due to worry over a sick relative.

Another factor was present, a strong mother-attachment; also a probable incest complex involving his sister-in-law and niece. In all probability, behind this complex lay a substitution of the mother-image, the niece and sister-in-law symbolizing the mother-image. However, in this almost illiterate individual, with rather defective intelligence, the exact working out of these factors is impossible.

I believe, however, that I have demonstrated that the basis of the psychosis lay in the life-long internal conflict, and that the prison milieu sufficed to precipitate the psychosis and add color to it. The psychosis was a flight from a reality which was far too painful to permit of anything like a comfortable existence. Removed from the prison environment, he was removed from the extra pressure on the conflict, and was therefore able to repress the internal struggle and adjust to his new environment. He has been under observation only a few weeks, so that the future of his case can not be prophesied. However, being a defective individual, with such an intense internal struggle, and the prospect of several years of confinement, the outlook is not promising.

Case III.—A. R., a young man of twenty-three, admitted July 11, 1917, while serving sentence for a charge of sodomy. He was the son of a prosperous plumber, and early in life showed an inclination for study, but in lieu of following any special bent, read widely on various scientific and philosophical topics. He remained at home until eighteen years of age. Of his home life he would tell but little, claiming that it was happy. He did not enjoy the games of other boys and was somewhat seclusive in habits. From the age of ten to sixteen he used to indulge in day dreams about every girl he met. At fourteen he began to masturbate, and ceased at sixteen when heterosexual life began.

At eighteen he decided that he must "strike out and make a man of himself," and decided upon the Army as a career. He accordingly enlisted, and transferred to different organizations on two occasions. He bought out his first enlistment in thirteen months, and had served less than a year of his second enlistment when he was court martialed and sent to Fort Leavenworth. Previous to the offense for which he was tried he had a good record, and was considered to be an exceptionally capable stenographer and typewriter. The charge on which he was tried was that of sodomy and the evidence seems to have been conclusive, as he received the maximum sentence.

According to the patient's story, on account of his superior education and lack of desire for drinking and carousing he did not mingle much with his fellow soldiers, and was therefore considered a snob. On one occasion a comrade was visiting him in his room, while the rest of the company were drinking outside. Two of them knocked at his door and asked who was inside. Receiving the joking reply "Find out for yourself," the visitors went back to the drinking soldiers and said something was wrong. The patient and his visitor then joined the crowd, and one of them accused the two of sodomy. His friend became frightened and reported the matter to his superior. As a result, both were tried on the charge of sodomy. The friend plead guilty. The patient held out for a time, but although innocent, was persuaded by his counsel to plead guilty, on a promise that he would merely be discharged from the Army and not imprisoned. To his surprise, he was sentenced to five years in the penitentiary.

On his arrival at the prison it was soon noted that

the prisoner was of extremely effeminate make-up. Nearly a year later he was placed under mental observation because he was acting hysterically, was emotional, excitable, had wandering delusions, showed a tendency to distractibility of attention, and made open, unashamed homosexual advances to the attendants. He threatened suicide on several occasions, but made no attempts to carry out his threats.

After six months' observation, with no tendency to improvement, he was sent to this institution. On arrival none of the above-mentioned symptoms were present. His physical make-up and manner were decidedly effeminate, but no evidence of frank homosexuality was manifest during our observation of him.

For the episodes in prison he was totally amnesic, although his memory was excellent for the other parts of his life. In the discussion of his sexual life he immediately launched into a long discussion, the purpose of which was to prove to the examiner that he was strongly heterosexual. He claimed to have had a common-law wife for three years, and told, with an element of boastfulness, of having contracted syphilis at one time. It was evident that he understood the nature of the sexual perversions well and had also read textbooks on psychiatry. He claimed that he was of somewhat eccentric make-up, and this, combined with his tendency to read abstruse books and avoid the society of others, might lead people to believe that he was mentally unsound. In an effort to bring out any homosexual tendencies he absolutely denied them, and neatly avoided giving expression to any idea which might be regarded as pathological. To even an inexperienced observer, however, the man was of undoubted homosexual make-up.

His features were effeminate, and this was accentuated by parting the hair primly in the middle. Speech was feminine, words were precisely formed, and he used such expressions as "goodness me," "oh, my," etc. He seemed rather anxious to demonstrate his studious disposition and was always seen with a book in his hand, reading some work as "Critique of Pure Reason," "Dogmatic Theology," "Fourth Dimension," etc. He had written a number of poems, showing no great originality, and in at least one of them homosexual symbolism was present. He also had a list of some forty scientific subjects of which he claimed to have knowledge. He was at all times anxious to demonstrate his masculinity and steadfastly refused to comprehend why anyone should think him homosexual. He had a somewhat exalted opinion of his scholastic ability, which he hid under a veil of pseudo-modesty. Close observation failed to reveal any real pathological material in his case and he was returned to prison four months after admission.

On account of his lack of any real frankness, no analysis of his case was possible. To my own mind, however, the case is fairly clear. If we can afford to omit the study of his childhood, and the influences surrounding him during that period, we find the following picture:

A home-loving, studious, pampered boy lives a protected life until 18. He shows little tendency to develop his abilities in any direction. At 18, he suddenly decides that he must strike out for himself, and demonstrate his fitness to cope with the world. Such a decision can mean but one thing in a boy of his make-up. It is purely an attempt to satisfy himself of his masculinity and potency. Quite in keeping with this is his choice of a vocation—the Army, symbolic of virility, aggressiveness, and all the masculine qualities. That he did not find this a comfortable situation is shown by his two changes of organization, and the buying out of his first enlistment. Army life meant a homosexual environment, with a strong pressure brought to bear on the man's repressing forces. What actually happened to cause his arrest we do not know, nor is it of importance as to whether he did or did not commit the act with which he was charged. Of decided homosexual make-up, his knowledge of sexual matters enabled him to make a superficial sublimation, manifested by overzealousness in study.

When thrown into prison, however, the situation was more than he could comfortably handle. The repression no longer held, and, as a path of least resistance he fled into a psychosis, separated himself from reality, and, what is more significant, permitted his homosexuality free play during the period when the psyche no longer exercised the repressing function. As long as he was in the prison environment, the same pressure of the homosexual milieu was present, besides the loss of freedom and the shame of his trial. Removed to another environment, he showed the sudden return to normal so often manifested in these psychoses.

However, in this readjustment, to eliminate such painful effects as the knowledge of his condition during his psychosis might have produced (especially referring to the homosexual outbreaks), it was necessary that there should be an amnesia for this period. This forgetting of unpleasant things is a normal mechanism of the psyche; were it not for the ability to force them back into the unconscious, there could be no comfortable adjustment to the environment, no refinement or sublimation of the libido, with its direction into useful channels.

The symptom-complex which this man manifested in prison corresponds nicely to the prison psychosis. The simplest explanation, of course, is that it was a defence-reaction against the painful situation created by imprisonment. The man had previously made a fairly good adjustment to his environment, but there had always been the internal conflict; the Army proved a situation to which he adapted poorly, and the prison milieu sufficed to act as a precipitating factor. The man's boast of Don Juan-like tendencies is a common type of defense reaction in homosexuals, an attempt to convince themselves and the world of their heterosexuality. And the present patient intends to marry when he is set free—which is of course only another attempt to test his heterosexuality.

While the prison milieu precipitated the psychosis, underlying it was a life-long internal conflict, which was the real basis of his inability to cope with the imprisonment situation.

Case IV.—J. W., a Manomini Indian, of a fair education, serving a life sentence for murder. Soon after entering prison he developed poorly systematized delusions of persecution with reference to a guard and several fellow-prisoners. He was much distressed for a time with the idea that poisonous powders were blown on him during sleep, rattlesnake oil put in his ear, etc. On admission to Saint Elizabeth's he repeated the same ideas. He has been under observation only a few weeks, so that the study of his case is necessarily brief. He is pleasant, accessible, slightly depressed, but at the same time quite satisfied with himself.

His history shows that he was the fourth child of a well-to-do Indian family, attained a grammar school education without difficulty, and learned the carpenter's trade. He worked at various occupations, and was an enthusiastic and successful hunter and trapper, with his racial instincts little influenced by civilization's veneer. At twenty he met a woman of his own race, of the same age, with whom he became friendly, though he did not love her. According to a custom of their tribe, their parents arranged a marriage, and he was practically forced into the union against his will. During a married life of ten years two children were born to them. They were not happy—he felt she was not his equal in education, and they were sexually incom-

patible. She was frigid, except just after the menses, and he never obtained true enjoyment from intercourse. Also she refused to permit coitus at times. After ten years of unhappiness he deserted her, and she obtained a divorce and remarried. He then patronized prostitutes occasionally, until he met a beautiful and accomplished Indian girl ten years his junior. The attraction was mutual and they were sexually intimate for a time, with both equally enjoying coitus. The girl's parents broke up the affair after a child had been born to them.

The patient then began to indulge heavily in alcohol—a new thing for him to do. After two years of hard drinking, he returned to the girl's home, shot her dead, and unsuccessfully attempted suicide. As a result he was given a life sentence in Leavenworth. In his account of the murder he shows a partial amnesia, combined with a tendency to falsification of memory, which makes the recollections less painful.. As stated above, after imprisonment he began to develop delusions of persecution relating to people in his environment.

We do not know what the outcome of the psychosis will be, nor can the patient cooperate in the analysis. However, my explanation of the mechanisms present is this: The man has a strong mother-attachment. He states he always liked his mother best, though he does not know why. In his dreams the mother appears often, and often in plainly symbolic relation to the patient. He often dreams of seeing snakes while walking with his mother, and of killing snakes when she is present. This needs no interpretation for those versed in psychoanalytic literature.

In his marriage, the wife did not meet the requirements of a mother-substitute, and was therefore a failure. The paramour, on the other hand, seems to have made an excellent mother-substitute, and his relations with her were very happy. When he lost her, he reacted by over-indulgence in alcohol, which almost always means a drowning out of complexes, a temporary and easy means of escaping from painful conflicts. Brooding over the loss of the one mother-substitute, knowing he could not have her, jealously forbidding that any one else should possess her, he resorts to extremes, as shown by his crime. Thrown into prison, his internal conflict as active as ever, this freedom-loving savage is deprived of liberty, has the prospect of a life-imprisonment, and no comfortable means of sublimating and at the same time maintaining in proper contact with reality. He sought peace by projecting his difficulties upon his environment, making himself a martyr, his associates the guilty ones. From the situation created by the psyche he is enabled to exist comfortably. The prison confinement acted as a precipitating factor, when added to a struggle which had influenced the patient's whole life. The mother-complex was the underlying influence, the prison-situation merely coloring the psychosis, and serving as sufficient weight to overbalance the psychic struggle and permit a flight from reality.

Case V.—F. G., an American of twenty-five, was arrested for a perverted sexual assault on a child. Shortly after his arrest the man became confused, was apparently of low mentality, and showed a catatonic-like state. When he arrived at St. Elizabeth's, however, he showed no trace of a psychosis, intelligence was found to be normal, he was friendly in attitude, and reacted well to his environment.

Family history shows that his mother had a brief mental upset at the time of her marriage. As the mother and brother have been observed on their visits to the patient, they are rather eccentric and consequently refuse to see that the patient has done anything wrong or that he should be kept here. They are rather paranoid in attitude as regards the institution and its officials.

The patient's past life shows nothing of interest before his seventeenth year. He was an average student and received a fair education. Home life was happy, and his relations to relatives and friends were normal. He was fond of athletics, but somewhat seclusive in habits. By his neighbors and friends he had always been considered a model young man. However, we find that he was discharged from a position as street car conductor because of failing to register fares properly.

The details of his sex life will not be given here. Suffice it to say that he has practiced cunnilinguis since the beginning of his sexual activities, and has always been quite impotent in every other type of sexual indulgence. His desires have always been given free play, and he had no difficulty in keeping his peculiarities from being known to his associates until the abolition of the red-light district. Thereafter he could seldom find an object for his indulgence and began to experience considerable mental distress. On one or two occasions his impulses led him into trouble, and his present prison confinement is due to the fact that he attempted to assault a child in a public park and was discovered. He states that the shame of arrest and the realization that his friends would now become acquainted with his abnormality made him lose control of his mental balance for a time. He fully realizes that he is different from other men and has made a number of unsuccessful attempts to live a normal sex life.

Leaving out the sexual factors in the case, the psychotic episode corresponds nicely to a prison psychosis. But this sexual pervert is not normal, even if we set aside the perversion itself. He is seclusive, dishonest, impulsive, and there is a constant internal conflict, a battle between his desires and his moral code. His desires conflicted with his wish to conform to the social standards, for they were considered wrong by those in his environment; as Pfister says, the individual must accept the social morality standards as his own, as the voice of his consciousness, before there can be any conflict between his repressed desires and his environment. In this case, the patient opposed to his desires the voice of consciousness which told him they were wrong, because they were not approved by social standards, therefore conflicted with his environment. After each indulgence, he felt remorseful, and the internal conflict grew more intense. But since he had been able to hide his short-comings from those in his environment, and was not of unstable make-up, there had been no need to withdraw from reality, as the conflict had not been sufficiently severe to require this. In the prison situation, however, he faced the prospect of trial, imprisonment, and disgrace, a conflict with his environment which could be avoided in only one way—flight into a psychosis. While the patient was in this state of flight, he learned that his relatives were to have him sent here to avoid trial; the necessity for flight being removed, he regained his normal state.

The internal conflict remains, however, and that it is far from being successfully sublimated was recently shown in a cunning attempt of the patient to secure the undergarments of a young girl whose name he chanced to read in the paper. But for the timely interception of a smuggled letter by a relative of the girl, he might have secured the garment. The details of his scheme need not be given here, but they showed an uncommon shrewdness on his part. It is noteworthy that he showed no shame when questioned about the incident.

The question of simulation might be considered in this case, but I believe that there is little doubt but that the patient's upset was real. And according to the most recent beliefs, malingering or simulation is, in itself, evidence of psychopathic make-up, and no normal man ever simulates disease of the mind.

In this case, then, the imprisonment served as the precipitating factor in a conflict which had heretofore been successfully repressed—and which is still present, though the psychotic episode has cleared up.

REFERENCES.

Glueck: "A Contribution to the Study of Psychogenesis in the Psychoses," *American Journal of Insanity*, Vol. LVIII, January, 1912.

Glueck: Article on Prison Psychoses, in White and Jelliffe "Modern Treatment of Nervous and Mental Diseases."

Richardson, W. W.: "Imprisonment Psychoses," *American Journal of Insanity*, Vol. LVIII, January, 1912.

Bowers, Paul E.: "Prison Psychosis—A Pseudonym," *American Journal of Insanity*, 1913, LIX.

Nitsche and Willmanns: "History of the Prison Psychoses."

THE POSSIBLE SPREAD OF INFLUENZA THROUGH THE BEDBUG.

By G. A. FRIEDMAN, M.D.,

NEW YORK.

It is generally understood that influenza, like measles, spreads from person to person, and it is also assumed that were it possible to isolate the first case of influenza in a community epidemics or pandemics of this disease would not occur. Until recent years the same conception was maintained by the profession regarding typhus fever. However, the etiology of typhus appears established now.

Prior to the isolation of the *Bacillus typhi exanthematico* by Harry Plotz, Nicolle[1] and his associates, Anderson and Goldberger,[2] independently, as well as Rickets and Wilder,[3] have shown that the body louse is the transmitting agent of the virus of typhus. Rickets and Wilder excluded the flea from serious consideration because the season during which this insect is most abundant did not coincide with the greatest prevalence of typhus. Their personal observations further proved to them that the bedbug was not the carrier of typhus. These authors, too, have studied Rocky Mountain spotted fever, a disease which has a great deal in common with typhus, and have shown that spotted fever is not contagious, but is transmitted by the bites of a certain species of ticks, so that the presence or absence of this variety of insects determines the state of the disease in any locality.

Is it not plausible, then, that the influenza virus is transmitted from person to person by an insect? Insect transmission being admitted possible, the bedbug, in all probability, is the carrier.

A few preliminary remarks are essential. It seems that the present epidemic did not bring us a step further in establishing the Pfeiffer bacillus as the etiological factor of influenza. Thus our stand in regard to the causative agent of this disease is still uncertain. Assuming as correct, therefore, that the specific organism has not been discovered so far, the investigator who seeks to determine the cause of influenza should proceed along the lines of research similar to those leading to the etiological factor in typhus and search for an insect as a transmitting agent.

Insect transmission in influenza may seem at the first impression startling and absurd, as we are accustomed to regard influenza as primarily and essentially affecting the respiratory tract. However, during the present epidemic there was obtained sufficient evidence that the disease may also attack primarily the gastrointestinal tract. Thus cases were observed in which, in addition to the respiratory disturbances, an upset in the gastrointestinal tract was evident. Cases were also noted by the majority of physicians in which vomiting, diarrhea, severe abdominal pain, or a combination of the three, was present without the slightest affection of the respiratory tract, even after the most careful search for physical signs in the chest. Were such cases observed before the acute stage of the epidemic, or sporadically, they would never have been diagnosed correctly as influenza. The high fever, chills, and sweats which accompanied the gastrointestinal symptoms, the previous or simultaneous occurrence of influenzal pneumonia among members of the same family, the presence of an epidemic, make the diagnosis of the gastrointestinal type certain.

In the afternoon of October 28, 1918, I was called to see W. M., female, aged twenty-one years. Her complaints were fever, sweats, diarrhea, and severe abdominal pains which began on the evening of October 22. During the morning of the same day when she was first seized with her illness she received her third vaccination for influenza. The first vaccination was given to her three and one-half weeks previously; the second, one week after the first. On examination I was unable to detect physical signs in the lungs, nor were there signs of rhinitis, laryngitis, tracheitis, or conjunctivitis. Marked tenderness in the upper abdomen, with rigidity of both recti, was elicited. The rectal temperature was 103.5° F. On further questioning, I learned that her brother, who did not receive preventive vaccine, was convalescing from an attack of influenza which, judging from the history, was of the respiratory type.

Such and similar cases must shake one's belief that influenza is a disease in which the first line of attack is the respiratory tract.

Typhus, as I have seen the disease in Russia, also affects the respiratory tract at the onset, and still no one will claim, with our present knowledge, that in typhus the organs of respiration are those which primarily become affected with the typhus virus.

In a paper published in 1911,[5] in which I discussed sporadic typhus as it occurred for years in New York City, and which was commonly known as Brill's disease, I stated that in countries where sporadic typhus is common it is frequently confounded with influenza in adults and with measles in children, because of the respiratory disturbances common in typhus as well as in measles. I now find a corroboration of my statement made seven years ago in a recent paper of Hitzig,[6] whose observations on the Mexican typhus correspond to those on the European typhus. A further fact in support of the assumption that in influenza as well as in typhus the first appearance of the virus occurs in the blood stream may be surmised from the following consideration: If any one makes a comparison between the toxemias seen in the present epidemic with the toxemias observed in severe typhus, the conviction must be forced upon him

that influenza, like typhus, must be essentially a blood infection, and not a primary respiratory infection.

It is true, however, that typhus fever has no demonstrable pathology; still, the pneumonia following or or occurring simultaneously with influenza had a great deal of pathology, especially in the recent epidemic. The unusual pathological changes found in the lungs led Symmers[7] to recognize a similarity of the pulmonary changes in influenza with those observed in bubonic plague. There is difficulty in ascertaining whether in any of the previous epidemics of influenza similar changes were observed in the lung tissue, or if the toxemia was so marked, but Graves[8] mentions that the second and third stages of ordinary pneumonia were almost always absent at necropsies in the epidemic which came under his observation. But all have observed in the last epidemic the severity of the toxemia. In many of the patients the toxemia was so severe that some died on the second or third day after the onset. The first patient whom I saw during this epidemic was a young Turk, admitted to my service at the Beth David Hospital. So severe was the toxemia that on inspection he impressed me as a man in the algid stage of cholera such as I have often seen during epidemics of the disease in Russia. M. Roux states that blood cultures exhibited streptococci of exceptional virulence in the influenza patients and that a local doctor accidentally inoculated by the streptococci died in a few days showing grave symptoms against which all remedies proved powerless.

Since, in the course of typhus, pneumonias with the unusual pathology noted in influenza hardly ever occurred, one must assume that streptococci and pneumococci, in the presence of a highly virulent influenza microorganism, are liable to cause the peculiar lung changes. But this would merely mean that the typhus bacillus which first enters into the circulation is not apt to enhance the pathogenicity or virulence of the pneumococcus or streptococcus.

After the analogy of typhus, in which the infection occurs through the medium of the body louse, we must now look to the carrier of influenza, which I believe to be the bedbug.

The transmission of influenza by an insect must be in accord with the chief features of the epidemiology of the disease. (1) The insect must be able to exist in all seasons of the year. (2) It must be able to gain access to rich homes as well as to dwellings of the poor. (3) It must retain the highly virulent microorganism for a limited time, approximately corresponding to the duration of the acute stage of the epidemic.

Unlike typhus epidemics which occur almost exclusively in the winter, or cold, months of the season, epidemics of influenza, while occurring mainly in the spring, summer, and autumn, appear also in the winter. Bedbugs which live exclusively on human blood hibernate, according to Chandler,[9] in a semitorpid condition in cold weather. In warm climates they are active the entire year. Bacot[11] states that unfed, newly hatched bugs are able to withstand cold between 28° F. and 32° F. for as much as eighteen days, though they are destroyed by exposure to damp cold after a full meal. Dufour[12] kept bedbugs alive and active for a year in a tight box without any food at all. I remember well spending two sleepless nights on account of bedbugs in a Russian hotel during a cold December.

Contrary to typhus, which is a disease almost exclusively of the poorer classes, and rarely affects the well-to-do, even during epidemics, influenza does not spare the wealthy or even those residing in palaces. The insect, therefore, must be one that has access to good homes as well as poor.

There is no need to dwell upon the fact that bedbugs are almost always present in the dwellings of the poorer classes, and it must be also admitted that bedbugs in good homes are frequently beyond the control of the best housekeeper. They may be brought in with the laundry or in clothes of servants. Herrick[13] states that he has often seen them hiding away in the crevices of clothes baskets. In several instances he has seen the insects on the white spread of the bed on which the clothes have been laid by the laundress. This he believes is a source of infection that has to be constantly watched.

It is believed by some people that the iron bedstead, which has so rapidly replaced the wooden ones, has done away with the bedbugs. This is a mistake. Bugs, according to Shipley,[14] will shelter themselves in the metallic crevices of the iron bedstead almost as comfortably as in the wooden chinks of its predecessors.

The next route by which the bedbugs may enter a home is through hotels. The more often members of a family travel and stop at hotels the more liable are they to bring the vermin home in their trunks, handbags, or clothing.

In towns and cities where houses are built closely together the bedbugs will migrate from one house to another along the walls and pipes. This is especially liable to happen where one house has been vacant for some time and the parasites have been deprived of food. Marlatt[15] says that the insect will continue to come from one house to another sometimes for a period of several months, gaining entrance daily.

The bedbug is particularly common on ships, sleeper berths, and cars, especially in the plush seats of the railroad coaches. Bedbugs may also be present in any place where there is an accumulation of dirt, on the battlefield and in trenches.

It is evident that in normal times bedbugs frequently accompany traveling men from ship, trains, hotels, etc., in their baggage. At times these bugs may be the carriers of an attenuated influenza virus. At other times, when favorable conditions exist in a certain locality, as perhaps has occurred at the present time on account of war conditions, during which Pfeiffer's bacillus must have found an excellent cultural medium on the dead bodies of the war victims, the supposed microorganisms gained in virulence.

Insects carrying this extremely virulent bacillus may have found their way from all the battlefields by means of ships, railroads, hotels, etc., and finally gained access to the tenement houses as well as to the apartments of the rich.

Thus there is apparently little surprise at the information of Dr. Harris[16] about the origin of the influenza epidemic in New York City. Harris

states: "On August 11, 1918, we were informed by the quarantine officers that a Norwegian steamer had arrived in this port giving a rather interesting history. We found upon investigation that during the voyage two hundred passengers had become ill with influenza."

There is surely a carrying agent for the causation of the disease, air dissemination being insufficient. One must assume from the above considerations that some of the passengers introduced the disease, carrying the germs in their luggage. Since bedbugs are often present on ships, they must have been the carriers of the influenza virus. In the histories of influenza epidemics there are sufficient instances proving that outbreaks of the disease occurred on ships which did not come near the shore at any time while influenza prevailed on board.

The following report is found in the records of the College of Physicians[17] on the epidemic of 1782: "On the second of May, 1782, the late Admiral Kempenfelt sailed from Spithead with a squadron of ships under his command, of which the *Goliah* was one, whose crew was attacked with the influenza on the 29th of that month; the rest were affected at different times, and so many of the men were rendered incapable of duty by this prevailing sickness that the whole squadron was obliged to return to port the second week in June, not having had communication with any shore, and having cruised between Brest and the Lizard." The insects evidently only became active twenty-seven days after sailing. Another instance shows that "about the sixth of May Lord Howe sailed for the Dutch coast with a large fleet under his command; all were in perfect health. Toward the end of May the disorder first appeared on the *Rippon*, and two days later on the *Princess Amelia*. Aboard other ships in the same fleet the men were afflicted with the disease at different periods, some, indeed, not until their return to Portsmouth about the second week in June. This fleet also had no communication with the shore until their return to the Downs on their way back to Portsmouth, toward the 3d or 4th of June."

The following narrative of Gray[18] is very interesting: "Among the islands on the western coast of Scotland there is one very remote from the rest, named St. Kilda. It rises like a rock in the ocean, about 16 or 18 leagues west of the Lewes Islands. The place is inhabited by twenty or thirty poor families, who subsist chiefly on the flesh and eggs of sea fowl which they have in prodigious quantities. They have besides a small amount of barley and a considerable number of sheep. The open and boisterous sea around them, together with their distance from every other land, exclude these poor islanders from the rest of their species; and they scarcely ever see a human being besides themselves, except once a year when they are visited by the steward, who receives the rent in feathers, wool, and mutton.

St. Kilda being an appendage to that part of Lewes called Harris, and the property of Mr. Macleod, the steward always resides in the latter place. He makes his annual voyage to St. Kilda in the month of June, when the day is longest and the season most temperate. His retinue consists of ten or a dozen men, sufficient to manage a large open boat such as are in common use in the islands. The inhabitants meet him on the beach, and, prompted by a desire of intelligence as well as respect for his person, all assemble around the stranger. But behold the consequence. The next day the steward has hardly a St. Kilda man at his levee. They are universally seized with a catarrh or cold, as they call it, which rages so fast that in twenty-four hours every individual on the island is generally laid by. The symptoms are a cough, headache, sneezing, and coryza, from which they recover in a few days after drinking largely of water gruel and other diluting liquors that promote perspiration. This is so invariably the case that it is considered as the natural and infallible consequence of the steward's visit, and the poor people are prepared accordingly. I remember Dr. Cullen mentioned this circumstance in his lecture on catarrh about six years ago, when I attended him, but I have had still better opportunities of knowing the matter in its full extent than the doctor, and connections in that part of the country enable me to give it on the strongest grounds of authenticity."

Since bedbugs are commonly found in hotels, the following instance may serve as an illustration:[19] "Very early in June three families, consisting of seventeen persons, came on the same day to the Adelphi Building of London; they were all in the best of health when they arrived, but the next day all were affected with the symptoms of influenza, then raging in London."

There is also a positive case where the disease was communicated through the medium of clothes. Edgeworth[20] tells us that the influenza in 1803 "was brought from Dublin to London by a parcel which was made up by a person very ill of that disorder and sent to a lady of quality here. As soon as the parcel was unpacked the person who unpacked it was the first seized, then the lady herself, the rest of the family next, and finally the neighborhood was infected."

I was informed by a lady whose truthfulness I can vouch for, of a very interesting story. She told me that during the recent epidemic in New York a man came to the office where she is employed who was just recovering from the influenza. He said that his wife had died the day before of the disease. While speaking to him she noticed a bedbug on his collar. This bedbug was probably an influenza germ carrier, and if it crept to another individual may have transmitted the disease.

If it is possible for the bedbug to be a carrier of influenza and at times lead to an epidemic, the carrier must be able to retain the virus corresponding about to the duration of the acute stage of the epidemic. Chandler[21] states that the bacilli of the bubonic plague can develop in the gut of bugs, though more slowly than in fleas, and with a much higher mortality for the bugs. That they may act as transmitters of bubonic plague is quite certain, and bugs have been found to remain infective with this disease for forty-eight days. Bedbugs perhaps retain the influenza virus for about the same period of time and this would explain the duration of an acute outbreak of the epidemic in a certain place.

The theory of transmission of the influenza virus through the bedbug explains the difference between the epidemiology of influenza and that of typhus.

Typhus epidemics occur in the winter and in cold countries because lice are apt to be more abundant in the crowded dwellings of the poor during this season. The poor remain indoors and do not bathe often. The absence of proper ventilation and sufficient light create such unhygienic conditions that the vitality of the poorer classes is lowered. Bedbugs, as has been mentioned, are apt to be present in houses during the entire year.

Typhus is a disease almost exclusively of the indigent class, because the louse is rarely found in clean homes. Influenza, on the other hand, is frequent among all classes, because bedbugs are common and may be so widely distributed from place to place. Shipley[22] states that "bedbugs although unknown to the aboriginal North American Indians, had probably entered the continent with the best families on the *Mayflower*."

There are localities in some countries where influenza is endemic. This was definitely shown to exist in Russia by M. Teissier,[25] who was appointed in 1890 by the Minister of Public Instruction in France as the head of a commission to investigate influenza there. In the same locality in which I have observed sporadic typhus I have also observed sporadic influenza.

My observations have taught me that a patient afflicted with typhus will never contract influenza as long as he is in the febrile state, but frequently will become the victim of influenza as soon as he enters the convalescent state. The same holds good in influenza patients, for they do not contract typhus as long as they remain in the febrile state.

On several occasions I have seen influenza in the same patient complicated with malaria, as well as typhus with malaria, but I have never noticed typhus and influenza in the same individual simultaneously. It seems that individuals afflicted with typhus acquire a temporary immunity for influenza and vice versa. Based upon this observation, in a discussion on a recent paper of Dr. Thompson, I suggested trying the serum of typhus patients for the treatment of influenza and typhus vaccine for the prevention of influenza.

Bedbugs are not carriers of typhus, probably because they fear the body louse. According to a recent report of Hall[24] from Texas, body lice were placed in a bottle with head lice, bedbugs, and a piece of beef. The body lice first ate the head lice, then the bedbugs, and then the beef.

In the histories of epidemics of influenza, mention is often made that men are affected by the disease in larger numbers than women. These statements are probably correct, for men travel in larger proportion and thereby are more liable to bedbug infestations. I do not know if this statement is true for the present pandemic. Adhering to the theory of bedbugs, this may not be true since numerous men were prevented from traveling on account of war conditions. There is no difference between the two sexes in typhus, because typhus seems to be a louse-borne disease, lying dormant in isolated places.

Epidemics of influenza first manifest themselves in the city and later in adjoining towns and villages; outbreaks of typhus may occur in the villages first, and later in the cities.

The present epidemic kept the practitioner so extremely active that he could not devote any time to gather facts or perform experimental work. Now, when times have become more favorable for experimentation, little of the disease is observed. However, as history repeats itself also in medicine, we must bear in mind that the enemy may attack us again in the spring with the increased activity of bedbugs in nearly every climate; and with the increase of intercourse between the Eastern continent and this country the germ carriers will again be brought to our shores on ships from whence they will be disseminated to hotels, trains, and the homes of rich and poor alike, when another epidemic may be predicted. Preventive measures should be strict in destroying the pest for the best means of which entomologists should be consulted. This may prevent an epidemic which is so feared by the health officers and public.

Hagler,[26] who worked with the American Red Cross expedition in Serbia in 1915, points out that while typhus disappeared with the extermination of lice, relapsing fever continued to develop in the Belgrade hospital until the latter was fumigated for bedbugs. Every plausible advice should be followed as the world has experienced an epidemic which, using Biggs'[26] words was the "most serious that had visited the civilized world in a century." We should try to prevent "bugginess" just as the Germans prevented "lousiness" and saved their army from typhus which has so affected their neighbors, the Serbs, during the present war.

REFERENCES.

1. Nicolle: Quoted by Rickets and Wilder (3).
2. Anderson, J. F., and Goldberger, J.: On the Infectivity of Tabardillo or Mexican Typhus for Monkeys, and Studies on Its Mode of Transmission. Public Health Reports, 1910, Washington, Vol. XXV, 177.
3. Rickets, H. T., and Wilder, R. M.: The Typhus Fever of Mexico (Tabardillo). *Jour. Am. Med. Assn.*, 1910, Vol. IV, p. 463.
4. Rickets and Wilder: The Relation of Typhus Fever (Tabardillo) to Rocky Mountain Spotted Fever. *Archives Int. Med.*, 1910, Vol. IV, p. 361.
5. Friedman, G. A.: Brill's Symptom Complex; Typhus Fever; Manchurian Typhus. *Archives Int. Med.*, 1911, Vol. VIII, p. 427.
6. Hitzig: Ueber Flecktyphus. *Corr. Blatt f Schweizer Aerzte*, 1918. XLVIII, 961.
7. Symmers, Douglas: Pathologic Similarity Between Pneumonia of Bubonic Plague and of Pandemic Influenza. *Jour. American Medical Association*, 1918, Vol. LXXI, No. 18, p. 1482.
8. Graves: Observations on Epidemics of 1837. Annals of Influenza, Sydenham Society, 1851-2, p. 345.
9. Roux, M.: Paris Letter. MEDICAL RECORD, 1918, Vol. XCIV, No. 21, p. 911.
10. Chandler, Asa C.: Animal Parasites and Human Disease. John Wiley & Son, Inc. London: Chapman & Hall, Ltd. 1918. P. 375.
11. Bacot: Quoted by Chandler, p. 375.
12. Dufour: Quoted by Riley, Wm. A., and Johannsen, O. A., Handbook of Medical Entomology. Ithaca, N. Y.: The Comstock Publishing Co. 1915. P. 89.
13. Herrick, Glenn: Insects Injurious to the Household and Annoying to Man. New York: The Macmillan Company. 1914. Pp. 110, 111.
14. Shipley, Arthur Everett: Studies in Insect Life. T. Fisher Unwin, Ltd., Adelphia Terrace, London. 1917. P. 13.
15. Marlatt: Quoted by Herrick, p. 111.
16. Harris, Louis I.: Epidemiology and Administrative Control of Influenza. *New York Medical Jour.*, 1918, Vol. CVIII, No. 17, 718.
17. Observations of College Physicians of London on Epidemic of 1782. Quoted in Annals of Influenza (8), p. 155.

18. Gray, Edward: The Epidemic Catarrh of 1782. Quoted in Annals of Influenza (8), p. 147.
19. Quoted in Annals of Influenza (8), p. 157.
20. Edgeworth: Quoted in Annals of Influenza (8), p. 229.
21. Quoted by Chandler (10), p. 378.
22. Quoted by Shipley (14), p. 13.
23. Teissier, M.: L'influenza de 1889-1890 en Russe. Paris, 1891.
24. Hall: Quoted by Chandler (10), p. 393.
25. Hagler: Quoted by Chandler (10), p. 378.
26. Biggs, Hermann: Discussion. *New York Medical Jour.*, 1918, Vol. CVIII, p. 748.

1000 PARK AVENUE.

THE STREPTOCOCCUS MUCOSUS CAPSULATUS INFECTION IN THE MASTOID.

BY J. MORRISETT SMITH, M.D.,
NEW YORK.

THE *Streptococcus mucosus capsulatus* has proven to be the most insidious as well as the most virulent infection with which we have to contend in cases of acute mastoiditis.

Smears examined from chronic ears always show a mixed infection, unless there happens to be an acute exacerbation of the chronic condition, and are not of much assistance to the otologist; while smears from cases of acute otitis media show either pneumococci or streptococci, and too much stress cannot be laid upon the importance of determining whether the organism is encapsulated or not. I might add here that a report of staphylococcus from a smear taken from an acute ear usually means a skin contamination and another examination should be had.

At the present time there is some doubt as to whether the so-called *Streptococcus mucosus capsulatus* is not really a pneumococcus mucosus of group three.

Doctors Avery, Chickering, Cole, and Doeberg, in a monograph on pneumonia from the Rockefeller Institute, October 16, 1917, make the following statement: "Considerable confusion still exists in bacteriological literature regarding the identity of the so-called pneumococcus and *Streptococcus mucosus*. Pneumococci of type three are bile soluble, ferment inulin, possess voluminous capsule, are extremely virulent for mice, and produce a greenish discoloration on blood media. *Streptococcus mucosus*, on the other hand, while having a similar mucoid confluent colony possessing a capsule, is not bile soluble, does not split inulin, is not so pathogenic for mice, and has a greater tendency to produce hemolysis on blood agar. Finally this organism, like other streptococci, does not react specifically with antipneumococcic serum."

Technically, it would seem that we at times really have an encapsulated streptococcus and at other times encapsulated pneumococcus, but for practical purposes we are enabled to make no distinction in the symptoms, and the term "*Streptococcus mucosus capsulatus*" seems to be suitable.

This infection when present is fairly easy to demonstrate under the microscope, care being taken to cleanse the external auditory canal with a sterilized cotton wrapped toothpick and then obtain the smear from the opening in the drum, fix it in the flame, stain with dilute carbolfuchsin (1 in 20) from three to five minutes. The capsule, if present, is usually well defined, can readily be detected under the oil immersion lens (1/12).

The importance of recognizing the presence of this organism is realized when we find that practically one hundred per cent. of the cases come to operation. I have seen only one case that did not become operative, and that one was watched very closely, had repeated *x*-ray examination, and was finally discharged as cured.

The onset of these cases resembles that of any other otitis media, but as soon as the pain is relieved by spontaneous rupture or an incision of the membrana tympani, the case is usually distinguished by an entire absence of symptoms; there may be a complete destruction of the mastoid structures and aside from the discharge, the patient will insist that he feels quite normal. This process will continue without pain, temperature, mastoid tenderness, or prostration, and if uninterrupted a meningitis intervenes and the death of the patient occurs.

Certainly this germ would play an important part were it possible to correlate the yearly deaths from mastoiditia, especially the unoperated cases.

These cases practically always occur in adults. I have seen only one in a person under twenty years, and am able to find in the records of the New York Eye and Ear Infirmary only one patient under nineteen years of age.

A large percentage of the patients have diabetes. Of my own cases, about three-fourths had a glycosuria and its presence seems to favor this infection. The reason for this I am unable to offer. Every case showing this infection should have a careful glycosuria test, since it may be the means of discovering a latent diabetes.

These cases are peculiarly apt to have an isolated focus of the infection remain in some part of the mastoid; the drum may entirely heal with later on a sudden recurrence of the discharge. This explains the fact that some of these patients die two or three months after the initial infection.

On physical examination the drum will often show a teat-like projection from which pus will exude when removed with a cotton-tipped applicator. This, of course, is not pathognomonic, but is suggestive of a capsulatus.

One case, in a man of twenty-eight years, after a thorough myringotomy, discharged for about ten days, the drum healed, and was restored to normal. Five days later he returned with a thick purulent discharge and an immediate operation showed a capsulatus with a perisinus abscess which a smear, had it been taken, would have shown me at first.

Another case, a man of thirty-two, had a six weeks' history and a large postauricular swelling, extending well down below the mastoid tip, also a facial paralysis. The smear revealed a capsulatus; operation showed a perforation in the lower part of the facial ridge. The facial paralysis was recovered from in about six weeks.

The most interesting case was that of a man thirty-eight years of age with a three months' history of trouble in the left ear and seven incisions of the drum.

Examination showed a normal drum with a slight red streak running down the handle of the malleus and a small postauricular swelling with no furunculosis, scalp or other lesions present. A capsulatus was suspected and upon obtaining a history of diabetes immediate operation

was advised, and in spite of a practically normal drum a perisinus abscess was found with an encapsulated streptococcus present; a severe nephritis occurred, but cleared up and the patient recovered.

The writer feels that these cases are amenable to surgical treatment. In the cases operated on personally, there have been no deaths, but at the same time I am cognizant of the fact that in spite of prompt recognition and a careful operation some of the cases will die of a meningitis, and we are in no way able to account for the route of intracranial invasion—the most likely being the blood or lymphatics.

At the time of the operation, the cells must be thoroughly exenterated, and care should be taken to avoid the exposure of sinus or dura, if possible.

The following conclusions were drawn from a series of about twenty cases operated on by the writer at the New York Eye and Ear Infirmary and the New York Polyclinic Hospital, as well as quite a number of other cases which have come under his observation at the above institutions.

Conclusions.—This infection rarely occurs under twenty years of age.

A high percentage of the patients have diabetes.

The symptoms are very apt to be masked, even in the presence of an extensive destruction in the mastoid process.

One of the chief dangers is that of not recognizing the presence of this infection.

Practically all of the cases come to operation.

Prompt recognition with early and careful surgical intervention will result in a uniformly low mortality.

45 East Sixty-second Street

SAWDUST SURGICAL HANDRUB.

By F. GRIFFITH, M.D.,

NEW YORK.

FELLOW, ACADEMY OF MEDICINE.

For a time the writer was engaged in a navy airship shop and noticing some of the work people scrubbing their hands habitually with sawdust in running water in place of using soap for cleansing purpose, he became interested in considering the possible and practical value of the method for use by surgeons. The raw scrub with soda crystals, chloride of lime, permanganate of potash, and oxalic acid as used in many hospitals for routine service at the wash stand spoils the velvet of the skin on the hands of many operators and probably makes such hands so much the more dangerous as septic carriers and pus contaminators to the surgical wound than when blander methods obtain combined with the strictest technique to avoid touching the "unclean" things in the surgical world.

We used clear grained mahogany, spruce, and pine for the flying seaboats and the wood dust from the bandsaw was found best for cleaning use for hands at the taps; a handful of the hardwood sawdust rubbed over the surfaces in the running water left the extremities clean as though soap had been used, besides leaving the skin in a pliant condition after its employment. It should be conceded by those who insist upon the employment of the strong and stressful lime, soda, and oxalic crystals that the mixing up of half as much sawdust as chemical in the containers would lessen the skin damage and leave the operator's hands equally safe.

It might be objected that sawdust if generally employed about hospitals would clog washbasin wastepipes, but this danger need hardly be noticed for the reason that fine sawdust tends to separate the particles so that they do not lump in running water, and the lightness of the sediment further adapts it to be conveyed unresricted. The use of sawdust from yellow pine, or fat pine as it is called, sometimes containing much oleoresinous substance of natural antiseptic nature when the turpentine has not been previously extracted from the tree, would prove its worth as a drier of the skin surfaces, especially to replace the chalk and talcum dusting powders where rubber gloves are to be donned. All sawdust for surgeons' use can be readily and positively sterilized by baking, and that it has value as a decided general cleanser has long been noted by the jewelers. Its adaptation for cleansing away excess oil and scurf and extraneous matter and attached germs from the skin of hands and arms of the surgical operator, aside from being a mere mechanical rub, is not an impractical suggestion.

238 West Thirty-eighth Street.

Medicolegal Notes.

Instructions as to Care and Skill Required.—In an action for malpractice against a hospital company and one of its physicians it appeared that in July, 1913, the hospital company agreed to provide for the plaintiff all necessary medical and surgical treatment, and all necessary medicines and hospital services during the period involved in the action; that in November, 1914, the plaintiff contracted a cold and needed medical treatment therefor; that the company assigned one of its physicians to the case; that the latter failed to use ordinary diligence, care and skill in treating the plaintiff, and that by reason of such failure the plaintiff's sickness progressed unfavorably, he became unable to work, was confined to his room, and continued to grow worse until he became afflicted with pulmonary tuberculosis, and that he was put to great expense in procuring subsequent treatment therefor. The plaintiff was awarded a verdict and judgment against the hospital and its physician for $2,500. The defendants appealed.

The principal contention of the appellants was that errors were committed in the court below in giving, refusing, and modifying instructions to the jury. Instruction 5 was to the effect that a physician is liable to damages if he fails to give "proper" advice to his patient. Instruction 10 reiterated this doctrine. Instruction 6 gave the jury to understand that a physician is guilty of malpractice, and liable to damages, if, in treating a patient, he fails to do anything necessary to obtain an approximately perfect result. The California Supreme Court said that the law does not require that the instructions and advice given by a physician to a patient should be at all events and beyond question "proper," or that his treatment should be certainly such as to obtain an approximately perfect result. It requires only, first, that he shall have the degree of learning and skill ordinarily possessed by physicians of good standing practising in that locality; and, second, that he shall exercise reasonable and ordinary care and diligence in treating the patient and in applying such learning and skill to the case. The law takes cognizance of human weakness and liability to err in the application of skill and learning, and it requires only the exercise of reasonable and ordinary care and diligence to avoid error. The instructions given required more; they required that the advice given should be "proper," which implied that no error should be committed; they required that the physician should do everything necessary to be done to produce an approxi-

mate perfect result; that he guarantees that his treatment shall be of the best quality; whereas, the law only demands that he use reasonable care to attain such approximate perfection. Instruction 9 declared that the physician is bound to use, and of course to have, a degree of skill "adequate" to the performance of his undertaking; the law requires that he have the degree of skill ordinarily possessed by reputable physicians in that locality. This may or may not be "adequate" to the performance of his undertaking, according to the meaning to be given to the word "undertaking." If it was intended to mean that he undertakes a cure, or to produce a result approximating perfection, as stated in instruction 6, or that he undertakes to use the highest possible degree of skill, the standard was held to be higher than the law requires. The instruction was uncertain on that point, and it may have misled the jury.

The court below in other instructions stated the rule by which the defendants were bound accurately and clearly. There was a clear conflict in the instructions. The Supreme Court was unable to determine which set of rules the jury followed. The plaintiff's case, on the merits, was not strong. It could not be said that these instructions were not injurious to the defendants, and did not improperly control the deliberations of the jury in rendering a verdict. For these reasons the judgment for the plaintiff was reversed.—Hesler v. California Hosler Co., California Supreme Court, 174 Pac. 654.

Inflammation of the Brain Caused by Puncture Held Accident.—A policy of insurance covered "loss or disability resulting directly, independently, and exclusively of all other causes from bodily injuries effected solely through accidental means." In an action on the policy the question was whether injuries resulting in death were affected by accidental means within the meaning of the policy. The trial judge dismissed the complaint. The New York Appellate Division, two justices dissenting, affirmed. The case was carried to the Court of Appeals. On July 6, 1915, the insured had a pimple on his lip. A friend who lunched with him testified that it looked like an ordinary pimple at that time. A day or so later it was larger and more inflamed. On July 10 the insured consulted a physician. The physician's testimony was that there was then a punctured wound in the lip, which had inflamed and infected the deep tissues. The lip was opened by the physicians, and remedies were applied. They were of no avail. The infection spread through the cheek toward the eye. A week later, July 17, the insured became paralyzed and blind. He died the next day. His death was due to inflammation of the brain produced by the germ known as the *Staphylococcus aureus*. There was little doubt that the germ came from the infected pimple. If the infection was the result of accident, the defendant was liable. The Court of Appeals thought there was testimony from which a jury might find that the pimple had been punctured by some instrument, and that the result of the puncture was an infection of the tissues. If that was what happened, there was an accident. The court has held that infection resulting from the use of a hypodermic needle is caused by "accidental means." Bailey v. Interstate Casualty Co., 8 App. Div. 127, 40 N. Y. Supp. 513; Id, 158 N. Y. 723, 53 N. E. 1123; Marchi v. Ætna Life Ins. Co., 140 App. Div. 901, 125 N. Y. Supp. 1130; Id., 205 N. Y. 606, 98 N. E. 1108. The same thing must be true of infection caused by the puncture of a pimple. Unexpected consequences have resulted from an act which seemed trivial and innocent in the doing. Of itself the scratch or the puncture was harmless. Unexpectedly it drove destructive germs beneath the skin, and thereby became lethal. To the scientist who traces the origin of disease there may seem to be no accident in all this. "Probably it is true to say that in the strictest sense, and dealing with the region of physical nature, there is no such thing as an accident." Halsbury, L. C., in Brintons v. Turvey, L. R. 1905 A. C. 230, 233. But the Court of Appeals said that its point of view in fixing the meaning of this contract must not be that of the scientist. It must be that of the average man. Brintons v. Turvey, supra; Ismay v. Williamson, L. R. 1908 A. C. 437, 440. Such a man would say that the dire result, so tragically out of proportion to its trivial cause, was something unforeseen, unexpected, extraordinary, an unlooked-for mishap, and so an accident. This test—the one that is applied in the common speech of men—is also the test to be applied by courts. United States Mutual Acc. Assn. v. Barry, 131 U. S. 100, 9 Sup. Ct. 755, 33 L. Ed. 60, etc. The defendant argued that the puncture may not have caused the infection. But the plaintiff's experts said that in their opinion the entrance of the germs from the skin into the deeper tissues was the result of trauma. They said that trauma is almost invariably the cause of such infections. The court found the signs of trauma here in the punctured wound which was visible when the physician was first consulted. The insured was an athlete in the prime of life and the fullness of health; the infection was not due, therefore, to lowered powers of resistance. The punctured wound was an adequate cause. The evidence suggested no other; at least, a jury might so find. The judgment was reversed, and a new trial granted.—Lewis v. Ocean Accident & Guarantee Corp., 120 N. E. 56.

Accident or Disease—Heat Stroke and Sunstroke.—The Rhode Island Supreme Court holds that a fireman employed in a boiler room, who in the afternoon was overcome by excessive heat and afterwards was taken to a hospital, where he died the following morning from heat exhaustion, died as the result of "personal injury sustained by accident" within the Workmen's Compensation Act, and not from disease of heat exhaustion or from occupational disease; the word "accident" as used in the various workmen's compensation acts not being one of precise meaning. The court said: "It appears to us that the unusual and excessive heat in the boiler room, producing the sudden inability of the physical system of John Walsh to longer resist its debilitating effects, constituted a chain of circumstances which may fairly be regarded as an unlooked-for mishap not designed and undoubtedly unexpected. If by reason of the condition of the floor of the boiler room the deceased had slipped and had fallen, as a result of which a disease had developed in his brain causing his death, we think no one would have questioned that the injury was produced by accident. Can it reasonably he regarded as otherwise when by reason of the high temperature of the air in said room his physical and mental stability is overthrown, and a physiological derangement is set up which causes his death? The respondent has claimed that the effect of the heat upon said Walsh was not sudden, for he complained of it in the afternoon. That he should have been made uncomfortable by the heat was to be expected; but the collapse of his physical resistance may fairly be said to have been suddent.

We think that in thus viewing the occurrence we have not confounded the injury with the accident. The untoward event which in this case produced the disability from which John Walsh died was the aggregate of the circumstances culminating in the breaking down of his physical stamina." The court added that the word "accident," as usually interpreted in workmen's compensation statutes, will, in most cases, be applied to both heat stroke and sunstroke.—Walsh v. River Spinning Co., Rhode Island Supreme Court, 103 Atl. 1025.

Validity of Harrison Act.—The Federal District Court for the Southern District of New York holds that section 2 of the Harrison Anti-Narcotic Law, forbidding any person selling opium to another not presenting a written blank furnished by a revenue collector is not invalid as a revenue resolution, though its chief purpose may be to control distribution, by empowering physicians exclusively to distribute the drug only as a medicine, and thereby suppress consumption by addicts. The court pointed out that the authorities are somewhat doubtful upon this point. The Circuit Court of Appeals for the Sixth Circuit, in Webb v. U. S., certified the question to the United States Supreme Court on February 11, 1918. In U. S. v. Doremus, 246 Fed. 958, the statute was held unconstitutional in the District Court, and the Supreme Court had enough doubt of section 8 in U. S. v. Fuey Moy, 241 U. S. 394, 36 Sup. Ct. 658, to feel obliged to impose upon it what the court itself recognized as a forced construction. On the other hand, section 2 was enforced in U. S. v. Curtis (D. C.) 229 Fed. 288, though without consideration of its constitutionality.—United States v. Rosenberg, 251 Fed. 963.

Military Medicine.

Flavine and Dakin's Solution.—Although a war of immense range and one in which injuries have been incurred on a scale and of a character unheard of before has gone on for more than four years, the question of preventing sepsis in wounds is still one regarding which much disagreement exists among leading surgeons. And yet it would appear that certain antiseptic methods have made a great deal of progress in this direction and that in those instances in which such methods have been applied scientifically and thoroughly, in the manner in fact which their originators directed, the results have been remarkably good. According to Carrel, by employing the Carrel-Dakin methods properly, suppurating wounds and old fractures can be rendered sterile, while complications resulting in the death of the patient or the amputation of the limb may be almost entirely avoided. Again, conspicuous success has been obtained by the treatment of infected wounds by flavine bodies, acording to the testimony of many surgeons. In the hands of Rutherford Morison and in those of a very large number of surgeons "bipp" has acted in an extraordinarily effective way in subduing infection of wounds.

If then, antiseptic treatment of septic wounds has met with so great success and has received unqualified endorsement to this effect from the mouths and the pens of so considerable a proportion of the medical profession, why is it that the best recognized methods of procuring asepsis are still regarded with a certain amount of scepticism and their merits minimized by others of the same profession who carry equal weight and authority?

Mr. John Macintyre, in the *Glasgow Medical Journal* for November, 1918, endeavors to answer this question. He is of the opinion that specialization in the best known methods is required in order to afford fair opportunities for effective demonstration of their worth. That is to say, that there should be flavine hospitals where the flavine bodies are specialized in, and their action more fully investigated; Carrel hospitals where the Carrel-Dakin method is properly carried out and exclusively used and studied, and so on. The methods referred to have sufficiently proven their value to warrant their being employed thus without giving rise to the cry of "hospitals for experimental purposes."

Macintyre tabulates the several reasons why the wonderful properties of new antiseptics have not been duly appreciated by those in administrative power, and by many surgeons whom they control, as follows: (1) Insufficient investigation of the results, even when the methods are properly carried out. (2) Reports, to use Carrel's own words, of "deplorable results obtained in several hospitals by surgeons who believed they were using our methods, but who, in reality, were altering them according to their fancy." (3) Insufficient appreciation of the fact that the new antiseptics are antiseptics for a special purpose, viz., for infected wounds. They are not meant to sterilize instruments or ligatures, or any other thing; they are specialized for definite purposes. (4) A certain amount of overcaution, or *vis inertiæ*, common to all officialdom, a useful element in all organized work, but deadly to scientific progress. Probably this is the weightiest factor.

Moreover, and this is a very important point, Carrel-Dakin's and Browning's antiseptics, solution of sodium hypochlorite and flavine, act not by their unaided power alone in the wound, but in combination with substances produced by the living tissues. Browning has shown that conjunction with the serum of the wound enhances the antiseptic properties of flavine, and Carrel has demonstrated that the solution of sodium hypochlorite combines with the proteins of the wound, when a chloramine is formed, destructive to pathogenic organisms, but not to body cells.

Macintyre is an enthusiast for the Carrel-Dakin method and for flavine, and goes so far as to say that not only do infected wounds heal more rapidly by far by the Carrel method, but that the technique of this method does not take up more of the nurse's time than the older methods. Macintyre has been thoroughly convinced by fifteen months' work among the infected wounded that by the antiseptic methods introduced by Carrel and Browning a long leap forward has been made in the manner of treating infected wounds, and he deprecates the lack of generous recognition of these wonderful life saving means.

Recently, many if not the majority of surgeons have claimed that thorough and continuous drainage of infected wounds was of more consequence by far than the application of any particular antiseptic, and that with regard to the antiseptic the technique of its employment was really what chiefly counted. Consequently, the contention was that the good results obtained by the use of the Carrel-Dakin method were due to the way in which it was carried out. *Per contra*, it might be asserted that the unsatisfactory results of the use of the method were owing to the inadequate way in which it was employed. However, Macintyre and many others, while allowing that the method must be employed properly to exert its full antiseptic action or germ abolishing rôle, at the same time hold that in themselves this antiseptic and flavine are remarkably potent factors in rendering septic wounds sterile.

The War's Toll in Dead and Wounded.—The various nations who were participants in the war have been counting the cost in human life. Statistical reports coming in show that the British losses on all fronts during the war were 4,003,993. The British wounded totaled 2,938,122, the dead 706,726, while the missing, including prisoners numbered 359,145. According to a statement made in the French Chamber of Deputies, 1,400,000 French soldiers were killed during the period of the war. Salvatori Brazilai, a former member of the Italian Cabinet, speaking recently in Paris, stated that the Italian losses included 200,000 soldiers who lost their lives in battle and 300,000 who died of disease, particularly malaria, contracted in Albania, Macedonia, and along the Piave; the severely wounded numbered 300,000. The *Cologne Gazette* of October 25 publishes the total German casualties to that date as 6,066,760, of which 4,750,000 were Prussians. The number of dead among these is placed at 1,611,104, the number of wounded at 3,683,143, and the missing

at 772,522. The paper says that of the number missing 180,000 may be considered dead. The casualties of the Austro-Hungarian armies from the beginning of the war to the end of May, 1918, were slightly over 4,000,000 men according to official statistics from Vienna. Estimates of the Russian casualties announced by the Russian Information Bureau Director figure the total at not less than 9,150,000 men, of whom 3,000,000 were killed and about 1,000,000 disabled for life. Serbia lost 320,000 men in killed, wounded and prisoners. The American casualties in the war number 236,117. Of these 36,154 were killed or died of wounds, 14,811 died of disease, and 2,204 are unclassified. This would make the appalling total of more than eight and one-half millions dead and a far larger number of wounded. An inspection of these figures shows that they are by no means complete in many respects and that when the final reckoning is made the figures will be still greater.

Wounded and Sick Soldiers Return.—During the week of December 20 a total of 7,468 wounded and sick soldiers were landed in the United States from the American Expeditionary forces. This was the largest number received in any week. Of this total 5,828 were landed in New York, and the balance of 1,640 at Newport News. The men are distributed from these ports to the various army hospitals and convalescent camps. There were, on December 24, 42,077 sick or wounded soldiers, sailors, marines, and nurses in New York or nearby hospitals, and for every ward in these hospitals the Red Cross provided a Christmas tree. Canes were distributed to every enlisted man inscribed "Red Cross 1919." The Red Cross presented more than 3000 sailors and marines with fountain pens.

Another Philanthropic German Scheme.—The chief engineer of the steamship *Fredrica*, which is here from Iceland reports a conversation with a German scientist who revealed to him Germany's plans to make drug fiends of all the nations which opposed her. German scientists and chemists had planned to accomplish this by introducing morphine, cocaine, and other habit-forming drugs into patent medicines, tooth pastes and powders, and into well known and much used prophylactic preparations. They had progressed so far as to distribute tooth paste containing drugs among the natives on the coast of Africa, who, without knowing why, enjoyed the sensation which resulted from its use and became addicted to it.

Passaic Doctor Decorated.—Lieut. Robert MacGuffie, who served with the Royal Warwickshire Regiment of the British Army and was wounded by a high explosive shell, November 1, at Valenciennes after being under fire for five months, has received the British War Cross for gallantry and devotion to duty under shell fire and machine gun fire in the front lines. He was gassed and then wounded. He has been operated on three times in France and a fourth time in the London General Hospital. The English surgeons who are attending him are confident that he will in time make a complete recovery.

Asks Release of Army Doctors.—Springfield, Mass., with about 70 local physicians now in the United States service in this country and abroad, and suffering by reason of a renewed influenza outbreak, has through its Department of Health sent a request to the War Department that a part of these doctors be released to meet home needs.

Wounded Men in New York Hospitals.—According to a recent Red Cross report, there are 42,077 sick and wounded soldiers, marines, and nurses in the hospitals of New York and the vicnity, including the Debarkation Hospitals, in the old Greenhut Building, Ellis Island, Hoffman Island, Grand Central Palace, Polyclinic, Fox Hills, and Base Hospital No. 1 on Gun Hill Road.

American Expeditionary Forces Escaped Epidemic.—According to a report prepared by the Chief Surgeon in France and published in the Stars and Stripes, in the nine weeks from September 6 to November 8, at the time when the American Army 2,000,000 men was doing its heaviest fighting, the total deaths reported from all causes, diseases as well as losses in battle, were 19,750. This report points out that in the army in the United States although the men in camps and cantonments was approximately half the number in France, the total deaths were 19,580. It is estimated that the proportionate rate for influenza and pneumonia in the A. E. F. in France for the same period was only one-eleventh that of the United States.

Influenza in the Army and Navy.—An official statement issued by the Surgeon General's office, on December 28, states that influenza is again definitely on the decline in the army camps. Not a single new case was reported in several of the larger camps for the week ended December 20. At Camp Devens, Ayer, Mass., strict precautions were taken against the possible bringing into the camp cases of influenza. Medical officers examined every man on his return. The experiments which have been carried on at the naval hospital at Gallups Island to determine the cause of influenza and the manner in which it was spread have been abandoned, as it was found impossible to produce the disease experimentally. Pfeiffer's bacilli were placed in the nostrils and throats of volunteer subjects and were fed them in their food, and groups who had been given the germs were huddled in close quarters, but the only result was that the men gained in general health. The Coast Guard Stations at Narragansett Pier and Fisher's Island are experiencing an outbreak of influenza.

Inadequate Hospital Accommodations Charged.—Senator Chamberlain of Oregon, chairman of the Military Affairs Committee, in the course of a long speech on December 30, charged the War Department with many delinquencies, among others with having provided insufficient hospital accommodation for the returned sick and wounded soldiers. "Pursuing the dilatory policies we pursued during the war with reference to getting ready to fight," he said, "we are pursuing the same dilatory policies with reference to getting ready to take care of these young men. We are getting word from every hospital and cantonment that the conditions for taking care of these young men are bad. There are 179,000 of them, in round numbers. Where are the hospitals that they are going to put them in? What I am criticising is

not having hospitals ready. We knew when we assembled these men in cantonments that they were going to be sick, but there were no hospitals prepared. Therefore, there were thousands of deaths that ought to have been avoided. We have not now hospitals prepared to accommodate all these wounded men who are coming back, and, therefore, we are going to have a great deal of suffering." Secretary of War Baker, in replying to the charges brought against his administration, admitted that certain of them had some foundation in fact, but denied emphatically that there was any lack of hospital facilities for caring for the sick and wounded soldiers. Complaint has also been made that the American troops in Archangel, Russia, are inadequately supplied with clothing and that an insufficient medical force accompanies them. The outfitting of this force is under the direction of the American army authorities in London.

Brutality in German Hospitals.—A British officer with a paralysis of the hand tells the story of a Hun surgeon who while dressing his arm, touched it in a certain region remarking, "That is the nerve," the British officer understood and speaking German replied, "Yes, that is the nerve." The German surgeon then said to his assistant, "Here is an Englishman who understands German. Now you shall see how an Englishman can scream." He then had the prisoner's arm placed over the assistant's shoulder and bound to his back, and gave the nerve six jabs with an instrument. This beastly performance occurred in a hospital near Metz about the first week in June, 1918. At Wevelgham, last May, a sergeant in charge of a ward hit a delirious patient in the mouth, knocking his teeth in, because the unfortunate patient had placed his hand under his bandage during his delirium, displacing it. The German sergeant had been a priest in civil life.—*New York Medical Journal.*

One hundred and ninety American prisoners arrived early in December at Nymegen, Holland, where they were interviewed by a correspondent of the *New York Times.* These men were from the 106th and 107th Regiments and were mostly from Manhattan, Brooklyn and North Carolina. They had been held in the Bulmen camp. All stated that their treatment was barbarous at the detention camp, many who were only slightly wounded dying owing to gross neglect. The German doctors refused to give adequate attention to slight wounds which they said could wait. This was inexcusable, as plenty of doctors were standing around doing nothing. They appeared to be only interested in frightfully mutilated cases. The wounded were often obliged to walk many miles with undressed wounds. One man had a slight bullet wound in the arm. Attention was refused and he was made to walk miles, his wound getting worse till blood poisoning set in and he died.

Maj. H. Nelson Jackson, M. C., U. S. Army, of Baltimore, arrived in this country from France on December 29. He served as a staff surgeon with the 313th Infantry and was wounded three times. The third wound received at Montfaucen, on September 29, permanently disabled him. The shrapnel from a high explosive which wounded him killed a soldier whose wounds he was dressing at the time.

Deaths in the Service.—Major Howard Walter Beal, M. C., U. S. Army, of Worcester, Mass., a graduate of Harvard Medical School, in 1898, died of wounds received while on duty with the American Expeditionary Forces in France, on July 18, 1918, aged 49 years. He was a member of the American Association of Genito-Urinary Surgeons and the American Urological Association, formerly assistant acting surgeon in the United States Army, surgeon to the out-patient department and cystoscopist to the Worcester Memorial Hospital, and cystoscopist to the Worcester City Hospital.

Capt. Stephen John Henry Reed, M. C., U. S. Army, of Fultonville, N. Y., a graduate of the Albany Medical College, in 1907, on duty in France with the One Hundred and Thirtieth U. S. Infantry and the One Hundred and Thirtieth Field Hospital Sanitary Train No. 108, was killed in action on October 21, aged 37 years.

Lieut. William Thomas Murphy, M. C., U. S. Army, of Waukesha, Wis., a graduate of the Wisconsin College of Physicians and Surgeons, in 1904, on duty with the Three Hundred and Thirtieth Aero Squadron, died from pneumonia following influenza, in a hospital in Grantham, England, on November 2, aged 38 years.

Maj. Clude Edward Prudden, M. C., U. S. Army, of Duluth, Minn., a graduate of the North Western University Medical School, Chicago, in 1909, is reported in the Official Bulletin of December 2 to have died of disease in France at the age of 30 years.

Lieut. William Sarsfield Morriss, M. C., U. S. Army, a graduate of the Harvard Medical School, in 1915, on duty at Camp Joseph B. Johnson, Jacksonville, Fla., died of pneumonia, following influenza, while on a furlough at his home in Fall River, Mass., aged 29 years.

Lieut. Clarence Howarth White, M. C., U. S. Army, of Cohoes, N. Y., a graduate of the Homeopathic Medical School, Ann Arbor, 1909, aged 30 years, is reported to have died of pneumonia in a military hospital in France on November 12.

Capt. James Malcolm McKibbon, M. C., U. S. Army, of Buck Valley, Pa., a graduate of the University of Pennsylvania, in 1899, aged 46 years, died in Mobile Hospital No. 4, in France, on October 23, from wounds received while on duty on the fighting line.

Capt. Benjamin William Carlson, M. C., U. S. Army, of Denver, a graduate of the University Medical College of Kansas City, died from pneumonia at Kelly Field, South San Antonio, Texas, on November 20, aged 44 years.

Lieut. William Frank Guilfoyle, M. C., U. S. Army, of Philadelphia, Pa., a graduate of the University of Pennsylvania, in 1905, aged 36 years, died after having been gassed while on duty with Base Hospital No. 31 in France, on September 2.

Lieut. Albert Marinius Larkin, M. C., U. S. Army, of Jasper, Minn., a graduate of the University of Minnesota, in 1917, died of disease in France, on December 2, aged 29 years.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, January 4, 1919.

GANGI'S REACTION.

AMONG the various reactions for the differentiation of exudates and transudates, the reaction of Gangi is certainly of value. It consists in pouring from three to four cubic centimeters of hydrochloric acid into a test tube, and adding four or five cubic centimeters of the liquid to be tested. If the liquid is an exudate, a white caseous disc immediately forms at the plane of contact of the acid with the liquid, and this gradually extends within the space of twenty-four hours, invading the serous fluid, forming a uniform, thick, shiny white or greenish mass. In the case of a transudate only a thin disc forms. This reaction permits one to control the indications furnished by the microscope by completing them in the case of mixed or illegible cytological formulæ, and what is yet more important is that in many instances the results of the cytological examination may be corrected by the indications offered by Gangi's reaction. Compared with other chemical reactions for the differentiation between exudates and transudates, it would appear to be more delicate than some and quite as delicate as the others, and as the technique of the reaction is of the greatest simplicity it is within the grasp of any practitioner.

In forty-two cases of ascitic fluid collected by Zettel (thesis, Paris, 1915) the results obtained by Gangi's reaction, as well as with other chemical tests, generally coincided with the cytological examination, so that a transudative nature could be attributed to early non-infected cirrhoses, while the characters properly belonging to exudates corresponded to old ascitides or those which had been frequently punctured. Occasionally, Gangi's reaction, as well as other chemical reactions, are even more demonstrative than cytology. They prove that certain cases of cirrhotic ascites which formerly would have been considered infectious in origin, on account of their mixed cytological formulæ (lymphocytes and polynuclears) are in reality mechanical collections. The study of the chemical reactions has shown that the symptomatic ascitides of Laennec's cirrhosis do not necessarily undergo an inflammatory evolution, as has been shown by Gilbert and Villaret in a case presenting the typical syndrome of portal hypertension in which a series of ten punctures was made and in which the cytological and chemical reactions invariably showed a transudate up to the time of the patient's death. Likewise, the study of cases of long-standing ascites in which puncture has not been made often reveals a mechanical process upon which no autogenous infection has become superadded, and these data have permitted Gilbert and Villaret to offer a new argument to the theory of a primary mechanical origin of peritoneal collections in alcoholic cirrhosis. Contrary to what is seen in ascitic or pleuritic collections, no matter what the pathological changes, the nature of the causal affection, and the cytological formula may be Gangi's, Rivalta's, and the collargol reactions have not resulted in precipitating the cerebrospinal fluid. Villaret attributes this fact to the special nature of the subarachnoid serosa, from the anatomical, histological, and physiological points.

To sum up, it may be said that modern investigations show that there exist three principal categories of serous collections: Firstly, pure mechanical collections. These are precipitated by the collargol test and not by those of Gangi and Rivalta, while cytological examination shows exclusively, or distinctly predominating, endothelial plates. They are generally encountered in alcoholic cirrhosis, either at the beginning or during the entire evolution of the process. Secondly, purely inflammatory collections, characterized by precipitation in Gangi's or Rivalta's test, and an antiprecipitating action of collargol and a cytological formula of pure lymphocytosis. These are met with in tuberculous pleurisy and ascites. Thirdly, the mixed collections. In these, either a spontaneous or a secondary infection, usually of tuberculous nature or following a series of punctures, supervenes upon a primary passive congestive process, and the cytological formula slowly changes. In serial examinations the fluid withdrawn successively shows that the polynuclears or lymphocytes progressively replace the epithelial plates. These changes are usually preceded by a negative Gangi reaction which later becomes positive. The precipitating action of collargol persists much longer, but finally disappears in its turn.

THE PATHOGENESIS OF TORSION OF THE OMENTUM.

AT present, the mechanism of torsion of the omentum has been solved to a certain extent only. The reported cases are as yet too few, and, it must be admitted, have been generally studied insufficiently, so that the pathogenesis cannot be definitely settled. Nevertheless, three general data should be mentioned, because they recur in all the published cases. They are, firstly, the constant coexistence of hernia with torsion of the omentum; secondly, the absence of the intestine in the hernial sac; and thirdly, the absence of strangulation by the hernial sac. In some instances the reporters have particularly insisted on the latter, and have pointed out that the finger could be passed up through the hernial sac into the peritoneal cavity.

The provocative cause has been placed in evidence in a certain number of cases. The accidents have appeared following upon an effort, or violent exercise on a bicycle, or yet after the reduction of an inguinal hernia. But in other instances the accidents have occurred suddenly under varying conditions, so that the causative factor escaped notice.

It is probable that in these various cases the pathogenesis of omental torsion is not always the same, and must be due to a different mechanism, according to the type of torsion. The mechanism seems simple enough when the torsion occurs between two adhesions. Under the influence of an irritative process frequently met with in cases of long-standing hernia, it is probable that adhesions became formed between the omental mass and hernial sac. This mass being thus fixed is much more markedly influenced by small traumata which may be inflicted upon a hernia, whether they result from a shock or an attempt at taxis or from the repeated pressure of a bandage, or perchance merely from intestinal peristalis.

The compressed omental mass may, and often is, thinned at the level of the ring, becomes displaced, and at length rolls up upon itself. Such is the mechanism of strangulation between two torsions that one can realize experimentally by twisting a napkin at both ends.

Torsion does not occur completely at once. It is probable that it takes place slowly, and in a progressive manner. Then, under the influence of a more intense trauma, or a slightly violent effort, the turns of the spiral become tightened and the phenomena of strangulation make their appearance. It is in this way, we believe, that the action of violent effort, essays at taxis, etc., which have in some cases immediately preceded and in appearance have been the means of producing the accidents, can be interpreted.

One may invoke the same mechanism for explaining the torsions *en masse*, but in these circumstances we are more inclined to attribute a preponderating influence to malformations of the edges of the omentum, to those thick, hypertrophied fringes that are often encountered, to cords overcharged with fat which can traverse them in any direction, forming true bands. Such conditions evidently prevent the easy unfolding of the omentum over the intestinal mass and favor displacement, or at least contribute to maintain it in a vicious position, should it take place. The changes of structure resulting from a former epiploitis, the thickening and fibrous degeneration, with retraction of the omentum, must likewise have some considerable importance from the pathogenic viewpoint. The hypertrophy of the fringes and the pedicellation which results have played the principal part in quite a number of cases.

INEQUALITY OF THE PUPILS.

It is common for beginning neurologists to be ever on the lookout for fine shades of diagnostic difference, and the pupils furnish a fertile field for hyper-examination. The various reflexes of the pupils are easily enough elicited, but the questions of size, shape, etc., are rather difficult to evaluate. Thus you will find the same patient examined by several competent observers who come to diverse opinions about comparative size, for example. As a matter of fact, there is hardly any more misleading symptom than inequality of the pupils. We see even experienced neurologists and psychiatrists pounce upon a real or supposed case of this kind and make it the basis of varied suppositions about organic brain disease. Too little, however, has been done toward making a systematic study of the pupils, or we should not have such dogmatic statements as those of Fuchs, who says that "inequality of the pupils is always pathological," and that of Foster, who says "a marked difference in size commonly is a pathological symptom."

Lately a Scotch physician has made a study* of a number of recruits sent up for special examination, and formed some interesting conclusions. Thus he found inequality of the pupils in over 10 per cent. of his cases, and in none of these was there evidence either of ocular disease or disease of the central nervous system. Barrie came to the following conclusions: (1) Inequality of the pupils is frequent. (2) It is associated with all the refractive conditions, with a tendency to be more frequent in myopic conditions. (3) The visual acuity is not affected adversely by the fact that one pupil is slightly larger than the other. (4) The left pupil is more frequently larger than the right. (5) Inequality of the pupils occurs as a physiological condition.

Therefore, it would seem that we must regard irregular pupils as a sign of little or no importance by itself, but only significant when occurring and taken into account with other neurological symptoms. At any rate, it has not such diagnostic value as the fixed pupil, or even the irregular one.

SACCHAROMYCOSIS.

Doctor Ramon Ribeyro in the *Anales dc la Facultad de Medicina* for September-October, after deploring the lack of interest in Peru in mycotic affections—which seems strange in view of their prevalence in South America and of the amount of attention which they are receiving in tropical medicine—proceeds to relate a case of a rare form of mycosis due to the yeast fungus. Every rebellious ulcerative process should be regarded as possibly a mycosis until this possibility is disproved. The patient was a young woman of 22, eight years resident of Lima, never ill, and free from syphilitic taint, the Wassermann being negative. On December 4 she fell and hurt her lower lip. Iodine tincture was at once applied over the region and provoked a cheilitis for which a soothing ointment was applied. The condition became a permanent one, rebellious to all treatment. From the description the lips were the seat of a condition much like an obstinate eczema, swollen, red, edematous, and weeping,

*Inequality of the Pupils. By T. Stewart Barrie, M.B. *British Medical Journal*, Nov. 8, 1918.

covered with yellowish brown crusts. The discharge contained pus. In places the lips were raw and here the crusts were readily loosened. The process had spread around the lower lip and had slightly involved the upper. The fluid contained many yeast cells, from which cultures were made. The strains which developed were evidently distinct from the familiar ones known to mycologists. Animal experiment gave negative or inconclusive results. Thus far no pathogenicity had been shown. The author believed infection had occurred through the ointment, which was said to have been rancid and irritating. No proofs were obtained, however, so that the treatment test alone remained. A 5 per cent. solution of sodium bicarbonate was applied and also the same drug was given inwardly. The condition soon showed marked improvement and the discharge was seen to contain fewer yeast cells. In eight days recovery was complete, after six months' persistence.

Pathomimic Elaiopathia.

By this term Tommasi, in the *Giornale di Medicina Militare* for October 31, refers to the consequences of injecting liquid vaseline subcutaneously. The author does not appear to regard in this connection the embolisms of the lungs which may follow injections but merely the local results in situ when disease is to be simulated by soldiers and others. The word pathomimic is used chiefly for conscious simulation practised for a definite motive. The substances presumably injected as well as the lesions provoked having shown much variation, the author made experiments with a view of determining the article chiefly in use. The testimony from the men themselves was unsatisfactory for several reasons. Despite the length of the author's paper his conclusions are quite brief. He found by outside and experimental evidence that so-called vaseline oil was in all likelihood the substance employed in the great majority of cases. It provokes a transitory and brief phase of acute eleopathic phlogosis, which is followed in turn by a long subacute phase which may be termed eleopathic edema, this corresponding to collateral inflammation in ordinary pathology. It is this phase which is so difficult of detection in simulation. Moreover, this phase may be complicated by other artifacts, the results of constriction of a limb, direct trauma, etc. The terminal phenomena comprise cysts, nodules, and scabs.

The Pneumococcus and Italian Bacteriologists.

The *Riforma Medica* publishes photographic reviews of various scientific subjects in which likenesses of all those who have aided in the development of the same appear in miniature. In a review by Ferrannini of pneumococcal infections, it appears that, while native sons were not the first to describe the pneumococcus and its activities, they have done much to further the development of our knowledge. Bozzolo showed that this germ is able to produce in addition to pneumonia many other local inflammations, as meningitis, endocarditis, pericarditis, arthritis, etc. In one case of edema of the larynx this organism was responsible. Foà found a case of polyserositis to be due to the same. When a prominent clinician died of nephritis, Massolongo proved that this lesion was due to the pneumococcus. These discoveries were made in the early eighties soon after the discovery of the germ by Fraenkel and Talamon. Other discoveries by the foregoing and other Italian bacteriologists extended our knowledge of the pathogenicity of the germ until it began to appear that this was unlimited. Many of these cases, however, were isolated and of little clinical importance. Guarnieri is said to have been the first to show that the coccus may behave as a true pyogenic. This pathologist also deserves the honor of having been the first to devise a practicable culture technic for the organism. Many animal experiments were made in these early days, and probably the earliest demonstrations of pneumococcus sepsis were simultaneously made. In 1888 Foà and Bonome obtained pneumotoxins by filtration of cultures through a Chamberland filter. It was shown that digitalis and the pneumotoxin antagonized each others' physiological action, so the use of digitalis in pneumonia is not simply that of a chance stimulant. In 1887 Biondi made the first attempts at serotherapy and immunotherapy in pneumococcus pathology. In laboratory animals these efforts were successful. The first antiserum was made by Merck from Pane's formula.

Spanish Influenza in 1853.

In *El Siglo Medico* for October 19 Dr. Cravajal gives an account of an epidemic of influenza which appeared in the province of Caceres in 1853 and was described by an eye-witness in a current medical periodical. This author also witnessed a former outbreak in 1837 and draws comparisons between the two. The phenomena were practically identical save that the older epidemic was the more virulent. The disease picture was as characteristic for the two epidemics as it is in two epidemics of measles or smallpox. The author saw in both episodes the triad of types, thoracic, nervous, and abdominal. The worst sufferers were individuals already affected with respiratory diseases and invalids in general. So complete was the resemblance in all respects between the two episodes and the present one that the author or editor does not see fit to go into particulars about the death rate and fatalities. The "greater malignancy" of one epidemic suggests naturally a considerable percentage of virulent cases, but the complication of pneumonia is not mentioned, at least by the reviewer. It seems quite obvious that severe bronchopneumonias may be present in some and absent in other epidemics.

The Pathology of Influenzal Pneumonia.

Probably influenza has been studied in the past six months more closely than ever before, yet it is evident that a great deal remains to be learned concerning the malady. The pathological findings are of a distinctive character. Dr. John J. Mackenzie contributes to the *Dominion Medical Monthly* for December, 1918, observations on the pathology of influenza in the present epidemic. The cases observed were those of pneumonia following influenza, fourteen autopsies being made. The main

and most important feature of the findings was that the whole anatomical picture, whether gross or microscopic, is different from an ordinary lobar pneumonia, and Mackenzie states that "after a few post-mortem examinations one gets the impression of a characteristic picture which enables one to recognize at once an influenza pneumonia on the autopsy table." Speculating as to what might happen to lungs in this state in those instances in which recovery takes place, the author is of the opinion that the conditions are not favorable to the resolution which follows lobar pneumonia. When recovery takes place from the early stages it is probable no serious damage will be done to the lung tissue. When, however, the disease progresses to the more advanced conditions, one must expect more or less permanent damage to lungs. It would seem then that pathologically influenzal pneumonia, if not a disease *sui generis*, is at least so profoundly modified by the infection of influenza that it presents characteristics unlike those of any other form of pneumonia.

News of the Week.

Influenza Increases.—Reports coming in from various sections of the country show that in some localities there has been an exacerbation of the influenza epidemic. It is said that the disease is as prevalent in Michigan as in the earlier weeks of the epidemic. Baltimore is also threatened with a serious outbreak, there having been 344 cases reported for the week ending December 22. There was a slight increase in the number of cases reported to the New York City Health Department during the week, though not sufficient to be considered a recurrence of the epidemic. The usual death rate from influenza and pneumonia at this time of the year in New York City is about 13 per 10,000 population. For the week ended December 22 it was 14.75 and for the previous three weeks 15.95, 14 and 14.18 respectively.

Influenza in Central America.—Advices from San Salvador report that influenza is prevalent in that country. The sanitary arrangements for the cities have been taken over by doctors from the United States.

To Help Alaska Fight Influenza.—A joint resolution was introduced into Congress, on December 21, by Senator Jones of Washington requesting an appropriation of $200,000 for the relief of hundreds of indigent natives suffering from influenza in Alaska.

Physicians Engaged in Industrial Practice.—Dr. Francis D. Patterson, Chief of the Division of Industrial Hygiene and Engineering, Department of Labor and Industry, Harrisburg, Pa., is desirous of obtaining a complete list of all physicians engaged in the practice of industrial medicine. It is the practice of the Department to hold semi-annual conferences of Industrial Physicians. The next one is to be held early in 1919, and it is therefore desirable to have the names and addresses of all Industrial Physicians and Surgeons in hand as soon as possible after January 1, 1919.

Germany to Educate Illegitimate Children.—Germany recognizes the rights of illegitimate children, of which she is reported to have 200,000. These children are to be educated at the expense of the State.

Medical Unit for Turkey.—A medical unit of 25 doctors and 50 nurses, which is part of the commission of 250 trained men and women to be sent to Asia Minor for reconstruction and rehabilitation work, will sail for Turkey early in January. This is a part of the work undertaken by the American Committee for relief in the near East, which aims to bring a broken people back to their devastated homes, restore their self confidence, their morale, and their faith and secure them against barbarous persecutors. Dr. George H. Washburn of Boston heads the unit.

Dismiss Indictment against Doctor.—Federal Judge Knox has dismissed the indictment against Dr. Nathaniel Blitzer, Chairman of Local Draft Board 98, who was charged with irregularities in connection with the enforcement of the Selective Draft Law.

Dr. Harry H. Bard has been reelected city physician of Pittsfield, Mass.

Dr. Ralph Herz who has been resident physicient and pathologist of the Metropolitan Hospital on Blackwell's Island has left for Rochester, Minn., to become a member of the clinic of the Mayo brothers.

Charitable Bequest.—The will of Stacey Richmond bequeathes $5,000 to the Staten Island Hospital.

Retirement of Professor Emilius C. Dudley.—The faculty of the Medical School of Northwestern University, Evanston, Illinois, gave a dinner at the Hotel La Salle, Chicago, on December 12, in honor of Professor Emilius C. Dudley, who is retiring from the chair of gynecology after 37 years of work. Many colleagues and friends of Dr. Dudley were there and several speakers both from the faculty and trustees bore witness to his great contribution to the development of modern medicine and the affectionate regard in which he was held. Dr. Wm. E. Quine dwelt especially on Dr. Dudley's relation to medical literature. He told of the latter's coming to Chicago in 1875 and his starting the little medical publication known as the *Chicago Medical Review*. Dr. Dudley's first contribution to medical literature was the invention of the word "Trachelorrhaphy," in 1878. This was followed 20 years later by "The Principles and Practice of Gynecology." In general, Dr. Quine declared, the writings of Dr. Dudley are characterized by compactness and directness. There is no suggestion of inflation, but always a real contribution. Dr. Dudley has written infrequently but never without something to say. In thanking his friends for their expressions of regard Dr. Dudley in reminiscent mood gave an interesting résumé of his associations with some of the great pioneers in medicine and surgery during the last quarter of the 19th century.

Influenza in South Sea Islands.—A despatch to the *Associated Press* reports that fully one-seventh of the population of Papeete, the most important of the Society Islands, has succumbed to influenza. The deaths have been so numerous that it has been impossible to bury the victims, so great pyres have been constructed where the bodies are consigned to

the flames. Attempts to keep the epidemic from spreading have failed. It has now reached the Island of Morea where there are no doctors and it is exacting enormous toll.

Boston to Use Influenza Serum.—The Boston Health authorities have decided to treat influenza-pneumonia patients with blood serum taken from those who have been cured of the disease. Dr. W. C. Woodward, City Health Commissioner, has issued a call asking persons who have recovered and are willing to give their blood for this purpose to register at the Health Department. While Boston is suffering from a recurrence of the epidemic, officials point to the low death rate as indicating that the present outbreak is not as serious as the previous epidemic and they believe that many cases reported as influenza are merely colds. A report to the Massachusetts State Board of Health on December 26 showed 778 new cases in the State during the preceding forty-eight hours. Providence, R. I., and Block Island also report recurrences of the influenza outbreak. The health authorities of Providence have called a conference of physicians to consider methods of dealing with the situation.

Needs of New York Hospitals.—As in past years the collections taken up in the churches of the city on the last Saturday and Sunday of the year were for the United Hospital Fund which is shared by forty-six hospitals which give free service to the poor. A much larger contribution than usual has been asked owing to the increased cost of maintenance due to war conditions. The war has so multiplied the expenses of the hospitals that thirty-six of the forty-six hospitals belonging to the organization show a deficit of $391,341 for the year. In pointing out the needs of the New York hospitals, Frederick D. Greene, the secretary of the United Hospital Fund, states that only one person in ten needing hospital treatment gets it. In this respect New York is far behind London. For contagious diseases alone, London had before the war six times as many hospital beds as New York.

Viennese Suffer from Lack of Food.—The Department of Health of Vienna has just issued a report showing that as the result of lack of food large numbers of adults have lost on an average of thirty-eight pounds; even the wealthy have lost an average of twenty-five pounds. The number of deaths has risen appallingly, the city of Vienna registering 46,131 last year against 33,268 in 1914. Every fourth death within the city is now due to tuberculosis, which has assumed proportions that cause the gravest alarm. Official reports on post mortem examinations say that 24 to 30 per cent. of the deaths have been due to starvation. Out of 56,800 children examined by the medical authorities during the year only 4,637 were found in a healthy condition. The average weight of children between ten and sixteen years of age was only 77 pounds, whereas the normal average should be ninety-five pounds. Another medical survey shows that out of every 1,000 children 491 suffer from general debility, 137 from anemia, 90 from catarrh of the lungs, 76 from bronchitis, 23 from heart disease, and 182 from malnutrition. The State Sick Fund for the City of Vienna reports that the number of patients last year was 74,600 compared with 54,200 in 1914. The majority of these cases were caused by stomach and intestinal disorders owing to insufficient food.

Provide Milk for Babies.—The East Side Citizens' Relief Committee of New York has developed plans to provide milk for starving babies. Distribution of milk will be made through the various settlement houses. A legislative committee has been appointed to see to the framing of new laws to prevent babies starving in the future because of price manipulations.

Definition of Diagnosis Puzzles Court.—The Magistrate of the Long Island City Police Court deferred action in the case of a druggist charged with having practised medicine without a license, in order to have time to consider the definition of "diagnosis." A woman went to the man's drug store complaining of pain under her right shoulder, for which she was advised to go home, apply a mustard plaster, go to bed, and on getting up paint the sore spot with iodine. She returned two days later with the pain still there. The druggist told her she had pleurisy and gave her a brown liquid with directions for taking. The druggist admits having given this advice but denies having made a diagnosis. Several physicians called in to testify differed in regard to the definition of diagnosis, one stating that a diagnosis was a determination of diseased conditions by the symptoms that were apparent and holding that a physical examination was necessary, while another stated that a physical examination was not necessary.

Sentenced for Selling Spurious Aspirin—Jose Kukay, owner of the Verandah Chemical Company, which manufactured what it stated was aspirin, in Brooklyn, was convicted a few days ago before Magistrate Dodd of a violation of the Sanitary Code and sentenced to an indeterminate term of not more than three years in the penitentiary and a fine of $500. The "asperin" manufactured and sold by him was analyzed by the Department of Health and found to consist very largely of talcum powder.

Medical Society Elections.—The Kent County (R. I.) Medical Society, at its annual meeting held in Arctic recently, elected the following officers for the ensuing year: *President*, Dr. J. A. Mack; *Vice-President*, Dr. F. Bailey Smith; *Secretary*, Dr. Benjamin F. Tefft, Jr.; *Treasurer*, Dr. F. Bailey Smith.

The Visiting Nurse Association of North Adams, Mass., at its annual meeting held on December 17, elected the following officers for the ensuing year: *President*, Dr. Martin M. Brown; *Vice-President*, Dr. D. J. Caldwell; *Secretary*, William B. Brown; *Treasurer*, Mrs. P. J. Ashe.

The Douglas County (Minn.) Medical Society, at its annual meeting held in Superior, December 12, elected the following officers for the ensuing year: *President*, Dr. A. J. Hovde; *Vice-President*, Dr. H. L. Sarvela; *Secretary and Treasurer*, Dr. J. Baird; *Censors*, Dr. C. H. Mason and Dr. G. Saunders.

The Denton County (Texas) Medical Society, at its annual meeting held in Denton recently, elected the following officers for the ensuing year: *President*, Dr. J. C. Hooper; *Vice-President*, Dr. T. C. Dobbins; *Secretary-Treasurer*, Dr. Martha M. Crofut; *Censor*, Dr. D. Hinkson of Argyle.

The Laurens County (Ga.) Medical Society,

at its annual meeting held December 22, elected the following officers: *President*, Dr. J. J. Barton; *Vice-President*, Dr. A. T. Coleman, Cadwell; *Secretary and Treasurer*, Dr. J. H. Moore; *Board of Censors*, Dr. J. E. New, Dexter; Dr. C. G. Moye, Brewton; Dr. W. R. Brigham, Dublin; *Public Health Committee*, Dr. J. L. Weddington, chairman; Dr. A. T. Coleman, Cadwell; Dr. C. G. Moye, Brewton; *Programs and Scientific Matters*, Dr. E. B. Claxton, chairman; Dr. W. R. Brigham, Dr. H. L. Montford.

THE BIBB COUNTY (GA.) MEDICAL SOCIETY, at its annual meeting held at Macon on December 17, elected the following officers: *President*, Dr. T. D. Walker, Jr.; *Vice-President*, Dr. A. T. Kemp; *Secretary and Treasurer*, C. C. Cleghorn; *Librarian*, Dr. T. E. Blackshear; *Delegates to the State Convention*, Dr. O. H. Weaver and Dr. C. H. Richardson; *Alternates*, Dr. W. J. Little and Dr. T. E. Rogers.

THE FULTON COUNTY (GA.) MEDICAL SOCIETY, at its meeting on December 19, elected the following officers: *President*, Dr. E. C. Thrash; *Vice-President*, Dr. W. B. Emery; *Secretary and Treasurer*, Dr. E. C. Merritt; *Member of Board of Censors*, Dr. Marion Benson.

Dr. Tanner, who attracted a large share of public attention some years ago by his feats of fasting, died in San Diego on December 28 at the age of 91 years, after an illness of a year's duration. He claimed that the practice of fasting occasionally for several weeks at a stretch would ensure health and longevity. That or an inherent strength of constitution seemed to be effective in his case.

Obituary Notes.—Dr. HENRY KIP, a graduate of the College of Physicians and Surgeons, New York, in 1877, died of pneumonia at his home in Paterson, N. J., on December 23, aged 66 years.

Dr. ROBERT NEWCOMB MCHENRY, of Millville, N. J., died at Philadelphia on December 17 at the age of 29 years. He was Coroner-elect of Cumberland County. He was graduated from the Medical Department of the University of Pennsylvania in the class of 1912.

Dr. JOSEPH S. GENTILE of Chicago, a graduate of the Chicago College of Medicine and Surgery, in 1913, aged 33 years, died, on December 15, from a bullet wound inflicted by a patient supposed to be delirious from influenza.

Dr. WILLIAM TOWNSEND VANVRENDENBURG of New Brighton, Staten Island, a graduate of the College of Physicians and Surgeons, New York, in 1881, died at the Home for Incurables, after a long illness, on December 22.

Dr. GEORGE BANEY WOLFE, a member of the staff of the Sheppard-Pratt Hospital, was shot and instantly killed in the office of the institution on December 21. He was a graduate of Johns Hopkins University in 1912, and was 33 years of age.

Dr. MATTHEW B. DUBOIS, a graduate of the College of Physicians and Surgeons, New York, in 1868, died after a long illness at his home in New York on December 29, aged 78 years.

Dr. EDWIN E. JONES of Colebrook, N. H., was instantly killed in an automobile accident on December 28. Dr. Jones was 48 years of age, a graduate of Dartmouth Medical college, in 1894, and founder of the Colebrook Hospital.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

MEDICAL TREATMENT OF RETURNED SOLDIERS—UNWANTED IMMIGRANTS—INFLUENZA IN DUBLIN—RETURN OF THE DOCTORS WITH THE ARMY—DEATH OF MR. NOTTIDGE C. MACNAMARA.

LONDON, Dec. 12, 1918.

IN the natural course of events the majority of returned soldiers in need of medical advice and treatment have come under the aegis of the Ministry of Pensions. While the war was on the sick soldiers were roughly divided into two classes:—those temporarily sick but believed to be fit for further service who were on treatment at the various military institutions to which their conditions had allocated them; and those who were retired from the army on physical grounds being entitled to pensions and who came within the jurisdiction of the Pension Department. This department has always attempted to perform its implied promise that any man who had suffered from one of the diseases of the war should be brought before a medical tribunal properly selected and should have his pension allotted in the circumstances most likely to improve the disablement or afford him chances of cure. In all methods of improvement as well as in all methods of cure medicine and surgery have advanced with enormous strides during the war, new knowledge being founded on the experience of a struggle carried on unceasingly for over four years in the hottest, the coldest, the driest, the wettest, the healthiest and the most pestilential, the richest and the poorest, districts of the known world. Every clime has brought its lesson, for change of environment has affected the diagnosis and treatment of conditions with which we were previously but half familiar. Further, the medical professions of the Allied Nations, by interchange of information on every conceivable subject, have joined in a marvelous symposium of pathological learning and endeavor. It is now hoped and expected that all the pensioners will obtain full benefit of this learning, will receive expert examination and advice, and be recompensed in accordance to their claims by persons who are scientifically competent to evaluate them. Fortunately the Royal Army Medical Corps has already taken anticipatory steps toward some comprehensive policy. It is their officers who have seen malaria in all its forms, dysentery in all its varieties, cardiac disorders produced or aggravated by military service, special military conditions like trench fever, shell shock and a host of other neurological troubles, and special naval conditions like hideous burns. For some time now the Army Medical Staff has set up special hospitals at various centers, and for these hospitals prompt steps will be taken to procure the assistance of medical advisers, learned in each particular direction, so that during the course of demobilization the pensioner may be drafted with the least friction and trouble to the institution best suited to his case. For six months after the war, beginning with this week, Colonel A. L. Webb, Assistant Director General of the Army Medical Staff, will take over the program thus outlined, and will bring under one head the activities

of his own department and those of the Ministry of Pensions. That full justice should be done to those who have fought for their country and suffered bitterly in fighting is the determination of the whole country, and that this ideal forms a part of the election address of every candidate for the new Parliament is only an expression of the view held by all. Colonel Webb has been a most competent assistant to Surgeon General Goodwin, the Director General of the Army Medical Service, and in his hands a very difficult piece of organization stands good chances of success.

At the end of the eighteenth century, and about twenty years after the celebrated discoverer, Captain Cook, had explored the east coast of Australia, the British Government founded at Port Jackson a penal settlement. Tasmania, a hundred years ago known as Van Diemen's Land, was similarly treated, and in the early history of New South Wales the reception of British convicts played a large part. But in the first forty years of civilized life Australia, emerging from a military colonization to an infant commonwealth, made such strides that the need for bond labor disappeared, and the determination not to play the host to such undesirable immigrants was made good. Is some such analogous determination with regard to tuberculosis about to take place? And if so, can reasons of equivalent force be put forward? The British dependency now in question is South Africa, where the public proposals with regard to the admission of ex-soldiers, who may be tuberculous subjects, have been warmly criticized. When it was generally believed that the Union Government intended to waive the regulation controlling the entry of tuberculous immigrants in favor of ex-soldiers, the feeling grew so high that a semi-official *dementi* had to be issued, but it stands to reason that South Africa must be prepared to deal with her own tuberculous veterans. And to medical men a resolution to go further, with proper precautions, would certainly commend itself. Except in the caustic humor of the late Samuel Butler, disease cannot be compared to sin and treated as sin, and what Australia did in 1839 in respect to convicts is not an example to be followed by South Africa eighty years later in respect of tuberculous subjects. South Africa is possessed of climate and of opportunities that make the intelligent treatment of tuberculous subjects successful and enable that treatment to be conducted without risk to others, and it is to be hoped that the policy of exclusion will not be persevered in, or, at any rate, will not be insisted upon before the possibility of providing proper hygienic precautions has been discussed. There is a whole political party in South Africa which is opposed to all immigration of any kind, and the suggested introduction of a large mass of tuberculous ex-soldiers and ex-sailors, against whose immigration reasonable protest can on the surface be made, will much strengthen the hands of this party. Medicine involved in politics is apt to come off second best, but it is to be hoped that the Union Government will come to no hasty decision.

The influenza epidemic has surged up, dropped, risen again, and done everything but definitely disappear during the past fortnight. In some localities hitherto unattacked it has just made its first appearance; other localities which from previous attacks should have been rendered immune are again registering many cases. But to Dublin its attachment has been faithful. The medical officer of health of the city of Dublin, Sir Charles Cameron, has now stated that a decline in the epidemic has virtually begun, and certainly the number of deaths in Dublin from influenza last week went to support his statement—or were the origin of it. There were no one knows exactly how many deaths—43 is the official estimate—because different doctors had different standards of diagnosis, but the group of conditions signalized by rapid attacks of pneumonia apparently caused ten deaths less than in the previous fortnight. The public health of Dublin, as of Belfast, remains highly discreditable to the authorities, and the fault entirely lies with them and a supine public and not with the hard-worked and capable executive officers. It is probable that in both the great Irish cities the influenza is now subsiding, as is happening in great English centers like London and Manchester. The health authorities in Manchester are now confident that they have secured the upper hand of the epidemic, which has been devastating the city for more than a month. The deaths in the first week of December were 243, but the total is 144 fewer than in the week before. At Bristol in the same week the deaths fell to 84, after an average for the previous month of 100.

It is admitted on all hands that as many medical men as can be spared promptly from their temporary military duties should be returned to civilian practice. No one knows the cause of the delay that is taking place, unless it be that, Parliament being prorogued for the general election, all the ministers concerned are absent in their constituencies on electioneering business. A great many people have deplored the necessity, if necessity there was, of holding a general election, and certainly the dearth of doctors lends point to the view that only the profoundest national necessity ought to have arrested the domestic business of the country at this moment. None of the civil departments hold any view save that it is imperative that doctors should be returned at the first possible moment. The Local Government Board, the Board of Education, and the National Insurance Commission are in agreement here with the War Office probably, and with every other branch of government. The health of the country is on the whole good, despite the ravages of influenza, and even here, smitten though every division of the kingdom has been, the toll of life has been lower than in many other countries. But winter is upon us, bringing with it the usual train of sickness, especially among the old and among women and children, and the sadly depleted ranks of the general practitioner at home look forward with real apprehension to the approaching work. For years these men have done double and treble shifts, and it is due to their devotion that the general health, urban and rural, has been maintained throughout the war at a good level; but they are nearly at the end of their tether, and it is a cruel situation that relief, abundant relief, is available, and that only official delay precludes it from materializing to a great extent. This is not to say that doctors, and infinitely more doctors than have any place on the regular military establishment, are not required by the army. We still have millions of men under arms and a large percentage of sick and wounded in the military establishments. With the cessation of war

the acute rushes of work no longer occur; but a vast military population remains, and some of it under quite unfavorable conditions, whose medical needs must be cared for; but having regard to the excellent discipline which now prevails in a military organization tried by more than four years of war, there should be no difficulty in promptly deciding how many civilian medical men must be retained with the colors, and how many can be spared to take up the increasing burden of civilian practice.

The death has occurred of Mr. N. C. Macnamara at the great age of 86. He was a consulting surgeon of wide repute in his day, and was a learned man outside purely professional subjects. He also made an unusual start by joining as a young man the Indian Medical Service, and remaining for no less than 20 years in that service, so that he was 44 years of age when, on retirement as a surgeon-major, he decided to start in London as a consulting surgeon. While in India he had specialized on diseases of the eye, and when he was appointed general surgeon to the Westminster Hospital he also obtained the post of surgeon to the Westminster Ophthalmic Hospital. He soon obtained office in the Royal College of Surgeons of England, being vice-president in 1893; the presidency in many opinions should have gone to him also. His wide general reading found expression in a book published in his eighty-fourth year entitled "Instinct and Intelligence."

Progress of Medical Science.

New York Medical Journal.

December 21, 1918.

1. A Bolshevik Bolus. William P. Cunningham.
2. Friedlander Bacillus the Causative Factor in Bronchopneumonia Following Influenza. James B. Rucker, Jr., and John J. Wenner.
3. The Diagnosis of Sinus Thrombosis. Alfred Braun.
4. The Constipation Treatment of Pneumonia. Edward E. Cornwall.
5. Variations in the Clinical Picture of Interstitial Keratitis. Aaron Brav.
6. The Knifeless Treatment of Piles. Simon L. Katzoff.

4. The Constipation Treatment of Pneumonia.—Edward E. Cornwall states that for the past six years he has employed the "constipation treatment' of pneumonia and that his belief in its value has been strengthened by his own experience and the testimony of others. This treatment consists of letting the bowels alone unless special conditions arise which call for the use of artificial evacuants; for instance, if no bowel movement has taken place within twenty-four hours of the time when the patient comes under observation and the disease is in its early stage and the heart in good condition, a mild laxative or enema is given; or, if marked tympanites developes, if patient complains of a sense of fullness in the rectum, a simple anema is given; and two days after defervescence an enema is regularly given if necessary. An important feature of the treatment is the regulation of the diet. The quantity of food is reduced below the health ration and its nature must he such that it will change the intestinal flora from malign to benign types. Articles of food which constitute culture media favorable to the development of swallowed pneumococci and indigenous saprophytic bacteria must be excluded from the diet, and those which constitute media favorable to the growth of benign acidophilic bacteria must be included. The saline balance in the diet must be preserved and the calcium deficiency provided against; proper rations of alkalies and the necessary vitamines and water must be supplied. In general, the food must be such as will leave little undigested residue and discourage the activity of the saprophytic bacteria, in which case large fecal accumulations cannot well take place and the author gives a dietetic prescription to meet these requirements. Another feature of the treatment indicated is the stimulation of the heart. This stimulation is not begun until found necessary and care is taken to avoid overstimulation. Strychnine, strophanthus or digitalis, and caffeine are used. First, strychnine sulphate in doses of 1/60 grain every four hours. If more stimulation is needed, one and a half to three minims of tincture of strophanthus is added every four hours—or, if the tincture is not well borne or a more powerful effect required, intramuscular injections of 1/1000 to 1/500 grain of strophanthin are given every four hours. If still more stimulation is required, caffeine citrate or caffeine and sodium benzoate is given every four hours, and perhaps the dose of strychnine is increased to 1/30 grain. If found necessary, the dose of strophanthin may be increased temporarily to 1/250 grain every four hours, and in sudden and severe cardiac failure 1/100 grain of strophanthin is given intramuscularly or intravenously; in the latter case, however, no more strophanthin must be given for twenty-four hours, although the other drugs may be continued. Alcohol is usually given to alcoholic addicts and to patients advanced in years. In this plan of treatment, a conservative attitude is adopted towards the relief of symptoms. It is recognized that symptoms are evidences of nature's reparative activity and should not necessarily be suppressed; it is also recognized that severe and persistent symptoms may be harmful and therefore require modification. Pain, cough, restlessness and insomnia are relieved by hot poultices, morphine and codeine in small doses; opiates, however, are strictly forbidden in the later stages of the disease and if respiration is embarrassed. Diarrhea, vomiting, and tympanites, which latter rarely occurs during the treatment, are controlled by diet restriction. The author lays particular stress on the avoidance of routine catharsis, and especially the routine administration of calomel and magnesium sulphate, pointing out that magnesium sulphate is a cardiac depressant and kidney irritant after absorption, and that calomel is an irritant to the intestinal mucosa and hepatic tissues. Antipyretics are given only in case of hyperpyrexia. Diuretic and expectorant drugs are not given, and reliance is placed on the diet for modifying the intestinal flora. Two series of cases are cited, each treated in the same hospital, the first extending from May 1, 1906, to January 1, 1913, and the second from January 1, 1913, to July 1, 1918. In the first series of 124 cases artificial evacuants were employed, the mortality being 30.6 per cent. In the second series of 218 cases, when artificial evacuants were not used regularly, the mortality was 18.8 per cent.

Journal of the American Medical Association.

December 21, 1918.

1. The Value of Modern Blood Chemistry to the Clinician. Alexander O. Gettler and A. V. St. George.
2. Splanchnoptosis: Its Cause, Prevention and Cure, with Special Reference to the Duret-Rovsing Operation. George Nohle Kreider.
3. Comparative Value of Ipecac and Its Alkaloids in Treatment of Intestinal Endamebiasis. S. K. Simon.
4. Focal Infections of the Eye from the Intestinal Tract. James Garfield Dwyer.
5. Early Diagnosis of Cerebrospinal Meningitis by the Examination of Stained Blood Films: Report of a Case W. W. King.
6. A Selective Medium for B. Influenzae: Oleate-Hemoglobin Agar. O. T. Avery.
7. Nephrolithiasis Purpura Hemorrhagica and Streptococcus Infection: Report of a Case Without Febrile Reaction. A. B. Wadsworth.
8. Citrated Blood in Treatment of the Pneumonia Following Influenza: Results of the Use of Blood from Convalescent Influenza Patients. W. W. G. Maclachlan and W. J. Fetter.

3. Comparative Value of Ipecac and Its Alkaloids in Treatment of Intestinal Endamebiasis.—Sidney K. Simon reviews the history of ipecac as a therapeutic remedy since its introduction into Europe in 1648. As a result of the disagreeable effects which often attended its administration, the drug had fallen into almost complete disuse until rescued from oblivion by Sir Patrick Manson and other English observers in the tropics. Investigations into the pharmacology of ipecac were made as far back as 1817 by Pelletier, who believed that the root contained but one alkaloid—emetine. In 1894, Paul and Crownley discovered cephaeline, and subsequently another alkaloid—psychotrin—was identified.

Experiments on the toxic effects of emetine showed that (1) Emetine depresses and may eventually paralyze the heart; (2) It is a powerful gastrointestinal irritant, whether given by mouth of by subcutaneous injection; (3) It causes definite derangement of metabolism characterized by increase in nitrogen loss and an acidosis; (4) While these actions may not be of importance in normal individuals, in pathological states of the circulation, intestinal tract, or metabolism, they may be a very definite source of danger. Moreover it has been shown that the physiological action of cephaeline is closely similar to that of emetine, and both of these alkaloids have failed to remove encysted ameba from the tissues. In view of this, the author became more and more convinced that serious consideration should be given by the profession to a return to the use of the original crude ipecac root, and in 1909 he first employed ipecac in the form of enteric coated pills, with gratifying results. He points out, however, that a careful attention to detail is essential in this method of treatment, and he attributes former prejudice against the administration of the crude ipecac to failure to observe the smaller details of the treatment. He concludes that: (1) Both ipecac and its constituent alkaloidal derivatives, emetine and cephaeline, have been found to act specifically on the vegetative or living forms of the *Endamoeba histolytica*. (2) The crude ipecac root in doses sufficient completely to destroy the infecting organisms is never toxic. (3) Both emetine and cephaeline frequently exhibit toxic properties in an average dosage of from 0.5 to 1 grain daily over a limited period. (4) The alkaloids alone are ineffective within safe limits of dosage in destroying the encysted forms of the *Endamœba histolytica*. (5) The entire ipecac root, when employed under proper conditions, not only destroys the vegetative endameba but the encysted forms as well, and thereby prevents recurrences or relapses of the infection.

The Lancet.

November 30, 1918.

1. A Triple Plea from a More Rigorous Standard of Cure in the Treatment of Gonorrhea. E. R. Townley Clarkson. With a Suggested Scheme as Regards Testing for Cure in Gonorrhea. A. Malcolm Simpson and E. R. Townley Clarkson.
2. A Note on the Use of "Antigens" in Diagnosis by the Wassermann Reaction; the Necessity for Further Investigation. C. H. Browning and E. L. Kennaway.
3. The Relative Content of Antiscorbutic Principle in Limes and Lemons, Together with Some New Facts and Some Old Observations Concerning the Value of "Lime Juice" in the Prevention of Scurvy. A—Experimental Inquiry by Harriette Chick, E. Margaret Hume, and Ruth F. Skelton. B—Historical Inquiry by Alice Henderson Smith.
4. A Case of Repeated Cessation of the Heart Beat. E. P. Poulton and H. M. Stewart.
5. The Spacing of Injections in the Maintenance of a Pneumothorax. Claude Lillingston.
6. Blue Sclerotics, in Connection with Other Hereditary or Congenital Abnormalities. N. Voorhoeve.

4. A Case of Repeated Cessation of the Heart Beat.—E. P. Poulton and H. M. Stewart report a case of repeated stoppage of the heart beat with fatal result. The patient, a man of 67 years of age, had been healthy all his life and had been accustomed to take lots of exercise. There was no history of specific disease. On March 13, he complained of giddy attacks and pulse on one occasion was 30. He stayed in bed for two or three days and got up feeling quite well, though he was having short fainting attacks each day. On March 25th at 2.30 p. m. he began having repeated fainting attacks until 4.30, and again from 5.30 to 7.30. He then got some sleep, but the attacks recommenced at 10 p. m. and continued almost without intermission until his death on the afternoon of March 28. During these attacks the heart stopped beating, and all attempts to interrupt the cycle were without effect. During the period of unconsciousness, the most noticeable feature about the case was the rapid deep breathing, which the authors state was more marked than they had ever observed in any other pathological condition. The length of the cycle was from 115 to 125 seconds, and roughly it might be said that during every two minutes the pulse completely stopped for 40 seconds, during which time no beat of the heart was audible under the stethoscope and there was no sound suggestive of auricular beats, nor was any venous pulsation observed in the neck. No polygraph tracing could be obtained. In this case there was no obvious abnormality in the heart. Postmortem examination showed the lungs congested and edematous; atheroma in aorta; hypertrophy in both ventricles; mottled heart muscle, and moderate degree of fibrosis was suspected; coronary arteries were atheromatous but patent; aortic and mitral valves were slightly thickened. The brain substance looked healthy; vertebral, basillar, internal carotid and cerebral arteries were all atheromatous. Microscopic examination of sections of the medulla at the middle and upper part of the vagus nucleus showed vacuolation of some of the cells and apparent chromatolysis with, occasionally, eccentric nucleus. Numerous small hemorrhages were found throughout the sections, which were probably secondary to the repeated asphyxial periods. Sections were also examined of the lower part of the medulla and of the vagus nerve trunk; these showed no abnormality or sign of degeneration. The authors call attention particularly to the enormously increased respiration observed in this case during the attacks. This was due presumably to stasis of CO_2 in the respiratory centers associated with a lack of oxygen. The rapid onset of dyspnea suggested a local action on the centers and it may well be, as Haldane and Douglas have suggested, that the lack of oxygen acts by forming lactic acid locally in the respiratory center. The authors refer to Neuburger and Edinger's case as a basis of comparison.

5. The Spacing of Injections in the Maintenance of a Pneumothorax.—Claude Lillingston points out that since pneumothorax was started in England in 1910 there has been no great teaching center or standard work from which a beginner could learn or turn for help in difficult cases. Dr. Clive Riviere's book has therefore met a want. The effects of inadequate teaching are particularly evident with regard to the spacing of refills and the total duration of the treatment, and as a warning against too long intervals between refills the author gives the history of one of his own cases. In the case in question, a few days after the ninth injection an acute intercurrent infection sent the temperature up and it was thought best at this critical stage to defer injections for fourteen days, when the temperature was practically normal again. It was then found, however, that the lung had become adherent to the chest wall. In spite of frequent injections of gas, when as high a pressure as + 16 cm. of water was created, the adhesions did not give way and even the development of a pleural effusion several weeks later failed to compress the lower half of the lung. The author therefore emphasizes the importance of frequent refills, the common mistake being to err in the opposite direction. He states that in his ten years' experience, he cannot remember a single case either under his own care or that of his colleagues, in which refills were given too frequently.

British Medical Journal.

November 30, 1918.

1. Spolia Opima. Sir John Bland Sutton.
2. A Report on Temporary Pegs for Amputation of the Lower Limb. Major W. A. Chapple.
3. Some Reflections on Cardiac Conditions in Soldiers. R. O. Moon.
4. A Note on the Thyro-toxic Heart. G. Rome Hall.
5. Digressions. A. J. Campbell.

3. Some Reflections on Cardiac Conditions in Soldiers.—R. O. Moon points out that while on the one hand the war has shown the strength of the heart, it has also shown its weakness. As was to be expected, the number of cases with definite organic heart lesions is comparatively small, since such recruits would hardly be admitted into the army. Instances have occurred, however, in which a soldier with a serious cardiac lesion has been able to perform an extraordinary amount of work and to carry on satisfactorily for a considerable length of time. All valvular lesions—mitral or aortic—when of degenerative, arteriosclerotic origin, are unfitted for active service, French writers being of the opinion that mitral stenosis shows least resistance to active service conditions. The great majority of cardiac cases in military hospitals were invalided with a variety of symptoms, such as shortness of breath on the march, faint feelings, giddiness, and especially a general sense

of exhaustion, with, occasionally, nocturnal palpitations; but complaint of actual pain was infrequent. One might term many such cases "subnormal" hearts. The usual physical signs are rapid pulse, a diffuse slapping impulse, and at times an indefinite short systolic murmur at the apex, which has little resemblance to a true organic mitral murmur. Many of these patients have suffered in the past from rheumatism, diphtheria, or frequent attacks of influenza, or they have had trench fever or some indefinite febrile disorder during the war. (The author is of opinion that these last named affections do quite definitely impair the efficiency of the myocardium.) Doubtless many hearts which give way on active service are intrinsically unsound though they were able to do their ordinary work in civilian life because it involved no particular strain. It is the sudden and unexpected demands made upon them that tell on the nervous system, and this factor it is impossible to estimate beforehand by any mechanical device. The serious effect of emotion upon the heart was noted by Corvisart during the French Revolution and in this war three definite cases of permanent tachycardia of emotional origin have been recorded by French physicians. The author has found that malaria rarely has more than a transitory effect upon the heart; he thinks it probable that when cardiac weakness does occur in malaria, it is due to the dysentery from which the patients have frequently suffered rather than to the malaria; Da Costa gives "prolonged diarrhea" as one of the most frequent causes of the "irritable heart of soldiers." In the author's experience the tachycardia which is so common in soldiers has not often been due to hyperthyroidism. Tobacco he considers a far more potent cause, especially in young soldiers. Arteriosclerosis is fairly common among older men, but is usually due to causes which were in operation before the man entered the army; it is, however, made worse by abuse of alcohol and tobacco and, in the British army, by the excessive meat dietary. A number of observers, and British physicians particularly, have insisted upon the fact that many cases of apparent cardiac disability are not, strictly speaking, cardiac at all; they might be regarded as conditions of "cardiasthenia" on the analogy of neurasthenia. How much is due to a nervous and how much to a muscular affection, however, must be determined by the physician; it is unlikely that mechanical methods will prove of much assistance.

Berliner klinische Wochenschrift.

October 12, 1918.

Operations on the Nerves and the Late Results.—L. Seyberth is rather optimistic and publishes the case records of fifteen patients in whom the nerve was either cleared from a bed of cicatricial tissue or nerve suture in cases of division. The functional results were, generally speaking, satisfactory, with the exception of the cases where an anastomosis of the divided nerve was made with another nerve trunk. Suture of a traumatized nerve gives a much more constant success than might be expected. From his personal results Seyberth is of the opinion that operation should be undertaken in all cases of nerve injury. From the technical viewpoint the writer recommends among other things never to incise a muscle during the interference. If a muscle cannot be retracted either to one side or the other it is better to divide the tendon and thus expose the field of operation. The tendon is afterward sutured and the function of the muscle is perfectly preserved.

The Action of Quinine on the Blood.—F. Johannesohn studies especially the action of quinine given hypodermically to healthy subjects, on the number of red and white cells, and the tenor of the blood in oxydases. The leucopenia created by a prolonged absorption of quinine may attain less than 50 per cent. of the initial figure. After exhibition of the drug has been stopped the normal number becomes rapidly established. But if the treatment is continued sufficiently long, after a leucopenia of several weeks' duration, the number of leucocytes will nevertheless return to the normal. A sort of immunity to the drug is acquired by the leucocytes. It is to be noted that during the quinine leucopenia the digestive or infectious leucocytoses are quite as intense as in an untreated subject. The leucopenia is not the result of a destruction of the leucocytes, because the elimination of nitrogenized bodies of the urine is not increased. The writer admits that only a retention of the leucocytes takes place in certain organs. Studying *in vitro* the inhibition exercised by the salts of quinine on the fermentative process of oxydation, the writer notes that this inhibition is only realized in concentrations such as never occur in the human body. In therapeutic doses quinine is incapable of counteracting the organic oxydases.

Münchener medizinische Wochenschrift.

October 21, 1918.

The First "Trimenon" (Quarter Year).—E. Moro shows by a series of interesting considerations that the first three months of life represent a perfectly characteristic evolutive period, possessing its own physiology and pathology, as well as a peculiar physiognomy. This period is distinguished by the rate of growth in both length and weight which, from the fourth month, offers a sudden drop in the rapidity of the increase by the extreme lability of the digestive junction and by the frequency of certain dermatoses. Rhachitism and spasmophilia are practically nonexistene at this period of life. Apropos of this, the writer limits the hypothesis that calcium should be given to nurslings from the time of birth in sufficient quantity for the needs of the baby during the nursing period. At any rate, the dose, even when small, is sufficient in the majority of cases for the needs of the baby during the first three months. As a practical consequence of these considerations, Moro shows that the minimum time for breast feeding should be at least three months in cases where it cannot be continued for a longer time, as this is the only kind of feeding which is perfectly adapted to this period of great organic frailness.

The Complications of Dysentery and Their Treatment.—Schemensky offers the following conclusions: (1) Articular and muscular rheumatism is an important sequela of dysentery and possesses a particular tenacity, although the pain is bearable. Treatment by polyvalent serum at the dose of 40 c.c. frequently repeated. (2) Cardiac affections are uncommon during dysentery, and when they occur are only temporary. (3) Anemia of the symptomatic type appears after repeated intestinal hemorrhage, and to it is due the weakness, tinnitus aurium, vertigo, vomiting, and gastric disturbances which may persist for a long time after recovery. (4) The edema following dysentery is similar to independent edema observed during the war and due to vascular lesions. (5) The writer insists, from the viewpoint of bacteriology, on the insufficiency of our diagnostic means. The diagnosis is above all clinical and epidemiological.

Deutsche medizinische Wochenschrift.

October 17, 1918.

The Treatment of Diphtheria with Plain Horse Serum.—H. Bonhoff has undertaken to reply to the conclusions arrived at by Bingel, who made a comparative study of the results obtained by antidiphtheritic serum and those of plain horse serum and came to the conclusion that they were identical in effect. Ordinary antidiphtheritic serum, therefore, does not act on account of its antitoxin content but merely in its quality of serum. Bonhoff criticizes Bingel's reasoning, and, taking the same statistics, he makes them show quite the opposite conclusions. He likewise recalls the results obtained by animal experiment which proves that the serum acts as an antitoxic agent. Laboratory experiments have up to date only accentuated the analogy between the reactions of the human body in disease and those of animals used in experimental work. It is therefore permissible to draw conclusions from animal experiments which possess both a clinical and therapeutic value. The position taken by Bingel, Bonhoff holds, is to be considered as nefarious and even dangerous from the viewpoint of epidemiology and treatment.

A Case of Mitral Lesion with Cardiac Asthenia, the Ventricular Weakness Being Demonstrable by the Venous Pulse.—R. Ohm records the case of a patient in whom the diagnosis of a mitral lesion appeared cer-

tain. By the use of the volumetric phlebograph which the writer has invented he came to the conclusion that there was an asthenia of the right ventricle, as this should give a diastonc wave "en plateau" on the phlebogram. It is to be remarked that the case is not sufficiently elucidated from the viewpoint of the diagnosis because in point of fact the electrocardiographic tracings reveal a total bradycardia of 46–42 to the minute, for which the writer offers no explanation. As to the change in the venous pulse, it enters into the type of diastolic stasis described long since by Bard (of Geneva) who regarded it as a characteristic evidence of lesions of the left heart.

The Serodiagnosis of Syphilis.—F. Lesser continues his studies on Meinicke's reaction. Less complicated than the Wassermann, it is of equal specificity. As to the drawbacks of this reaction and doubts arising in the interpretation of results, they are the same as for other reactions.

Wiener medizinische Wochenschrift.

October 12, 1918.

The Care of the Injured in the War and Social Hygiene.—J. Kaup offers some details on the organization of these services in Austria. The recruiting in civil installations is very much more considerable in Austria than in Germany. Reserve Hospital No. 11 at Vienna was able to send back 75 per cent. of the 24,000 wounded soldiers who were treated there to the army. These men were treated for contractures, which represented 33.3 per cent. of the cases, 25 per cent. were for paralyses, and a small fraction were bone lesions.

Le Progres Médical.

November 2, 1918.

Prevention of Grippe by Quinine and Arsenic.—Professor Garin of the Medical School of Lyon, in watching an epidemic of influenza at Briançon in which soldiers and civilians were alike attacked, was struck with an apparent immunity enjoyed by the paludic subjects. These men were under antipaludic treatment by both quinine and arsenic. He next sent out a questionnaire to 90 hospitals and sections for paludics. The queries were: "Did you have epidemic grippe in your locality this year?" "Did your paludics suffer from grippe—and if so what was the percentage attacked and the mortality?" "Did grippe appear to be less severe in your locality than in others near by?" "If your formation was exempt, to what do you attribute this fact?" From the 90 addressed the author received answers from 46 and of the latter number 28 were practicable for use. Of these 28, all but 5 replies appeared to justify the author's stand. In 17 of these hospital units visited by influenza not a single paludic contracted the disease; while in 6 others the immunity was relative, not absolute. The immunity had been explained in some of the hospitals by the use of quinine alone or quinine and arsenic in combination. Others attributed the immunity to isolation, pure air, and the use of gomenolised oil respectively. The 5 negative experiences contrasted in toto with these positive finds, for not only was there no immunity in malarial subjects but several deaths occurred. However, although the disease ran a severe course in those attacked, the percentage of victims was for some reason very small and could hardly be termed epidemic at all. Why should a few contract the disease and some of these die while so many escaped the disease? The author made an attempt to learn how much quinine and arsenic was used, but no data were forthcoming.. There is a second practical question bound up in that of prophylaxis, for the author made use of his immune paludics to nurse the grippe patients. The daily prophylactic dose of quinine is 3 cgm. and of arrhenal 0.05 gm.

Correspondenz-Blatt für Schweizer Aerzte.

October 5, 1918

The Influenza Epidemic.—Bircher devoted his holiday to a study of the epidemic in various places. He could not convince himself that Pfeiffer's bacillus caused anything but a secondary infection. Many cases bore on the face the stamp of streptococcus sepsis of virulent type. All bacteria found were apparently only secondary and symbiotic offenders. In regard to meteorologic conditions no summer was so hot, so dusty and droughty in the memory of the physicians. Overwork was a predisposing factor, as illustrated in callings like medicine and munition work. The neurotic seemed, however, to enjoy a slight immunity. About one half of the hospital patients had pneumonia. No age was exempt. The young showed more resistance than the middleaged, while over 50 there were no severe cases. The greatest incidence was in army orderlies at the age period 35-45, few escaping. This fact speaks for the contagion of the epidemic on protracted exposure. Some pneumonia was fulminant, as one case which began in the midst of health at 4 P.M. and ended fatally at 10 A.M. the next day. In many others death occurred in 2 or 3 days. In all of these rapid cases cadaveric spots were seen one or two days before death as an uncanny prognostic. In many cases the disease began in the upper lobes and extended rapidly to the lower, besides being mostly bilateral cases. Section showed, however, that in many cases the pneumonic invasion could not alone have caused death, the latter having been due to sepsis. The type of bronchopneumonia resembled that of the Manchurian pneumonic plague or pestous pneumonia. The mortality from pneumonia was about 35 per cent. In recovered cases recovery was tedious. Relapses occurred despite all precautions and were severe and often fatal. In many cases empyema developed. Pregnant women tended to abort, and those confined to develop sepsis locally (para- and perimetritis). Loss of weight was often startling, as much as forty pounds in one week in some patients. Purulent rhinites and otites were not uncommon during convalescence. Tuberculosis was often lighted up. The only remedies to produce results were high doses of electrargol and pneumococcus serum in indicated cases. In a few cases there was a positive Wassermann. Of cardiac stimulants caffeine appeared to be the most dependable. Quinine was of apparent value, even also as a prophylactic in the author's opinion. The author, who is a well-known surgeon, believes that his excursion into internal medicine was of benefit to him. Seeing how little the internist can do in such cases, Bircher says, he goes back gladly to his surgery where one can realize one's power for good or evil.

Hygiea.

September 30, 1918.

Neuritis Puerperalis Traumatica.—Rodhe reports three cases of this affection, which he also terms traumatic maternal birth paralysis. The first was one of forceps delivery, thirty-six hours in labor, child's weight almost 5000 gms. Immediately after delivery there were severe pains in both lower extremities, which soon subsided in the left, but were persistent and chronic on the right side. Even during gestation there was a sensorimotor paresis in the right lower limb, so that the puerperal affection was merely an epiphenomenon. The case yielded to time or treatment and the patient bore another child without neuritic happening. In the second patient, labor had been arrested for twelve hours and pain in the extremities developed when labor pains were resumed. Labor lasted twenty-four hours more, and was then ended by perforation. One week after delivery both lower extremities were almost completely paralyzed, but after that period there was resolution which lasted much longer on one side—two months on the right. At this juncture the woman was examined and the right leg was found atrophied, with both motor and sensory disturbances in the peroneal distribution. Six months after delivery she was pronounced well. In the third patient the symptoms were in evidence some while before delivery, the right leg going to sleep at intervals. After labor this symptom was increased. The labor was normal but slightly prolonged and the child was large. The symptoms set in directly after labor, and for the first three weeks after delivery she was hardly able to move the limb. After some improvement was apparent under treatment the patient failed to appear and the fate of her paralysis remains unknown.

Book Reviews.

A Treatise on Clinical Medicine. By William Hanna Thomson, M.D., LL.D., Physician to the Roosevelt Hospital; Consulting Physician to the New York State Manhattan Hospitals for the Insane, and to the New York Red Cross Hospital; formerly Professor of the Practice of Medicine and of the Diseases of the Nervous System in the New York University Medical College; Ex-President of the New York Academy of Medicine, etc. Second edition; revised. Price, $5.50 net. Philadelphia: W. B. Saunders Co., 1918.

A reading of Dr. Thomson's book assures us that he was a master practitioner, trained in the bedside school, over which there has been no improvement since Hippocrates founded it. His remarks on symptomatology are especially good and can be recommended to those who hurry anxiously from the sick-room to the laboratory in search of a diagnosis. After a discussion of symptoms and remedies, Thomson devotes 170 pages to infections and 410 to diseases of special tissues or organs. Much there is of value in this, the fruits of a lifetime's experience. We could have wished that the author had not been so dogmatic about points not proved yet or where the weight of authority is against him and that he had fortified his own apparently somewhat tenuous knowledge of certain subjects by a recourse to the literature. As illustration of the former point we mention his treatment of influenza (page 114) and of the latter point the one page devoted to general paresis. The section on drug habits is very poor. The only discussion of treatment is the advice to recover from a drug habit by getting away from it. As well discuss the treatment of syphilis by saying: Don't get it in the first place, but if you do, get rid of it. But it is easy enough to pick out flaws in a work of this kind. With all its defects there is much worth while in the book and there is probably no practitioner who would not find parts of it helpful.

Aids to the Analysis of Food and Drugs. By C. G Moor, M. A. (Cantab.), F. I. C., Capt. 1st London Sanitary Company, R. A. M. C. (T. F.), Public Analyst for the County of Dorset and the Boroughs of Poole and Penzance; and William Partridge, F. I. C., Joint Public Analyst for the County of Dorset, Lecturer on Analysis of Food and Drugs, South-Western Polytechnic, Chelsea. Fourth Edition. Price $1.50. New York: William Wood and Company, 1918.

The analysis of food and drugs does not fall within the duties of the physician; but a brief account of the various adulterants of foods and drugs, with a description of recognized methods of detection and an explanation of the results of the analysis may be of great service. The present little volume contains chapters on: Milk, butter, cheese, starch foods, bread, baking powder, vinegar, tea, coffee, cocoa, pepper, ginger, mustard, spices, honey, sugar, jam, jellies, ice-cream, custard powder, lime and lemon juice, beer, wine, cider, spirits, sausages, oils and fats, tinctures, poisonous metals in foods, commercial disinfectants, soaps, and various pharmacopeial articles. The authorities, regulations, etc., are based on the Pharmacopeia and government orders of Great Britain. The book is small in size, but authoritative, and contains much that may prove of value to the medical man.

Diseases of the Male Urethra, Including Impotence and Sterility. By Irvin S. Koll, B.S., M.D., F.A.C.S., Professor of Genito-Urinary Diseases, Post-Graduate Medical School and Hospital; Associate Genito-Urinary Surgeon, Michael Reese Hospital, Chicago. Illustrated. Price, $3.00. Philadelphia and London: W. B. Saunders Co., 1918.

Despite its importance as a portal for the entrance of infection and the multitude of pathological changes subsequent to its infection, the male urethra has not received commensurate consideration from urological writers. Dr. Koll's contribution is an advance in this direction. After a short anatomical description of the urethra, he rapidly sketches the history of gonorrhea, its bacteriology, pathology, symptomatology, diagnosis, and treatment. The chapter given to urethral stricture classifies that sequel under the following captions: the anatomic, pathologic, and clinical. The divisions and subdivision of these captions are good. In general the author's opinions, advice, therapy, and technique coincide with those of modern urologists. A notable exception is his championship of Warden's conclusions on the bacteriology of the gonococcus. A lengthy quotation from that writer's essay entitled "The Role of the Staphylococcus in Gonorrhea" (*Journal of Infectious Diseases*, Vol. 13, July, 1913) is incorporated in the chapter on bacteriology. Without prejudice to Warden's serious and conscientious studies, attention must be directed to the facts that many bacteriologists hold his views to be nihilistic, and that clinicians do not accept his views that the grouped intracellular diplococci found in urethral pus are most frequently urethral staphylococci. Dr. Koll has succeeded in his efforts toward conciseness, clearness, and simplicity and has presented well chosen and well executed illustrations.

Gynecology. By William P. Graves, A.B., M.D., F.A.C.S.; Professor of Gynecology at Harvard Medical School; Surgeon-in-Chief to the Free Hospital for Women, Brookline; Consulting Physician to the Boston Lying-In Hospital. With 368 halftone and pen drawings by the author and 123 microscopic drawings by Margaret Concree and Ruth Huestis, with 100 of the illustrations in color. Second Edition. Thoroughly revised. Price, $7.75. Philadelphia and London: W. B. Saunders Co., 1918.

This work is intended for use as a textbook as well as a general reference book of gynecology. For this reason a special classification has been adopted by means of which the subject matter is divided into three distinct parts. However, as this is a second edition it will be unnecessary to explain the general scheme of the book. One feature of this scheme may be emphasized that in Part I the physiology of the pelvic organs and the relationship of gynecology to the general organism are dealt with.

The entire matter has been thoroughly revised and brought into conformity with the latest knowledge and most recent views. For example, that portion in which the relationship of gynecology to the internal secretions has been almost wholly rewritten and enlarged. Of especial interest is the discussion concerning the value of radium in the treatment of cancerous and non-malignant gynecologic disease. A new section has been also introduced concerned with the relationship of gynecology to the sex impulse, based on the Freudian theories as to infant sexuality, with which the author appears to be in complete accord.

Part III deals exclusively with operative gynecology, and a large number of new operations are described and illustrated. The work provides a mine of information, is well gotten up, and graphically illustrated.

The Wassermann Test. By Charles F. Craig, A.M. (Hon.), M.D. (Yale); Lieutenant Colonel, Medical Corps, United States Army; Fellow of the American College of Surgeons; formerly Assistant Professor of Bacteriology and Pathology, Army Medical School, and George Washington University; Commanding Officer, Department Laboratory, Central Department, United States Army, Fort Leavenworth, Kansas. Published with authority of the Surgeon General United States Army. Illustrated with colored plates, halftone plates, and fifty-seven tables. St. Louis: C. V. Mosby Co., 1918.

Although the Wassermann test has been in use for a good many years, it is not yet thoroughly understood by the medical profession generally, and not as it should be understood by many to whom is relegated the task of working it out. In consequence it has fallen into a certain degree of disrepute, mainly because of the lack of trained serologists. In order to perform the test scientifically the entire subject must be comprehended in all its details and therefore it is essential that a fully trained serologist should do it. Dr. Craig in the work under notice made a successful attempt to dispel a great deal of the misunderstanding and confusion which exists among the members of the medical profession as to the exact value and limitations of the test, both in the diagnosis of syphilis and when used as a control of the treatment of the disease.

The book is clearly written and well illustrated and will prove of service in disseminating much needed information respecting a valuable diagnostic agent.

Society Reports.

FIRST DISTRICT BRANCH OF THE MEDICAL SOCIETY OF THE STATE OF NEW YORK.

Twelfth Annual Meeting, Held at Tuxedo, N. Y., October 17, 1918.

THE PRESIDENT, DR. JOSEPH B. HULETT, IN THE CHAIR.

Etiology of Pneumonia.—DR. RUFUS I. COLE spoke informally on this subject. He stated that ten years ago the study of pneumonia had been undertaken at the Hospital of The Rockefeller Institute because the mortality statistics indicated that it was the most important acute infectious disease with which the physician had to deal, and because at that time there existed very little exact knowledge concerning the nature of the infection and practically no knowledge concerning its specific therapy. Under the term pneumonia had been included all acute inflammatory diseases involving the parenchyma of the lungs. Most pathologists agreed, however, that acute lobar pneumonia was a specific acute infectious disease, and that the cause of this form of pneumonia was the pneumococcus. The lesions in the lungs due to this form of infection were characterized by the formation of an excess of fibrin. This was also seen in the lesions produced experimentally in dogs by the intratracheal injection of cultures of pneumococci. The development of the lesion was less characteristic, for in this form, as well as in bronchopneumonia, the infection seemed to spread through the bronchi. While the disease, acute lobar pneumonia, was pathologically and clinically fairly distinct, nevertheless further studies had shown that the etiologic agents in all cases were not identical, but that the pneumococci which caused the disease showed differences which permitted their separation into different classes or types. These differences were chiefly immunological, and while they were not of great practical importance as long as specific therapy was not under consideration, they became of paramount importance when attempts were undertaken to make use of immunity principle in methods of cure. Such a method was now applicable in at least one type of the disease, and for this reason attempts were being made in the Army to differentiate the different types of pneumococci occurring in the individual cases. Last winter it was reported from a number of camps that difficulties were being encountered in differentiating the types of pneumococci occurring in the cases of pneumonia. Indeed it was found difficult to isolate pneumococci from the sputum of the cases, and many of the cases showed marked peculiarities. The speaker with a group of coworkers was sent to Fort Sam Houston, Texas, to make an intensive study of the cases occurring there and to determine, if possible, the etiologic agents concerned in the different cases. This study disclosed that most of the cases of pneumonia occurring there were of the lobular type and were associated with the presence of a hemolytic streptococcus. A large number of these cases occurred as complications of, or followed, measles, but in a considerable number no association with measles could be discovered. It was then observed that this form of pneumonia was also prevailing to a considerable extent among civilians. During previous years an occasional case of pneumonia associated with *Streptococcus haemolyticus* had been seen at the Hospital of The Rockefeller Institute, but during the past winter there occurred forty-four such cases. These cases showed exactly the same features as the cases seen among soldiers. Just why the disease developed in the camps and spread from here to adult civilians was not certain. The most plausible explanation seemed to be that, owing to the crowding in the camps, direct transfer of the infectious agent from individual to individual was facilitated. with this rapid transfer a great increase in virulence of these streptococci occurred, so that they became infective not only for men whose local resistance was lowered due to the presence of measles, but also for perfectly strong, healthy soldiers. It then became quite possible for civilians coming in contact with the infected soldiers to become infected and for the disease to spread to civilian communities. The coming of spring and warmer weather limited the spread of this form of pneumonia, just as it did of other types, and as a consequence this form of disease had now practically disappeared. Very recently, however, another type of pneumonia had made its appearance. Last spring and during the summer there had been reports of the occurrence in Europe of an epidemic disease resembling the influenza which spread over the entire world in 1889-1890. From the reports which were received, the disease which had prevailed in Europe had been of a mild type and few deaths occurred. Within a few weeks the disease had suddenly appeared in this country, especially in the Army camps, but instead of being a relatively harmless infection, it was occurring here as a serious disease.

Dr. Cole stated that within a few weeks he had seen a large number of cases at Camp Devens, Ayer, Mass. The fatal character of the disease was due to the pneumonia which was present in a considerable number of cases, in practically all of the fatal ones. The speaker stated that a considerable number of cases were now being treated at the Hospital of The Rockefeller Institute, where careful bacteriological studies were being made. It was too soon to make a final report on the findings, but in most cases the influenza bacillus could be cultivated from the pharynx or from the sputum. In many cases, however, these bacilli were present in very small numbers and could be isolated only with considerable difficulty. It was recalled that in the previous epidemic during which these bacilli were first isolated, Pfeiffer reported finding them present in enormous numbers, indeed in the sputum of many cases in practically pure culture. In the lungs of the patients dying from pneumonia, influenza bacilli were frequently present, though in small numbers, but there were also present at least in most cases, large numbers of other organisms, either pneumococci, usually type III or type IV, or hemolytic streptococci, or staphylococci. The predominating form of infection seemed to differ in different places and in different camps. In one camp most of the cases of pneumonia were associated with the presence of pneumococci, in another with streptococci, and in one camp, of which the writer has knowledge, staphylococci in very large numbers were present in a third of the fatal cases. There were great difficulties in the interpretation of all these findings. In regard to the primary etiologic agent concerned in the influenza, there was room for a difference of opinion. While it seemed better, for the present at least, to consider the influenza bacillus as the primary infecting agent, there was good reason to suspect that some other organism, a virus as yet unknown, might be responsible and that the influenza bacillus was a secondary invader playing a role similar to that of the streptococcus and pneumococcus. However that might be, it seemed likely that the serious pulmonary lesions occurring in this disease were largely due to secondary infection with the streptococcus, the pneumococcus, the staphylococcus, and possibly the influenza bacillus, and that the fatal outcome in most cases at least was due to the secondary infection. Even this could not be stated with any degree of assurance, however. The fact that the pathological lesions in practically all cases had certain constant features, no matter what variety of organism was present, suggested that the secondary infection might not have so great a significance as might appear at first sight.

Dr. EDWARD C. RUSHMORE asked Dr. Cole if he found all of the pneumonias of the lobular type.

Dr. COLE replied that he did not, but that most of them were of this variety. An argument against the view that influenza bacilli were the primary etiologic agents was the fact that these organisms were also very frequently present in the pharynx of patients suffering from other infectious diseases, especially measles and whooping cough. They were also frequently present in the lungs in association with streptococci in the cases of lobular pneumonia following measles. These organisms were also found with great frequency in cases of ordinary coryza and bronchitis, especially at certain times of the year. In 1904 Lord found the influenza bacillus in the sputum of 30 per cent. of the cases of respiratory disease which he studied. In 1910 Holt isolated influenza bacilli from 40

per cent. of the children suffering from disease of the respiratory tract. In the studies made in Texas last winter, Dr. Cole said he was able to isolate influenza bacilli with much greater facility than in the cases during the present epidemic. It was possible, however, that the bacilli isolated in the present epidemic differed from those which had been found in the intra-epidemic period. But little work had, as yet, been done on differentiating different varieties of this organism. Reference was made to the work of Dr. Wollstein in which an effort was made to discover whether any differences existed between the influenza bacilli isolated from the respiratory tract and those present in cases of meningitis. No constant differences could be discovered in the organisms obtained from these two sources.

Dr. RUSHMORE stated that he had practised medicine in the same place and among the same people during the influenza epidemic of 1889 and 1890, and as he remembered, this epidemic showed the same features as that one and had affected some of the same people. He asked Dr. Cole if animals were susceptible.

Dr. COLE replied that certain strains of influenza bacilli were virulent for mice, rats, and rabbits.

Dr. RUSHMORE asked if there was no method by which to test the influenza bacilli as they did the pneumococci.

Dr. COLE said that the studies had not yet progressed so far. Dr. Wollstein had found agglutination unsatisfactory and the complement fixation test had showed no differences. This was not surprising, however, because the complement fixation method had not proven a very satisfactory method in differentiating pneumococci. Dr. Cole said he would not like to leave the impression that he believed there was another organism than the influenza bacillus concerned, though he would not be surprised to find this to be the case.

Dr. GEORGE A. LEITNER of Piermont said that the question of most importance at the present time was what to do for the patients. He would like to know whether there was anything beside a sustaining and symptomatic treatment.

Dr. COLE replied that thus far there was no specific treatment. The treatment was only symptomatic.

Dr. RUSHMORE asked what the prospects were for immunizing people against influenza.

Dr. COLE said that if the disease was due to the influenza bacillus, immunization should have some effect if we knew the proper method of producing immunity, but we could not be sure that the epidemic was due to the influenza bacillus and if it was, we were not quite certain as to the best method. The only way in which we could determine whether the production of immunity was possible was to try it in a large way as Dr. Park was doing. In regard to the immunization against the pneumococcus, for this there was a well established method that had a sound experimental basis and had been tested to some extent practically. There was very good evidence that one could immunize animals against pneumococci of types I, II, and III. Lister had reported that he had immunized a large number of miners in South Africa with excellent results. Dr. Cecil and Dr. Austin had immunized a large number of soldiers at Camp Upton and no case of pneumonia due to the type of pneumococci immunized against had occurred among those immunized, while among the men who were not immunized a considerable number contracted pneumonia. Immunization against pneumonia was being taken up in the Army to quite a large extent. The earlier vaccinations had been done with a salt solution vaccine, giving three doses as they did in vaccinating against typhoid and paratyphoid fever, but now they were using one injection of a vaccine in oil. When the oil vaccine was used, absorption went on more slowly.

Dr. HULETT stated that an occurrence that came under his observation demonstrated quite conclusively that the period of incubation for influenza was five days. Owing to certain difficulties in transportation a number of men from Camp Devens were delayed at the station at Maybrook and got off the train and mingled with the people. Some of them were coughing and spitting. Before this there was no influenza in Maybrook, but five days after these soldiers were in Maybrook people began to come down with influenza. Dr. Hulett asked Dr. Cole if he thought this epidemic was the same old grippe they had seen before, or whether it might possibly have something to do with the pneumonic plague.

Dr. COLE said he was unable to say whether this is the same form of grippe that had occurred in 1889-90, but Dr. Rushmore believed it was. The disease seen in the present epidemic was very different from pneumonic plague.

Dr. RUSHMORE said there were some cases at Camp Devens which showed skin hemorrhages and later large purpuric areas.

Dr. COLE said that he had seen cases in civil life that had nose bleed and that he had had several cases showing marked purpura. He had seen two cases with subcutaneous emphysema.

Dr. LEITNER said he had had such a case in which there was emphysema all over the back, chest and neck. The case started as one of bronchopneumonia. After the initial rise in temperature, the temperature came down; it then went up to 104°F., and the patient complained of deep-seated pain over the gluteal region. An abscess in this region was drained and a man came from the Rockefeller Institute to get a culture and left a gas bacillus serum. Study of the culture showed no specific bacillus, but the girl had crackles and a primary pneumonia. The patient recovered. He had thought the case was one of gas bacillus poisoning, though there was no history of trauma. He also referred to a case of gas bacillus infection following a mastoid operation.

Dr. COLE said that if these were gas bacillus infections, they were secondary to pneumonia.

Dr. CASTELLI asked Dr. Cole whether he had found that any of these patients with streptococcus infections got erysipelas.

Dr. COLE replied that he had seen no cases of streptococcus pneumonia complicated by erysipelas.

Address by the Secretary of the Medical Society of the State of New York.—Dr. Floyd M. Crandall made this address, in which he said that he presumed that he was to speak of the condition of the State Society. He could say that the Medical Society of the State of New York was in remarkably good condition. These war times had brought out the fact that membership in the State Society was an asset to the physician. When a man asked for a commission in the Medical Corps of the Army, one of the questions always asked was whether he was a member of the State Society. By the authorities, membership in the State Society was looked upon as a valuable fact in determining the availability of a man for service. The society had at present a larger membership than it had at this time last year. Dr. Crandall described the well-organized office of the society and commented on the accuracy and completeness with which the records were kept. He paid tribute to Dr. Wisner R. Townsend's executive ability and faithful service in having developed and systematized this part of the society's work. In speaking of the officers of the society, he stated that Dr. Halstead had gone abroad and that Dr. Lambert, who was chief surgeon of the Red Cross in France, having charge of the work from Belgium all along the line down into Italy, had taken a number of physicians with him for half time service and hoped to keep up the required supply of physicians by using college and hospital men on part time. Dr. Rooney had been assigned to service overseas and was probably on his way over at this time. Dr. McEvitt was surgeon of a large aviation corps, and had delegated his duties in connection with the State Journal to an able assistant. The attorney for the society, James Taylor Lewis, had handled during the past twelve years about 1400 cases in which suits for malpractice had been brought against members of the society. Of all these he had lost but two, and those should have been lost. These two suits have cost the society $250 damages, which was all the society had ever paid out for this purpose. In response to a request from the American Medical Association, which was asked to have committees appointed in every state for the purpose of bringing the medical profession more effectively into the service, the State Society appointed a committee consisting of the same men who were serving on the State Committee of the Council of National Defense, of which Dr. George D. Stewart was chairman. Thus far 3650 physicians from New York State had received commissions, which was consider-

ably more than the quota assigned for this State. There was never a time when there was greater harmony in the profession than at present. It was felt that lack of harmony among the members of the society in these war times would be discreditable. The Society, in numbers, in harmony, and in every way, had never been in better condition than it was today.

The Importance of the Adoption of Electrocardiography and Orthodiagraphy as Routine Measures in the Management of Disorders of the Heart.—Dr. LOUIS FAUGÈRES BISHOP read this paper. (See page 1.)

Dr. CASTELLI asked Dr. Bishop if he had any pictures showing a cardioptosis.

Dr. BISHOP said that he had no such pictures but he thought that was a name given to the long hearts sometimes found in flabby individuals.

Dr. CASTELLI asked Dr. Bishop to say something about several cardiac remedies and drugs.

Dr. BISHOP said that the electrocardiograph had taught us much about digitalis, and the Rockefeller Institute had contributed much to our knowledge of the effects of digitalis in disease. There was no doubt that a certain number of people died of pneumonia, with fibrillation of the auricle, in whom the fibrillation of the auricle might have been controlled by digitalis. These patients could not be treated with digitalis in a hurry. It was probably very good policy to have every serious case of pneumonia partially digitalized before the crisis came, in order to get control of the ventricle at that time. Digitalis was of no value as an emergency remedy. There was a time element and also a quantity element in digitalis. If one had three or four days in which partially to digitalize a patient, then in an emergency one could give massive doses, but one could not get the desired effect unless he started in time. His experience with digalen had not been very satisfactory. He preferred the whole drug. For use in his practice he had a druggist take the whole leaves and compress them into one-half grain tablets. One could not rely on the infusion unless he had a reliable druggist who made a uniform infusion. All these benign fibrillation cases that were going on from year to year were given from one to three one-half grain tablets after meals from time to time. When these people began to feel uncomfortable they would then begin to take digitalis. The main point was to get one preparation that you knew about and then to stick to that. Digitalis that did not make people vomit when it was pushed was an inert preparation, and when one met a desperate case the digitalis should be pushed until the patient vomited. It also produced catharsis. The heart patient who was once digitalized was always easier to handle.

Dr. LEITNER said he had four patients at the present time with pneumonia and a temperature of 104°F. and pulse of 100. He claimed that if one could save the difference between 100 and 130 beats of the heart every minute of every hour and every day, that meant that the heart muscle was not being worn out, and veratrum viride would do that. He had been using veratrum viride for 30 years and would continue to do so. He used Norwood's tincture and varied the dosage according to the size and type of the patient, giving three or four minims of Norwood's tincture to a large strong adult. There was nothing better than veratrum viride in puerperal eclampsia if it was used in conjunction with other remedies, chloral, etc., but one must not trifle with small doses.

Dr. CHARLES D. KLINE of Nyack said that when he was in St. Francis Hospital under Dr. Ripley they used veratrum viride for adults and aconite for children, and their results with this treatment were better than those of other men who used other drugs. Eight out of ten of their patients defervesced by crisis. He still stuck to that treatment and his results were good.

Dr. CASTELLI asked Dr. Bishop what he thought about camphor.

Dr. BISHOP said that he considered it a valuable quick stimulant. He used ampules containing 30 per cent. camphor.

Dr. HULETT asked Dr. Bishop what he thought in reference to alcohol as a stimulant in pneumonia.

Dr. BISHOP replied that he considered alcohol a poor stimulant, but if a person was accustomed to the use of alcohol he should be given his customary amount during pneumonia. He used alcohol in alcoholic patients, but not in others, except that it was useful in very sick people who presented the picture so well known in the old days as the "typhoid state."

Dr. COLE said that the question as to whether a patient had been partially digitalized was a very important one. If a patient was brought into the hospital and one did not know whether he had been given digitalis before, one ran a great risk in giving digitalis or strophanthin intravenously. Dr. Cole said that the rule in the Hospital of the Rockefeller Institute was to give digitalis by mouth to every case of pneumonia. They usually gave it for two days, using digipuratum.

Dr. S. W. S. TOMS of Nyack asked what the indications in pneumonia were for using digitalis.

Dr. COLE replied that in early uncomplicated cases they administered one-half gram of the tincture during twenty-four hours for two days. It was then discontinued. If, however, a great increase in the heart rate or irregularity developed, then they at once again began its administration. The rate and regularity of the heart were the guides as to the administration of digitalis, as it was doubtful whether digitalis had any effect on the blood pressure. There were probably one or two cases in a hundred in which digitalis was life-saving, and if by digitalizing every pneumonia case they were enabled to save these few, it was worth while. In cases in which fibrillation occurred digitalis might be life-saving. They did not give digitalis in all influenza cases, and he was not sure whether in the influenza pneumonias it was of value or not, as his experience had not been great enough. The fatal cases of grippe pneumonias that he had seen had had very marked edema and apparently had drowned in their own secretions. It was doubtful if digitalis did any good under those conditions.

Dr. LEITNER said that they were seeing patients that ran a temperature for three or four days, and one could not make out anything on one day, and perhaps on the next day they would be found with a typical pneumonia temperature, and by the next morning they would have a plain pneumonia. These were the fatal cases that ran four or five days and then flared up, and in these cases he had noticed particularly a basal pneumonia on the left side, and all of these patients seemed to have a myocardial condition. Would it be right in such a case to start digitalis and anticipate that condition?

Dr. COLE replied that he had had some experience with cases of that kind that one could not detect until late. Even in the absence of typical physical signs, one might assume that pneumonia was present.

Dr. COLE said that he had treated pneumonia cases with stimulants and without them. He had had experience in treating all pneumonia cases with strychnine and alcohol, but during the last ten years he had not used any stimulant except digitalis. He could not say that he had ever saved a patient by the use of alcohol. Morphine intelligently used was of great service.

Dr. LEITNER said that Austin Flint claimed to have cured pneumonia with quinine.

Dr. COLE said that the more he worked with pneumonia the more he realized that it was a general infection and could not be influenced by quinine or alcohol. Another point with reference to digitalis was that the standard tincture should be used. An infusion could not be standardized. In most of the camps a standard tincture was used and most drug houses were putting up a standardized tincture, so that there was no reason at present for using a tincture that was not physiologically standardized. As to the electrocardiograph, he had used it for a long time, and it had certainly changed our whole point of view of heart disease. We were no longer interested in heart murmurs, but were chiefly concerned with the functional capacity of the heart muscle.

Dr. BISHOP in closing referred to another point which he considered very important. He said that he started in the practice of medicine during the epidemic of grippe in 1889-90, when there were as many cases of grippe pneumonia in the hospitals as there were at the present time. Under the tutelage of such men as Drs. Delafield, Kinnicutt and Janeway, they treated

these cases with the so-called "trinity pill," which contained aconite, strychnine and digitalis in dosimetric amounts, giving the pill every hour. In order to determine which of these drugs produced the effect that was observed they gave 100 doses of digitalis and got no physiological effect; they then gave 100 doses of strychnine, and that produced no physiological effect. Finally they gave 100 doses of aconite, and they got a slowing down of the pulse and a fulness of the arteries, which proved that the really active element was the aconite. Under that treatment the cases ran a different course from what they were running now. They defervesced more by crisis, and if they went into collapse they were stimulated by whiskey, per rectum, and most of the patients recovered. Dr. Bishop said that when he was called to see pneumonia cases now it was too late to institute this kind of treatment, but he wished those who did see the cases early would endeavor to find out whether aconite might not prevent general edema of the lungs in pneumonia and cause the patients to have a true crisis. Aconite had a bad reputation because it had formerly been abused, but it had nevertheless a very useful place in medicine. It was a remedy of positive activity and needed skilled handling.

Surgery versus Radium in the Treatment of Carcinoma of the Bladder.—Dr. Benjamin S. Barringer presented this paper, in which he said that if he were to state briefly his opinion as to the relative value of surgery and radium in curing carcinoma of the bladder, he would say that if surgery could cure 15 cases in 100, radium could cure 20 cases. Certain peculiarities of the bladder itself and of bladder carcinomata had been responsible for the far from brilliant results of surgery. The hardest parts of the bladder to reach surgically were the bladder neck and the trigone, where eight out of ten bladder tumors were situated. Further complicating matters were the ureters emptying at the trigone and often invaded by the growth. The bladder was in constant motion, either filling with urine or being emptied, which complicated the healing after operation. These were some of the difficulties which surgery had, upon the whole, been unable to overcome. Roughly, carcinomata of the bladder presented two types, the papillary type and the flat, indurative type, the latter being a good deal more malignant than the former. Combinations of these two types were to be found. There was no other internal organ which so easily and so constantly put out a danger signal of carcinoma; this signal was hematuria. Again, there was no other internal organ which could be so readily and easily examined as the bladder. In treating bladder carcinoma radium had a distinct advantage over surgery. Under radium treatment the bladder usually did not have to be opened. The radium might be placed more or less accurately on the tumor and left there. The urine which filled the bladder acted as a screen to the normal parts of the bladder. They were steadily working toward a more accurate application of the radium. As to untoward results, the writer had had a number of radium burns. He had a general impression that the bladder from which sprang papillomata was considerably more sensitive than the carcinomatous bladder. When burns occurred they were very painful and lasted for some months. Since October, 1915, he had treated 43 cases of carcinoma of the bladder, exclusive of papillomata, at the Memorial Hospital. In the majority of the cases the diagnosis had been confirmed by microscopical examination of pieces of the tumor. In the diagnosis the cystoscopic and rectal examinations were more important than the microscopical examination. The microscopical examination, however, should be made in every instance. The fulguration of a tumor for a long period of time to determine the reaction of the tumor to fulguration was in the author's opinion a distinctly bad practice. Two of the 43 cases were early operable cases. Of the remaining 41 cases some might have been called operable, but on the whole, operation on these 41 cases would have presented but slight chance of cure. Five of the 41 cases were well, as proved by cystocopic examination for various periods up to 23 months. In two cases the tumor had recurred after being removed from the bladder by radium. Three or four more cases would probably later go into the cured column. It was on this record of five cases cured so far as the bladder was concerned for various periods of time that the writer based his claim for the efficiency of the radium treatment of carcinoma of the bladder. A detailed history of the seven cases was presented. Many of the remaining cases were dead; many came to them practically dying. The one thing radium did in these hopeless cases was to control the hematuria. In nine out of ten cases the bleeding stopped, generally for a period of some months. This was the decided benefit which followed radium treatment. Whether or not it temporarily checked the growth of the tumor was an open question.

Dr. Gerrit Blauvelt of Nyack asked Dr. Barringer to tell about the woman with carcinoma that he had treated with radium.

Dr. Barringer stated that the patient to whom Dr. Blauvelt referred was a woman who had uterine carcinoma and a metastasis became implanted around the vaginal outlet and just underneath the urethra, and manifestly the case was not suitable for operation. Several treatments were given with radium, and finally a large dose was given that apparently removed the growth. This burned the patient, but the discomfort caused by the burn was relieved by morphine. It was now two or three months since she had had treatment, and she was comparatively comfortable. The cases that did well, especially the prostatic cases, were those that were burned. In the cases that were burned one was very much more likely to get the whole growth out than in those that received milder treatment.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, Wednesday, November 27, 1918.

The President, Major Frank C. Hammond, in the Chair.

Medical Complications and Sequelæ of Influenza.—Dr. Thomas McCrae believed that many of the statements regarding the recent epidemic of influenza would not have been made were history more generally read. Whatever its etiology, influenza, he said, was a disease which occurred epidemically about three times in a century. Many men, naturally, did not see it more than once; some saw it twice; none, three times. Consequently, to the great majority of the profession, it came as a more or less new disease. Considering the fact of the disease being a multiple infection, the wonder was that complications occurred so rarely. Edema of the lungs was mentioned as one of the most striking of the complications of the respiratory tract. When associated with pneumonia, the usual fatal issue was the result of the pneumonia and toxemia. Dr. McCrae regarded pneumonia rather as a feature of the disease than a complication. Reference was made to the curious atypical cases of pneumonia following the epidemic of 1890. In these the pneumonic process had seemed to shift from one apex to another in a way to make the diagnosis questionable. Since a generation had now grown up which knew nothing of that phenomenon it was regarded as probable that within the next two or three years a number of cases would be diagnosed tuberculosis which were really postepidemic influenzal pneumonia. A peculiar persistence of consolidation was referred to, lasting in one case under the author's observation for nine weeks, then entirely disappearing. The presence of a slightly bloody serous effusion, small in amount which had been responsible for many of the atypical cases was mentioned as one of the particularly interesting signs in the pleura; also a curious feature had been the occurrence of fibrinous pleurisy after the recovery of the patient. Dr. McCrae was inclined to regard this as a remnant of the disease rather than as a tuberculous pleurisy. In many of the cases with well marked percussion note there had been practically no pain. The majority of cases of influenza had gone through the attack without serious heart involvement. The author had observed endocarditis only once and he had been impressed with the rarity of pericarditis. Of particular importance was the condition of the heart after the attack. Compared with the epidemic of 1890 there was, apparently, not 1 per cent. of the cardiac disturbances

following the disease. The curious cyanosis coming on early formed a striking feature of the vasomotor system. The low blood pressure was mentioned as of considerable prognostic importance. The early nosebleed in Dr. McCrae's experience was not of favorable prognostic import. Of patients with severe intestinal hemorrhage he had seen only one who recovered. The severe toxic condition in these cases was regarded as probably akin to that seen in yellow fever. In all these cases purpuric dermatitis had been extreme. Jaundice was largely of low grade, but very common if one looked for it, and in a few cases resembled the jaundice of acute yellow atrophy. Of the glands the parotid suffered particularly. In the effect on the nervous system two extremes were noted—a severe depression, and a condition of exhilaration. One patient within an hour of his death had said he never felt better in his life. It was recalled that following the disease in 1890 there was a profound depression, the effect of which in many cases lasted for a year or two. Following the last epidemic, also, there had been seen at the medical clinics many cases of bronchiectasis, and in many of these the influenza bacilli had been obtained in pure culture. This it was cautioned should be borne in mind at the present time. In Dr. McCrae's opinion there was every reason to suppose that following this epidemic there would be a great increase in tuberculosis in the next year or so. Personally he had been impressed with the number of patients who, following the influenza, had had large profuse pulmonary hemorrhage. In the majority of these cases it had been impossible to say whether the hemorrhage had resulted from a lesion of the influenza, or meant tuberculosis. There should be, therefore, particular care exercised in the examination of patients, bearing in mind the possibility of the presence of tuberculosis.

The Surgical Complications and Sequelæ of Influenza.—Dr. JOHN B. DEAVER referred to the description given by Dr. George B. Wood in the fifth edition of his Practice of Medicine of an outbreak of influenza in Rome in 1850, during which nine thousand persons were said to have died of the disease. In several recently recovered cases of influenza coming to operation for intestinal obstruction Dr. Deaver had found the intestines knotted and bound down by plastic exudate and adhesions resembling somewhat a tubercular peritonitis. While the impression was that this condition was the direct result of the influenza, positive evidence of this fact was lacking. Many of the increased number of cases of appendicitis in influenza years were regarded by Dr. Deaver as most likely socalled pseudo-appendicitis due to the gastrointestinal symptoms frequently part of the syndrome of influenza; others were undoubtedly genuine appendicitis resulting from the increased virulence of the usual intestinal microorganisms, and particularly from a predisposition on the part of the patient to appendical trouble. The explanation of lowered resistance and diathesis in Dr. Deaver's opinion served for the various neuralgias, diseases of the bones and joints, as well as for phlebitis, parotitis, and other resulting conditions requiring operation. To the surgeon the recognition of pus in the thoracic cavity was of the utmost importance. The withdrawal of seropurulent or purulent fluid by aspiration was a desirable preliminary step to thoracotomy or rib resection. A rational operation for empyema was that devised by Lilienthal, in which a wide opening in the thoracic cavity is obtained by means of a long costal incision and wide rib spreaders, the wound being closed completely, except for a wick of rubber tissue at each end of the incision. In the streptococcic pleuritis observed in epidemics of pneumonia occurring during the past year at the various training camps, late operation rather than early, as in the pleuritis following ordinary lobar pneumonia, gave the better result. Dr. Deaver believed it desirable that all pneumonia cases at the end of the second week be subjected to *x*-ray examination for early detection of the presence of fluid not evidenced by physical signs. Dr. Henry K. Pancoast was cited as stating that effusion in influenzal empyemas shows a ready tendency to become plastic and to wall off. In such cases the pleura becomes thickened and the lungs crippled by the resulting adhesions. In the total of 35 cases treated by Dr. Deaver 13 were interlobular empyemas, several of which had ruptured into the lung, and in one instance pus from the general cavity had broken through into the lung. Thoracotomy, except in rare instances, was, in Dr. Deaver's opinion, decidedly not the proper procedure in these cases. The operation of choise for empyema, he said, is rib resection, opening the pleural cavity and exploration with the gloved finger or hand, flushing and wiping the cavity with Dakin's solution and providing continuous and free drainage until the fluid is returned practically sterile. Closure of the wound is a matter of circumspection unless there is a free expansion of the lung. In Dr. Deaver's 35 cases of influenzal empyemia the mortality was 11.6 per cent.

Influenza in Parturient Women.—Dr. EDWARD P. DAVIS said that the parturient woman, for anatomical and physiological reasons, was a favorable subject for attack in the recent epidemic of influenza. In the mild attack of the disease abortion or premature labor did not occur. In the severe cases a hemolytic germ was evidently present, producing a rapidly fatal toxemia. Striking evidence of disintegration of the blood was observed in many of these cases. In early pregnancy many aborted; in those near term, labor occurred; in mid-pregnancy, interruption was rare. Among the interesting complications and sequelæ were abortion followed by persistent and often fatal hemorrhage; mammary abscess; noma or swelling of the tissue about the mouth, preceding death; pernicious nausea and vomiting, and occasional pulmonary embolism. In prophylaxis much was accomplished by keeping away from crowds and the disinfection of nose and throat with mild saline antiseptics. The firm belief that if attacked death would not inevitably ensue was of great assistance. The prompt isolation of the patient was useful in limiting the disease. So soon as a pregnant patient was attacked with nasal and bronchial catarrh, with rise of temperature, however trifling, she was put to bed; the bowels were freely emptied, a liquid diet, with abundance of water, was given, and the patient kept warm by blankets. Sweating was encouraged and the nose and throat were disinfected. With a tendency to congestion over the bases of the lungs dry cupping was very useful; applications of camphorated oil were also of value. Local foci of infection were treated as indicated; mammary abscess was thoroughly drained. The giving of acetanilid, phenacetin, salol, or aspirin was peculiarly injurious. A safe clinical rule in dealing with pregnant patients was not to interrupt the pregnancy in the presence of acute bacterial infection. That the child often escaped the disease was especially true when it was not nursed. The maternal mortality closely resembled that of puerperal septic infection. Where the streptococci did not enter the blood and were not hemolytic the mortality rate did not exceed 10 to 20 per cent.; where they did enter the blood and were hemolytic the mortality rate rose from 50 to 75 per cent. There was no positive decision that serums and vaccines gave protection or hastened recovery. Sterile horse serum was, however, of value in actively toxic cases.

Nose, Throat, and Ear Affections Complicating or Following the Recent Epidemic of So-called Influenza, with a Ventured Interpretation of Their Significance.—Dr. J. LESLIE DAVIS observed that there seemed to be a common agreement that practically every case of so-called influenza at some stage of the disease manifested symptoms of varying degree of the upper respiratory tract. The most characteristic feature of these conditions was the utter lack of any special order of invasion or degree of persistence. Reports from Army, Navy, and civilian hospitals showed the contrasts in the various structures and tissues involved, and variations in the predominating bacterial organisms. A characteristic feature was the precipitateness of invasion of the disease following the appearance of the first cases, regardless of whether or not those attacked had been in contact with the already infected. This was as true of sparsely populated districts as in a grouping of many people. Bacterial research seemed to have failed to isolate any specific organism as the exciting cause, but had found in practically all cases the usual group of bacteria common to infections of the respiratory tract, their order of predominance varying in different localities and in different individuals in the same locality. The character of atmos-

phere that seemed most frequently to predispose in normal times to infections of the upper respiratory tract was said to be that usually preceding a storm. The greater the meteorological disturbance the more common and more marked were the symptoms observed. The meteorological state seemed to favor the development of two conditions influencing the rapid spread of infection, namely, proliferation and increased virulence of the host of bacterial organisms habitually present in the nose and throat; and, second, weakening of tissue resistance to bacterial invasion. Lowered blood pressure, insufficient hepatic secretion, and toxemia were the usual accompaniments of such infections. Whether the lowered blood pressure with its effect upon the mucous membrane was the initial step in the infection or whether the circulatory disturbance and the membranous congestion in the head were both results of toxemia Dr. Davis regarded as questions for further investigation. In his experience the toxic effect of diseased faucial tonsils was a more dominant and constant factor than their infective influences, and the chief deleterious effect felt upon the liver. Considering the whole symptom complex of the disease and the fact that meteorolgical conditions over the whole earth had shown unusual disturbances during the past two or three years, the probability of such meteorological disturbances being a causative factor in the great pandemic seemed to him to be an interpretation worthy of more than passing consideration.

Dr. F. J. KALTEYER regarded as a point of considerable interest the fact that this disease apparently occurred in any climate, at any season of the year, and under almost all conditions. While many had attempted to attribute its spread to atmospheric conditions, it was often found that it spread against prevailing winds, that it would occur at the same time in the tropics and in Iceland, and that it attacked all classes of individuals. He was interested to know whether the pneumonia was due to the extension of inflammation from the throat or whether it developed in the absence of this. Pathologists whom he had consulted differed on this point. He questioned whether some of the complications were not directly attributable to the cough mechanism which perhaps influenced the drainage of the eustachian tube and led to ear complications. Personally he had been impressed with the great importance of the early treatment of cough. He called attention to the fact that in some of the cases of the so-called cardiac type the attack began as an ordinary influenza, but that in a short time there was rapid development of cardiac asthenia with death following within a few hours. We were now, he said, seeing some of the cases of myocardial weakness the result of the epidemic. Another condition of great interest and frequent occurrence was that of vomiting, with abdominal distention and occasional diarrhea dominating the whole symptom-complex. The complications were much influenced by the previous health of the patient; those with a previous nephritis or chronic valvular disease generally had their pneumonia without crisis, death occurring in the course of a few days. Unfortunately, as mentioned by Professor Davis, there was among the profession the tendency to give drugs which were depressants. These, it was stated, had a most unfavorable influence upon the disease, particularly toward the end of the fever.

Dr. D. L. DESPARD had been impressed with the comparatively few complications during the epidemic requiring operation. A possible explanation might be found in the experience at two hospitals where of 299 cases admitted 130 developed bronchial pneumonia. Of that number 91 died, or 70 per cent. None died who had no lung involvement. He had not seen any cases of appendicitis that he could definitely trace to this epidemic, although he had observed a number occurring three or four weeks following the attack of influenza. In the rib resections he had resected enough bone to allow exploration and breaking up of adhesions; he had not irrigated any more than he would in general peritonitis, or curetted to a greater degree than in the walls of an ordinary abscess cavity. Within the last two months he had operated in 12 or 14 cases of empyema; up to this time one patient had died.

Dr. RICHARD C. NORRIS claimed that in the past epidemic there had been really two epidemics—one of influenza due to its specific organism, and a widespread epidemic of bronchopneumonia frequently associated with streptococcic germs. During an epidemic, he said, one must realize that no part of the community was more susceptible to its ravages, no matter what the infecting germ, than the pregnant and parturient woman who was giving up of the precious elements of her life for the unborn member of the human family.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

DOMINION MEDICAL EXAMINATION.

Toronto, June, 1918.

ANATOMY.

1. Give (*a*) the course and relations of the right ureter in the female, and (*b*) the relations of the left kidney.
2. Describe the temporomandibular joint, giving attachment of liganents. Name the muscles connected with each movement of the mandible in mastication, and give the innervation of each muscle.
3. Describe fully the nerve and blood supply of the foot and toes.
4. Give the boundaries of the axillary space. Describe the grouping of the lymphatic nodes in the space. From what areas do they receive the drainage?
5. Describe the various steps necessary to expose the pancreas without removal of other viscera.
6. Describe fully the blood supply of the brain and of the cerebral meninges.

PHYSIOLOGY.

1. Discuss the origin of body fat.
2. Draw a diagram of a spinal reflex-arc and explain its mode of action. Give examples of reflexes and indicate their characteristic properties.
3. Enumerate the functions of the liver and discuss fully those related to carbohydrate metabolism.
4. Describe accurately the functions of the pituitary gland.
5. Describe the iris and explain its functions.
6. Discuss fully the nervous regulation of the heartbeat.

HYGIENE AND STATE MEDICINE.

1. Enumerate the ways and means by which diseases are transmitted, in order of significance.
2. Describe two methods of treatment of sewage before discharge of effluent.
3. How would you organize an educative campaign in public health and personal hygiene?
4. (*a*) How would you detect the commoner adulterations of milk? (b) What diseases may be carried or induced by milk, and how does milk become infected in such cases?
5. What is the role played by the public health nurse in a department of health?
6. What factors are accountable for the closeness of an ill-ventilated room? Discuss the general effect on the health of living in poorly ventilated quarters. Outline some tests for efficiency of ventilation in a school room.

OBSTETRICS AND GYNECOLOGY.

1. Give symptoms of carcinoma of cervix in order of their appearance. Discuss the treatment of an inoperable case.
2. Give differential diagnosis of acute appendicitis, acute salpingitis, and pyelitis. Discuss treatment of acute salpingitis.
3. Define ectopic gestation—Give early symptoms, diagnosis and treatment.
4. (*a*) Give a detailed description of fetal circulation. (*b*) The changes that take place post partum.
5. You are called to see a patient suffering from hemorrhage per vaginam during the fifth month of pregnancy: (*a*) Give possible causes; (*b*) Give a concise differential diagnosis and treatment in each case.
6. Puerperal sepsis: (*a*) Differential diagnosis between septicemia and sapremia. (*b*) Treatment of sapremia.

ANSWERS.

ANATOMY.

1. *Course and relations of the right ureter in the female:* The ureter extends from the pelvis of the kidney to the bladder. It passes obliquely downward and inward through the lumbar region of the abdomen, and downward, forward, and inward through the cavity of the pelvis to the base of the bladder, through the coats of which it passes obliquely and into which it opens by a constricted orifice. It rests upon the psoas muscle and is crossed from within outward by the ovarian vessels and the branches of the mesenteric arteries; it lies close to the outer side of the inferior vena cava. Opposite the first piece of the sacrum it crosses either the common or external iliac artery and vein, lying behind the ileum. In the pelvis it is to the inner side of the uterine artery, and passes forward and inward below the posterior layer of the broad ligament, passing beside the neck of the uterus and upper part of the vagina and being crossed anteriorly by the uterine artery.

Relations of the left kidney: In front, fundus of stomach, tail of pancreas, splenic artery and vein, splenic flexure, descending colon; *behind,* diaphragm, quadratus lumborum, psoas, fascia covering these muscles, posterior abdominal wall corresponding to eleventh and twelfth ribs, iliohypogastric, ilioinguinal and twelfth dorsal nerves, first lumbar artery and vein, pleura; *above,* suprarenal capsule; *below,* the crest of the ilium; *externally,* spleen and descending colon.

2. The *temporomandibular joint* is a ginglymoarthrodial joint formed, *above* by the anterior part of the glenoid cavity of the temporal bone and the eminentia articularis, and *below* by the condyle of the lower jaw. A plate of interarticular fibrocartilage lies between the bony surfaces. The ligaments are the external lateral, internal lateral, stylomandibular, and capsular. There are two synovial membranes, one above and the other below the interarticular fibrocartilage.

The *external lateral ligament* is attached above to the zygoma; below to the outer and posterior part of the neck of the mandible. The *internal lateral ligament* is attached above to the spinous process of the sphenoid bone; below to the lingula and margin of the dental foramen. The *stylomandibular ligament* is attached above to the styloid process of the temporal bone; below to the angle and posterior border of the mandible. The *capsular ligament* is attached above to the circumference of the glenoid cavity; below to the neck of the mandible.

In *mastication,* the *mouth is opened* by the action of the anterior belly of the digastric, the mylohyoid, and geniohyoid; the *mouth is closed* by the action of the masseter, internal pterygoid, and temporal; the *mandible* is *protruded* by the external pterygoids; the *mandible is retracted* by the posterior fibers of the temporal. The *grinding movements* are due to the alternate action of the two external pterygoids.

The masseter, temporal, external, and internal pterygoids are supplied by the inferior maxillary nerve; the anterior belly of the digastric and the mylohyoid, by the mylohyoid branch of the inferior dental nerve; the geniohyoid, by the hypoglossal nerve.

3. *Blood supply of the foot and toes:* The dorsal surface is supplied by the dorsalis pedis, which extends from the ankle to the first intermetatarsal space, where it divides into the dorsalis hallucis and the communicating. Branches of the dorsalis pedis are the tarsal, metatarsal, giving off three interosseous arteries. The dorsalis pedis enters the sole of the foot between the heads of the first dorsal interosseous muscle and anastomoses with the deep branch of the external plantar artery (thus completing the plantar arch). The plantar surface is supplied by the internal and external plantar arteries. The internal is the smaller of the two and ends on the inner side of the great toe, and gives branches to join the digital arteries of the three and a half inner toes. The external is larger and supplies four digital branches to three and a half outer toes, joining the dorsal artery of the foot in the first interosseous space. The anterior and posterior perforating arteries are connected by the dorsal interosseous arteries on the dorsum of the foot; and in the sole, the posterior joins the plantar arch and the anterior joins the plantar digital arteries.

Nerve supply of the foot and toes: Branches of the internal and external plantar; the internal supplies cutaneous branches to the sole of the foot, muscular branches to abductor hallucis and flexor brevis digitorum, and four digital branches—the first supplies inner border of first toe and the flexor brevis hallucis, the second supplies the adjacent sides of the first and second toes and the first lumbricalis, the third supplies the adjacent sides of the second and third toes, and the fourth supplies the adjacent sides of the third and fourth toes and joins a branch from the external plantar.

The external plantar passes across to the outer side of the foot with the external plantar artery, supplying on its way the abductor minimi digiti and accessorius; at the outer border of the latter muscle it divides into two branches:

Superficial.—Which divides into two digital nerves, one supplying the outer side of the little toe, the flexor brevis minimi digiti, and the two interossei of the fourth space; the other supplies the adjacent sides of the fourth and fifth toes and communicates with the internal plantar.

Deep or muscular.—Accompanies deep part of external plantar artery, supplying the adductor obliquus hallucis, adductor transversus hallucis, three outer lumbricales and interossei of inner three spaces.

The dorsal surface is supplied by the musculocutaneous nerve, which supplies all the toes except the outer side of little toe, which is supplied by small saphenous nerve. The *internal* branch of the musculocutaneous passes over ankle to inner side of first toe and adjacent sides of second and third toes, *communicates* with internal saphenous and anterior tibial nerves. *External* supplies adjoining sides of third, fourth, and fifth toes; *communicates* with short saphenous.—(From *Aids to Anatomy.*)

4. The axillary space is *bounded: Anteriorly,* by the clavicle, subclavius, pectoralis major, costocoracoid membrane, pectoralis minor; *posteriorly,* by the subscapularis, teres major, and latissimus dorsi; *internally,* by the first four ribs, first three intercostal muscles, serratus magnus; *externally,* by the humerus, coracobrachialis, and biceps.

"The *axillary lymphatic glands* are generally twelve or more in number, but both their number and size are very variable. They may be roughly classified into three groups, as follows: The *axillary glands,* from four to six in number, are placed along the axillary vessels in the outer wall of the axilla. They receive the lymphatics vessels which ascend from the limb, and are consequently most prone to enlargement in such surgical conditions as poisoned wounds of the fingers and other inflammatory affections of the limb. The *pectoral glands,* four or five in number, lie farther forward on the serratus magnus muscle, near the long thoracic artery, at the lower border of the pectoral muscles—that is, in the anterior wall of the axilla. These glands receive the lymphatics from the mamma and front of the chest, and are consequently the first glands to be enlarged in such diseases of the mamma as scirrhus, and after blistering and other superficial inflammations of the chest and upper part of the abdomen. The *subscapular glands,* three or four in number, are situated at the back of the axilla, along the subscapular vessels, and therefore in the posterior wall of the axilla. This group of vessels receives the lymphatic glands from the back and is therefore most liable to enlargement after bedsores."—(From Berry's *Regional Anatomy.*)

5. The pancreas may be exposed for dissection in three different ways: (1) By raising the liver, drawing down the stomach, and tearing through the gastrohepatic omentum and the ascending layer of the transverse mesocolon. (2) By raising the stomach, the arch of the colon, and great omentum, and then dividing the inferior layer of the transverse mesocolon and raising its ascending layer. (3) By dividing the two layers of peritoneum, which descend from the great curvature of the stomach to form the great omentum; turning the stomach upward, and then cutting through the ascending layer of the transverse mesocolon.—(From Gray's *Anatomy.*)

6. *The blood supply of the brain and cerebral*

meninges: The *blood supply of the dura* comes from the anterior, middle, and posterior meningeal arteries. These all come, except the small anterior meningeal branches and a small posterior branch, from the external carotid. The blood passes into the diploic veins, and from there passes chiefly into the lower occipital and lateral sinuses. Some of it, however, returns in the venæ comites. It all returns down toward the base of the skull. The most important of the arteries is the middle meningeal, both on account of its size and its distribution above important functional areas.

The *blood supply to the pia mater and brain substance* comes from the internal carotid and the vertebral arteries. The branches of the former artery give off the anterior and middle cerebral, the posterior communicating and anterior choroid. The vertebral arteries give off the inferior cerebellar, while the basilar branch of the vertebrals gives off the transverse, anterior cerebellar, superior cerebellar, and posterior cerebral arteries.

The anterior, middle, and posterior cerebral arteries are the three largest and most important. By their anastomoses the circle of Willis is formed. From the circle of Willis and the beginnings of the three arteries mentioned several groups of vessels, six in all, are given off. They enter the base of the brain and supply the great basal ganglia and the adjacent white matter. They are called the *central arteries*, they do not anastomose, and they are the vessels usually affected in cerebral hemorrhages of adult life. One set of these central arteries, the *internal striate*, passes up and supplies the two inner segments of the lenticular nucleus, the caudate nucleus, and anterior part of the internal capsule. Another set, the *external striate*, divide into anterior or lenticulo-striate branches which supply the lenticular nucleus and posterior part of the caudate. The *cortical arteries* are the terminal branches of the great cerebral arteries. They anastomose with each other but slightly. They are distributed very widely and carry much more blood than the central groups. The cortical arteries are distributed in the pia, and from there they pass in two sets, a superficial and a deep, into the gray matter, and for a short distance into the white matter. They pass straight in at right angles to the surface. They have richly arborescent branches which do not anastomose.

The *veins of the cerebrum* are: 1, the superficial cerebral; 2, the deep cerebral veins; 3, the cerebral sinuses. 1. The superficial cerebral veins are venæ comites. Those on the convex and mesial surfaces empty chiefly into the superior longitudinal sinus, as described; those on the basal surface and temporal lobes empty into the cevernous and lateral sinuses. These veins have no valves, and their walls are very thin and without muscular fibers. 2. The deep cerebral veins, or venæ Galeni, receive the blood from the lateral ventricles and from some of the central arteries supplying the basal ganglia. They empty into the straight sinus. These deep or central veins when compressed lead to stasis and internal hydrocephalus. 3. The *cerebral sinuses* are fifteen in number. The important ones are the superior and inferior longitudinal, the straight, the lateral, the occipital, the cavernous, and the superior and inferior petrosal. They carry blood for the most part in a direction from before backward, and convey it eventually to the internal jugular.

Most of the blood of the convexity and mesial surface must pass into the longitudinal sinus, but there is a slight connection of some of the veins with the superior petrosal and straight sinuses. The superior longitudinal sinus also communicates slightly with veins of the scalp and with the facial vein. Some of the blood from the mesial surface also goes to the veins of Galen. —(From Dana's *Diseases of the Nervous System.*)

PHYSIOLOGY.

1. *Origin of body fat:* "The modern point of view is that the fat of the body originates partly from the fat of the food, particularly in carnivora, and partly from the carbohydrate of the food, especially in herbivora, in whose diet this foodstuff forms such a large part. The possibility that fat may also be formed from protein food must be accepted in accordance with what has been described concerning the intermediary metabolism of the protein. So far as the amino-acids formed from the food protein during digestion are not reconstructed into the body-protein of the animal, they are deamidized, and the organic acid grouping left may be converted to sugar and glycogen, hence probably also to fat. Protein constitutes relatively only a small fraction of the daily diet, and the modern point of view is that body fat is formed in the first instance from food fat and food carbohydrates."—(Howell's *Physiology.*)

2. *Reflex actions* are involuntary or unconscious movements due to suitable stimuli. They depend upon the integrity of the *reflex arc*, which is a complex made up of: (1) A surface capable of receiving an impression; (2) an afferent nerve; (3) a nerve cell capable of receiving and also of sending out impulses; (4) an efferent nerve, and (5) a surface capable of responding in some way to the impulse conveyed by the efferent nerve. *Example:* The patellar reflex consists of a contraction of the extensor muscles of the leg and a movement of the foot forward when the ligamentum patellæ is struck; the quadriceps extensor must first be slightly stretched by putting one knee over the other. Its integrity depends upon a healthy condition of the entire reflex arc, consisting of tendor, afferent or sensory nerve, posterior roots, and anterior horn of the spinal cord, the efferent or motor nerve, and the muscle itself.

Illustrations of morbid reflex action can be seen in tetanus, when a slight touch, or even a breath of air, on the skin may cause convulsions of the whole body; also in the vomiting of pregnancy.

3. *Functions of the liver* are: The formation of bile, urea, uric acid, creatinine, and antithrombin; the production of heat; the conversion of hemoglobin into bile pigment, and the glycogenic function (formation and storage of glycogen).

"The facts connected with the formation of glycogen, as well as with its transformation as at present generally accepted, may be stated as follows: The dextrose or glucose into which the carbohydrates are mainly converted by the action of the digestive fluids is absorbed into the blood of the portal vein and carried direct to the liver, where a certain portion of it diffuses across the capillary walls into the surrounding lymph-spaces; by the action of the cells or by a special enzyme it is then dehydrated and temporarily deposited under the form of the non-diffusible body glycogen. At a subsequent period, and in proportion to the needs of the system, the liver cells, through the agency of a ferment, transform the glycogen into glucose or dextrose by the addition of a molecule of water, after which it is returned to the blood, by which it is transported to the systemic capillaries, where it disappears again, diffusing across the walls of the capillaries into the surrounding lymph-spaces to play a part in the general nutritive process. Though the final disposition of the sugar is uncertain, it is highly probable that after its delivery to the muscles, for example, it may be directly oxidized or temporarily stored as glycogen or possibly be used in the formation of living material. Ultimately, however, through oxidation (glycolysis) it yields heat and contributes to the production of muscle energy. Should there be a failure on the part of the liver cells to store up the usual percentage of the absorbed sugar, by reason of impaired nutrition, disturbance of the portal circulation, or a larger excess of sugar in the blood of the portal vein, it would pass through the liver into the blood of the general circulation and increase the percentage amount of sugar above the normal (0.1 to 0.2 per cent.), establishing the condition of hyperglycemia. This would soon be followed by its elimination from the blood by the kidneys and its appearance in the urine, giving rise to a glycosuria."—(Brubaker's *Textbook of Physiology.*)

4. *Function of the pituitary gland:* "The *anterior* lobe is concerned with the process of growth, hypertrophy leading to overgrowth of the skeleton, and partial removal to failure of development of the body as a whole and of the sexual glands. Extracts of the *posterior* lobe, when injected into an animal, have a direct action on plain muscle all over the body; they cause constriction of the arterioles and a rise of blood pressure, contraction of the muscular coats of the digestive tract and of the bronchioles, and contraction of the uterus. The extracts also produce an increased flow of urine, which was at first attributed to the presence of a substance

having a specific effect upon the renal cells; it is probable, however, that the diuretic effect is merely an indirect result of the more rapid flow of blood through the kidney which follows the injection of the extract. Extracts of the posterior lobe increase the secretion of milk, and after the injection a larger amount of milk is formed by the animal in the course of twenty-four hours."—(Bainbridge and Menzies' *Essentials of Physiology.*)

5. "The *iris* is a colored membrane, circular in form, hanging behind the cornea immediately in front of the lens, and perforated in its center by an aperture of variable size, the *pupil;* it serves to regulate the amount of light admitted to the interior of the eye, and cuts off the marginal rays which would interfere with the sharpness of the retinal image. Its peripheral border springs from the head of the ciliary body and the ligamentum pectinatum. Its free inner edge, the boundary of the pupil, lies upon the anterior capsule of the lens when the pupil is contracted or moderately dilated; with maximum dilatation of the pupil it hangs free in the anterior chamber. The iris separates the *anterior* from the *posterior chamber* of the eyeball. Its anterior surface presents great variation in *color* in different eyes, and is marked by radially directed, wavy lines, converging toward the circle of irregular elevations and small depressions (crypts) situated near the pupil; other finer lines are seen extending from this ring to the pupil. This appearance is produced by the subjacent blood-vessels."—(May's *Diseases of the Eye.*)

The *functions of the iris* are: (1) To regulate the amount of light which reaches the retina (in intense light the pupil becomes smaller); (2) to lessen spherical aberration by cutting off peripheral rays of light.

6. The nervous mechanism consists of an inhibitory and an accelerator supply. In addition, there are various intrinsic ganglia in the heart which are supposed to be responsible for the heart-beat. The *cardio-inhibitory* center is connected with the nucleus of the vagus in the floor of the fourth ventricle, and the fibers from it pass to the heart along the vagus nerve. Its function is to slow the beat of the heart. It is sometimes known as the anabolic center, because it lessens the rate and force of the heart and so allows time for building-up processes (anabolism). If the peripheral end of the cut vagus is stimulated, the heart is slowed and may be entirely stopped. It is a tonically active center, that is, it acts continuously, so that the simple cutting of the vagus takes off the brake and lets the heart run away.

The *cardio-aecelerator* center is also in the floor of the fourth ventricle. It acts through the sympathetic fibers which descend in the spinal cord and leave it through the anterior roots of the first and second dorsal nerves, and go thence to the cardiac plexus. This center keeps up the rate of the heart beat.

These centers may be stimulated by afferent impulses, such as *psychic* from the cortex cerebri, or *cutaneous*, or *visceral*. The centers are also affected by the state of the blood; thus excess of carbon dioxide in the blood, as in the beginning of asphyxia, stimulates the cardiac centers and makes the heart beat more strongly and more rapidly. Increased temperature of the blood also increases the rapidity of the heart's action.

HYGIENE AND STATE MEDICINE.

1. *Diseases are transmitted:* By personal contact (as in case of syphilis); by animals suffering from the disease (as anthrax); by animals, such as flies, acting as carriers (as trypanosomiasis); by animals, such as mosquitoes, acting as intermediary hosts (as malaria); by the air (as diphtheria); by the dust (as influenza); by droplets of saliva (as tuberculosis); by water (as cholera); by food and milk (as typhoid); by human carriers (as typhoid).

The *order of significance* depends upon the disease under discussion.

2. *Two methods of treatment of sewage before discharge of effluent:* (1) The biological (or bacterial) process of sewage disposal; (2) the septic tank process.

(1) The biological (or bacterial) process:

"The actual changes which take place in sewage, as the result of bacterial action, are somewhat complex and obscure, but they have been aptly described by Rideal as consisting mainly of three stages. In the first stage, or that of anaërobic liquefaction and preparation by hydrolysis, the albuminous matters, cellulose, and fats are broken up into soluble nitrogenous compounds, fatty acids, phenol derivatives, gases, and ammonia. In the second stage, or that of semi-anaërobic disintegration of the intermediate dissolved bodies, a further formation of ammonia, nitrites, and gases takes place. In the third stage, or that of aeration and nitrification, ammonia and carbon residues are changed into water, carbon dioxide, and nitrites.

"A *septic tank* is a specially constructed tank for the treatment of sewage; in it the sewage as such is destroyed, and new substances are built up in its place. In *Cameron's septic tank* system 'the sewage is first led into a tank from which air and light are excluded. Digestive changes take place in the sewage within this tank as the result of anaërobic bacterial action, which is favored by the darkness, the absence of air, and the perfect stillness at which the sewage is maintained. Under these circumstances much of the solid matter is rendered soluble and dissolved.' "—(Notter and Firth's *Hygiene.*)

3. An *educative campaign* should be begun by interesting the leading men in the community, physicians, scientists, teachers, clergy; get them enthusiastic, and then present the facts to the pupils in the schools; insert propaganda in the newspapers and magazines, and try and get the editors interested; cooperate with all local and general organizations which bear on health work, also with organized charities and dispensaries, as well as civic clubs and social service centers; instruction is more necessary than legislation; get the "home" and the "school" interested; inaugurate lectures, and use charts, illustrations, lantern slides, movies; distribute leaflets, bulletins, and other printed matter; get up exhibitions, shows, etc. (these must be carefully planned, and all possible cooperation must be secured; care will be needed in selecting the committee, location, hall, program, exhibits).

4. To Detect the Commoner Adulterations of Milk.—The specific gravity of the milk should be observed; milk which has been skimmed will show an increased specific gravity; milk which has been watered will show a decreased gravity; with this test there should be made a comparison with normal milk in regard to color, opacity, and density. *Test for formaldehyde in milk:* "Commercial sulphuric acid to which has been added five drops of tincture of the chloride of iron to the ounce is the reagent. A half inch layer of this is put into a test tube and the milk flowed on top. After a few minutes a violet color develops in the milk in the presence of formaldehyde." "Milk containing *borie acid* or *borates* colors turmeric paper brown." "The presence of *foreign coloring matter* in milk is easily shown by shaking 10 c.c. of the milk with an equal quantity of ether; on standing, a clear ether solution will rise to the surface; if artificial coloring matter has been added to the milk the solution will be yellow colored, the intensity of the color indicating the quantity added; natural fresh milk will give a colorless ether solution."—(From Gardner and Simond's *Practical Sanitation.*)

Diseases specially liable to be conveyed by the ingestion of milk: Tuberculosis, typhoid fever, scarlet fever, diphtheria, tonsillitis, cholera, and gastrointestinal disorders.

The milk may come from a diseased cow; it may become contaminated by the milker, the container, the surroundings, the water used to wash the cans or to adulterate the milk; or it may become contaminated at the dealer's or purchaser's house by being left uncovered, exposed to flies, etc., or by not being kept in a cool place. The only way to prevent the transmission of disease by milk is to insist on a thorough inspection of all dairies and sources of milk supply, and to educate the public in the care of milk between the time of its purchase and its consumption. The inspection should include: the color, reaction, specific gravity, sediment, taste, odor, acidity, total quantity of solids and of water; the percentage of cream, fats, lactose, casein, and ash; the presence or absence of preservatives, coloring matter, added solids, dilution, pathogenic microorganism, dirt, or other foreign matter. There

should also be thorough investigation as to its source, the cows and their environment, the method employed in caring for, milking, storing, and transporting the milk.

5. The *public health nurse* is of the utmost importance; she aids the health authorities, physicians, families in sickness, and the community at large; she aims more at the prevention of disease and distress than the cure of it, though the latter is very carefully attended to as well; she aids in schools, visitation of sick, control of special diseases such as tuberculosis, and the general sanitary instruction of households; she aids the needy in getting in touch with the proper charity organizations; she reports births and sickness to the health authorities, and by her advice and instruction prevents the spread of infectious diseases; she explains the necessity for calling in a physician and often sees that his instructions are carried out; she acts as hygienic adviser in many households, and is particularly useful in aiding young mothers. The public health nurse, if experienced and tactful, has unlimited possibilities for good.

6. *The closeness of an ill-ventilated room* is due to the following factors: Increased amount of carbon dioxide, diminished oxygen, odors and emanations from the bodies of persons in the room, increased temperature of the room, the saturation of the air with vapor, the presence of "crowd poison" or "fatigue toxins."

The *dangers of impure air* are: Drowsiness, headache, digestive disturbances, mental dullness, and disease or liability to take disease. The chief danger to health is in the increase of carbon dioxide, the presence of crowd-poison, dust, irrespirable gases, and bacteria.

Pettenkofer's method of determining the percentage of carbon dioxide in the air: A large cylindrical container of known capacity, say, 15 liters, is filled with the air to be examined; a known volume of barium hydroxide is then added and shaken up with the air. The carbon dioxide combines with the barium hydroxide to form a barium carbonate, which is insoluble, and also incapable of acting upon an indicator. The barium hydroxide employed is of known strength, *e g.*, it may be of such strength that 1 c.c. of the solution neutralizes 1 c.c. of carbon dioxide at normal temperature and pressure. If then we find that 10 c.c. of the barium hydroxide has been neutralized by the carbon dioxide present in the air, we know that 10 c.c. of carbon dioxide is present in 15 liters or 15,000 c.c. of the air examined.

The *relative humidity* may be obtained by the use of hygrometers and psychrometers.

OBSTETRICS AND GYNECOLOGY.

1. *Carcinoma of the cervix:* The symptoms are hemorrhage (which gradually becomes more constant and profuse), pain, and discharge (this is at first serous and odorless, later becoming bloody, mucopurulent, and of a fetid odor). The diagnosis is made on the physical and microscopical examination. The cervix is hard and nodular, and the mucous membrane seems immovably fixed to the underlying tissue. These nodules break down, the entire cervix becomes ulcerated, or large cauliflower-like masses may fill the upper part of the vagina. The diseased tissue is friable and bleeds upon touch.

Treatment for inoperable carcinoma of cervix: Careful nursing, scrupulous cleanliness with douches containing potassium permanganate or bichloride of mercury; morphine for the pain; the dead tissue may be removed by scissors or curette; tonics and nourishing food are indicated.

2.

APPENDICITIS.	SALPINGITIS.
1. No previous local disturbances.	1. Genitourinary functions previously disturbed. Usually a history of gonorrheal or puerperal infection.
2. Chill usually absent.	2. Chill may precede fever.
3. Pain in right iliac region, sudden onset, acute, and not radiating to thighs.	3. Gradual onset, pain dull, continuous, and radiating.
4. Fever of variable degree.	4. Fever often entirely absent.
5. Muscular rigidity on right side of the abdomen.	5. No muscular rigidity unless complicated by peritonitis.
6. Inflammatory exudate about appendix three to five days after onset of symptoms.	6. Inflammatory exudate in the pelvis felt by vaginal examination at the onset of the symptoms.
7. Vaginal examination is rarely painful in appendicitis.	7. Always painful in tuboovarian disease.

—(Findley.)

In *pyelitis*, there are usually pain and tenderness over the kidney, fever, frequency of urination, the kidney may be enlarged and palpable, the urine contains pus, albumin, bacteria, and epithelial cells, the urine is acid unless cystitis is also present. The cystoscope and catheterization of the ureters may aid in diagnosis.

Treatment of acute salpingitis consists in rest in bed, free purgation with Rochelle salts (℥1 every hour), hot vaginal douches, and hot applications to the abdomen. Liquid diet is indicated, and if the pain is severe morphine may be necessary. If the symptoms become more severe celiotomy is indicated.

3. *Ectopic gestation* is a pregnancy in which the ovum is developed outside of the uterine cavity. The *Symptoms* for the first few weeks are exactly similar to those of normal pregnancy. Later, sharp, cramplike, periodic pain occurs and is reflected down one thigh. About the third month menstruation returns. The bleeding is profuse and attended by some pain Flesh-like masses (decidua) are discharged. Nearly all the signs of normal pregnancy are present. Physical examination will reveal a softened cervix, an enlarged and displaced uterus, and the presence of a small cystic tumor, sensitive and adherent, on one side of the uterus. *Rupture* is attended by great pain and syncope. If the hemorrhage is intraperitoneal and extensive, death results in a few hours, attended by symptoms of profound shock; rapid, weak pulse; blanched cold skin; sighing respiration, and fall of temperature. If the hemorrhage is extraperitoneal, it will be limited and the symptoms of shock and bleeding will be slight. Before rupture the diagnosis is difficult, but afterward the history of early pregnancy, intense pain, syncope, and collapse will distinguish this condition.

The *treatment* consists of removal of the affected tube and ovary as soon as the diagnosis is made. In late extrauterine pregnancies it may be necessary, after controlling hemorrhage, to suture the sac-wall to the lower angle of the abdominal incision.—(*Pocket Cyclopedia*)

4. *The fetal circulation:* "The arterial blood coming from the placenta to the fetus travels along the umbilical vein to the liver. After giving off several branches to the left lobe it divides into two streams, the larger joining the portal vein and thus entering the liver, the smaller passing directly into the inferior vena cava through the *ductus venosus*. In the inferior vena cava the blood carried by the hepatic veins and ductus venosus mixes with the blood which has circulated through the lower extremities. On entering the right auricle the blood of the inferior vena cava is directed by the Eustachian valve, through the foramen ovale into the left auricle, and from thence into the left ventricle. The left ventricle forces it into the aorta, and it is then distributed to the head and upper extremities, a small quantity only passing into the descending aorta. The blood which has circulated through the head and upper extremities returns to the heart along the superior vena cava, the blood then passing into the right ventricle and pulmonary artery. A small part of the blood in the pulmonary artery is con-

veyed to the lungs, but the major part passes through the ductus arteriosus into the aorta at the commencement of the descending portion. This blood is distributed to the lower extremities, a certain portion of it entering the hypogastric arteries and being conveyed to the placenta."—(Ashby's *Physiology.*)

Changes that occur in the fetal circulation at birth: The hypogastric arteries dwindle and close, the foramen ovale becomes obliterated, the ductus arteriosus and ductus venosus become obliterated, the umbilical vein becomes impervious, and the Eustachian valve atrophies.

5. The possible causes of hemorrhage per vaginam, during the fifth month of pregnancy, are: Placenta prævia, threatened or inevitable abortion, and ectopic pregnancy. *In placenta prævia* the hemorrhage is sudden, and may be accompanied by vertigo, restlessness, syncope, feeble pulse. The placenta can usually be felt by the examining finger in the cervical canal. In *threatened abortion* there are pain dilated os, and possible protrusion of the ovum, besides the hemorrhage; the pains are like miniature labor pains. In *incomplete abortion* the ovum is expelled, but the membranes remain behind.

For symptoms of *ectopic gestation* see Question 3.

Treatment of placenta prævia: (1) Introduce one or two fingers within the os (the hand being in the vagina) and dissect the placenta from the uterine wall for about three inches from the os uteri in all directions, pushing it to one side if necessary. (2) Rupture the membranes, and if there is an unfavorable presentation turn the child and make the breech engage in the os; or, if the head presents forceps may be used if speedy delivery is necessary. The strength of the woman is then the main point to be cared for, and if in a reasonable time the uterus seems to be incompetent, the child may be delivered by art. In some cases of central placenta prævia, where rapid delivery is required, cesarean section may give good results for mother and child.

"*Treatment of threatened abortion* includes rest in bed with absolute quiet; the administration of nerve sedatives, preferably suppositories of opium, one grain of the aqueous extract morning and evening; this may be supplemented by teaspoonful doses of the fluid extract of viburnum prunifolium four times daily. If the abortion is due to general disease, such as typhoid fever, pneumonia, phthisis, or valvular heart disease, no attempt should be made to prevent it."—(Gould and Pyle's *Pocket Cyclopedia.*)

Management of inevitable abortion: "Two methods of treatment have been advised for these cases. The first is *the expectant plan:* Place the patient in bed, and if the bleeding is profuse insert a tampon of iodoform gauze (one yard) well up against the cervix. If this fails to control the hemorrhage, reinforce it by another yard or two of gauze and a perineal pad and binder. Small doses (5½) of the fluid extract of ergot should now be given every two or three hours. At the end of from eight to twelve hours remove the tampon, when the ovum may be found extruded from the cervix; if not, a vaginal douche of mercuric chloride (1:4000) must be given, and another tampon introduced. If, upon the removal of this second tampon at the end of ten or twelve hours, the ovum is not discharged, then more vigorous methods to secure its expulsion must be adopted. *Active plan:* The physician's hands and instruments are sterilized; the patient is etherized and placed on an appropriate table; the genitalia are thoroughly cleansed and a vaginal douche of mercuric chloride (1:4000) is given; the anterior lip of the cervix is brought down to the vulvar orifice; the cervix is dilated if necessary; the placental forceps is introduced into the uterus, and as much as possible of the ovum is removed; the uterus is thoroughly curetted, and an intrauterine douche of sterile water is given. A light tampon of iodoform gauze is placed in the vagina; the patient is then returned to bed. A strip of gauze may be placed in the uterus in cases of sharp retroflexion, to secure free drainage, and occasionally an intrauterine tampon will be necessary, when the uterus refuses to contract and hemorrhage persists after the use of the curette."—(Gould and Pyle's *Pocket Cyclopedia.*)

For *treatment of ectopic gestation* see Question 3.

6. In *septicemia,* the signs and symptoms are more pronounced (than in *sapremia*), and in addition the rigors are more severe, the temperature persistently higher, the pulse more rapid, the lochia are frequently less fetid, there is abdominal pain, the patient looks and feels ill, the eyes are sunken, sometimes delirium may occur, the tongue becomes dry and glazed, vomiting may occur, and an offensive diarrhea may be present; sometimes a skin eruption is noticed.

"*The treatment of puerperal sepsis* is both local and general. Locally a thorough disinfection of the whole genital canal is called for in every case. It may appear unnecessary, and may prove, on actual experience, to be even harmful, but no one can tell beforehand how necessary this procedure is. In the vast majority of cases it is productive of the greatest good. It is only occasionally useless, and very rarely actually harmful. It should precede all other treatment for puerperal infection. The method of disinfecting the genital canal may be described as follows: A double tenaculum, a large, dull curette, a placental forceps, and an intrauterine catheter are boiled for fifteen minutes. The operator disinfects his hands and arms and wears sterile gloves. The patient is placed in the dorsal posture across the bed, with her buttocks resting on a rubber pad. The external genitalia and the vagina are scrubbed with tincture of green soap and pledgets of cotton; the vagina is douched with a sublimate solution, 1:2000. The operator then seizes the anterior lip of the cervix with a tenaculum. An intrauterine douche of sterile water, at least a quart, is administered. Then, with the placental forceps, and, if necessary, with a dull curette, the uterine walls are gone over thoroughly but lightly in all directions, six to twelve times, until nothing is brought away but bright blood. A second intrauterine douche concludes the treatment. If the womb is flabby and large, with a tendency to flexion, so that the drainage of the uterine cavity is not good, it is advisable to pack it with iodoform or sterile gauze. In addition to cleansing the uterine cavity, false membranes or areas of inflammation and localized infection on the cervix or vagina should be treated by the application of a solution of nitrate of silver, a dram to the ounce. It may be necessary to repeat the intrauterine douches several times—in fact, several times a day for many days; in this case plain sterile water only should be used. The general treatment is stimulating. The patient should have as much food of an easily digestible character, chiefly milk, as she can assimilate, and as much alcohol as she can consume without showing the physiological effects of it. Digitalis is useful as long as the pulse is above 110. Strychnine may be combined with it in suitable cases. To tide the patient over emergencies, carbonate of ammonium in large doses, by the bowel, and nitroglycerin, hypodermatically, may be required. Inhalations of oxygen may be of service. Absolute rest and freedom from all disturbances, mental and physical, must be insisted upon, and the patient should be given the best nursing that the family can afford."—(*Hirst's Obstetrics.*)

(*To be concluded.*)

Codliver Oil in Leprosy.—Balzer reports the case of a scrofulo-tuberculous leper who had failed to benefit by chaulmoozra oil and eucalyptus. Having passed through a severe pneumonia the surface manifestations of leprosy showed improvement while the scrofulo-tuberculous lesions dominated the picture. Codliver oil was now pushed and all symptoms improved notably save albuminuria. At present both disease processes seem quiescent. The rationale of this improvement is obscure. The two types of bacillus, as is known, have a strong resemblance, and codliver oil may act through some property shared by both.—*La Presse Médicale.*

Health of Holland.—The death rate in this country has remained constant during the war. Despite this fact there were many cases of contagious disease in the first four months of the present year. For example, there were 4,773 cases of diphtheria as compared with 2,095 for the same period last year. There were also 1,273 cases of typhoid as against 324 for 1917. These two maladies are still prevalent. The total death rate, however, was even less for certain months than in 1917. —*Nederlandsch Tijdschrift voor Geneeskunde.*

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 95, No. 2.
Whole No. 2514.

NEW YORK, JANUARY 11, 1919.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

TYPHUS FEVER.

BY H. T. M. K. RAHMET BEY, M.D.,

CAIRO, EGYPT.

THE word typhus is of Greek derivation, meaning smoke or vapor. Typhus has been the curse of the pauper; it pertinaciously haunts the poverty stricken huts; uncleanliness is its abode of choice; filth is the pabulum that lends to its ferocity.

History.—The disease is probably as old as mankind; Hippocrates applied the word, stupor, to the mental phenomenon of a disease that probably was nothing but typhus. The black death that devastated Asia, Europe, and Africa was very likely a pandemic of the disease; it started from a focus in the Crimea; spreading thence, it carried in its wake panic and confusion that did away with all the barriers of morality, decency, and humanity; it is believed that it swept away one fourth of the earth's population; in Europe it appeared in 1348. In time the disease abated through exhaustion; but ever and anon the dormant embers would blaze afresh to work havoc. Its autonomy was first recognized in 1810; it did not, however, become a distinct disease till 1829, when Gerhard demonstrated its separate entity.

Typhus usually trails armies; in war times it has been the bane of the contending forces because of the unhygienic conditions prevailing. The disease that decimated Napoleon's troops in the Russian campaign was very likely typhus; in 1813 it was spread and scattered throughout western Europe by the forces of both parties; the Russians alone lost about 62,000; of the 30,000 French prisoners, nearly 90 per cent. died from it; the Jews of Vilna and the vicinity lost about 60,000; Danzig lost 8,000; the French lost altogether about 80,000; it continued its ravages in 1814; Prussia alone lost about 200,000 in the two years. Since then, it has convulsively continued through the different parts of the world. The Russo-Japanese war experienced it; a severe recrudescence appeared in the last Balkan war; the present terrific conflagration has tasted its bitter pills.

Etiology.—The microbic nature of the disease was suspected in the latter part of the last century when it was supposed that the virus circulated in the blood. About 1881 Klebs described a bacillus and Mott a micrococcus-like body, as the cause of the disease. Calmet claimed in 1892 to have found a flagellated body as the agent causing it. In 1893 Bruhl ascribed the disease to a diplococcus. Gottschlich in 1903 attributed it to a babesia; in the same year Krunpecker described inclusion-bodies as being probably associated with the specific etiology of the disease. Since then many views and theories have been advanced. Ricketts in 1909 described a bacillus which clearly resembles that described later by Plotz. Proescher attributed the disease to a diplococcus which is liable to appear as a diplobacillus. Plotz described his pleomorphic bacillus in the *Journal of the American Medical Association* in 1914; Baehr, Olitsky, and Plotz describe the bacillus as a small gram-positive organism which grows under anaerobic conditions. Arnheim isolated a bacillus from the blood, sputum, and urine of typhus cases. Furth in China found that the saprophytic *Bacillus fecalis alkaligines* acted as the exciting cause of typhus. The latest views, however, are that the Proteus (X 19) is the causative agent of typhus or at least the agent most intimately connected therewith, together with the other proteus organisms. Braun and Solomon maintain that the proteiform organisms of typhus are not always identical with each other, and that they greatly vary in their agglutination properties when inoculated in animals; according to them, several types of races of the proteus can be made out; during typhus the Proteus (X 2) may be transformed to the Proteus (X 19). The different proteus organisms are very likely only modifications of the same.

In 1909 Comte, Counseil, and Nicolle discovered that the body louse was the agent responsible for the transmission of typhus. Nocht, Halberkann, and Curschmann, however, contend that the body louse is not the sole agent in the transmission of the disease. Their assertion is practically correct; but it does not invalidate the fact that the body louse is the principal agent in the transmission.

The louse which belongs to the genus Pediculus, the sub-order Parasita, the order Hemiptera, and the class Insecta, is flat, elongated, and wingless, possessing a head, a thorax, and an abdomen. The head is small and has a short, strong proboscis which contains a stylet; one part of the stylet is adapted for piercing the skin, another for injecting an irritating secretion to induce hyperemia, and a third for sucking the blood from the congested surface. Each louse has three pairs of short, stout legs attached to the thorax; these legs end in strong claws. The female is larger than the male and lays about 20 eggs at a time. Some maintain that it takes the nits from 6 to 15 days to hatch; others say from 2 to 4 weeks. Wulker gives the following as the stages in the nits' development: (1) The freshly laid eggs are full of yolk granules; (2) the differentiation of the yolk into uniform germinal spheres soon takes place; (3) the larva's body is at length outlined (4) this is followed by the anlage of the head, the body, and extremities; (5) the

larva is now completely developed; (6) the hatched and empty egg is left behind. These stages are completed in from 4 to 6 days at room temperature.

Several crops of eggs are laid every year. The nits are small, white, and ovoid in shape; one side is cut, being nature's provision for the process of hatching. The young resemble the adult in every respect, except they are paler in color; they generally molt four times before maturing, feeding between each molt.

Lice usually move sidewise; they do not travel far but remain closely attached to the host. One is infected with lice either from contact or from wearing clothes harboring the parasites. Lice starve in a few days if deprived of their food. There are three varieties of lice, viz., *Pediculus capitus*, or the head louse; *Pediculus pubis*, or the crab louse; and *Pediculus vestimenti* or the body louse. The head louse inhabits the scalp and lays its nits on the hair to which they tenaciously stick. The crab louse is the smallest and darkest of the three; it lives best on the hairs of the pubic region and the arm-pit. The body louse crawls over the body, principally on the upper part of the trunk; it lays its eggs in the seams of the clothing where it stays by preference after each feed; it has a nocturnal character and probably thrives best in low temperatures. It is the biological carrier of typhus and requires about eight days after engorging itself with the blood of a patient before it can inoculate a non-immune person. Anderson and Goldberger assert that the infected lice do not transmit the virus in their eggs. The port of entrance is very likely the skin, as Theobald Smith and Libman maintain; but surely the virus can produce the disease in the non-immune whenever it can find admittance to the endothelia of the blood vessels, regardless of the path of entrance. H. C. Michie holds with reason that the salivary glands of the louse contain the virus. Undoubtedly the infection is conveyed through the sting of the louse. Nutall, however, holds a contrary view; he believes that it is necessary for the infected louse to be crushed on the excoriated seat of the sting and its smeared blood be rubbed into the system, before infection can take place. There is no doubt that the infected louse's blood contains the virus, and probably if the said blood is rubbed into a non-immune person, infection takes place; but to maintain that infection can only take place thus, is incorrect. The louse is a soft body, crawling over a soft body; for it to be crushed, requires its being placed between two hard bodies; this is not the case with the scratching fingers and the body on which it feeds. The lousy kill their lice by picking them out and squeezing them between the thumb nails or between one of the nails and another hard body. Lice may be killed while scratching with the nails, provided they are stabbed with the sharp ends; but this requires the exact location of the parasite and the employment of one's eyes to get an accurate aim; it is very difficult for a person to see the parasite on his back or upper part of his chest in order to take a correct aim. Hence the assertion that infection can only take place by rubbing the blood of the infected louse at the site of the excoriated sting, is untenable. Moreover, a living proof of the fact that typhus is transmitted by the louse's sting, is found in the sad death of Dr. H. T. Ricketts, who was investigating the cause of the disease in Mexico City. While incubating lice, infected with typhus, in a test tube under his arm, a louse escaped and bit him; he developed the disease and succumbed to it.

Thus far, the louse has occupied the place of honor. Are there no other worthies deserving attention? Guineapigs and monkeys have been experimented upon with the virus of typhus with positive results. Very likely the germ of the disease has a biological cycle in different hosts. It has been noticed that where a locality was infected with the plague, typhus was absent, and *vice versa*. The rat trails dirt and filth is its habitation. The plague which afflicts rats with deadly effect is transmitted therefrom to man and *vice versa*. In physics no two objects can occupy the same place at the same time. Likewise in medicine, no two active diseases can affect the same part at the same time; this is a maxim of nature. Certainly one disease may supervene upon another; but then the weaker gives way to the stronger. Does the rat harbor typhus? This is a difficult query to answer at the present juncture; but experiments in that line would be worth the trouble.

Climatology.—Most American and many European authorities maintain that the body louse and consequently typhus thrive best in mild and cold climates, at high altitudes, and away from the coast; the opposite conditions are deleterious to the same. Anderson and Goldberger assert that the parasite and the germ live best between 12 deg. and 16 deg. C. (53.6 deg. and 61 deg. F.) and that a temperature higher than 20 deg. C. (68 deg. F.) acted adversely on the longevity of the body louse. Wilder confirmed their observations. Others declare that the temperatures between 16 deg. and 20 deg. C. (61 deg. and 68 deg. F.) are very favorable for the growth and propagation of the germ and parasite. Anderson observed that in Mexico, the disease and parasite have never been seen below an elevation of 5,000 or 6,000 feet. Thence he concludes that they are not prevalent in summer and fall; from the same observations, he deduces that typhus and the louse never prevailed in tropical and sub-tropical countries, except above a certain altitude. Others declare that they cannot live in an altitude lower than 2,000 feet. Some asseverate that a temperature of 55 deg. C. (131 deg. F.) for fifteen minutes will destroy the virus.

These assertions cannot be universal and absolute; they can only be partially true. Inhabited Egypt consists mainly of the Nile valley which is encompassed on both sides by low mountains and sandy hills that form the borders of extensive deserts. The Delta extends from Cairo to the sea, forming one extensive, triangular plain, dotted with cities, towns, and villages; it is intersected by the Nile and its ramifications. Southward from Cairo, the valley narrows; its width varies from a mile or less to several miles between Cairo and the first cataract at Aswan. The general slope of the valley on both sides of the river downward is 10 centimeters for each kilometer; it is likewise 10 centimeters for each kilometer receding from the river toward the flanks; the slope on the river's surface is only eight centimeters for each kilometer downward. The banks are thus higher than the land further away; they are likewise higher above

the water's surface the further one goes up the stream. These distinctive features have been brought about by the gradual alluvial deposits. The country being surrounded by scorching deserts on both sides, is naturally hot; its climate is tropical, the maximum temperature ranges from 25 deg. to 45 deg. C. (77 deg. to 113 deg. F.) in the shade during the summer months. Occasionally it may rise to over 50 deg. C. (122 deg. F.) in such places as Aswan where in July, 1906, it rose to 53 deg. C. (127 deg. F.) in the shade on the left bank of the first cataract. Alexandria is a coastal city with temperatures often exceeding 30 deg. C. (86 deg. F.); it is but a few feet above the sea-level. Cairo is about 180 kilometers from the sea; its altitude is about 18 meters or about 59 feet. Maghagha, Minia Province, is about 338 kilometers from the sea; its altitude is approximately 33.8 meters or about 111 feet. Aswan is about 920 kilometers away from the sea; its altitude is about 92 meters or about 302 feet.

Typhus has been raging through the summer in many parts of Egypt; Cairo and Alexandria being heavily afflicted; in the latter part of July and the early parts of August, Cairo, with its temperature ranging between 30 deg. and 40 deg. C. (86 deg. and 104 deg. F.) saw many cases. A friend received a letter dated the end of July from Aswan, telling him that typhus existed there. The journal *Le Progrès Egyptien* of August 4, says that the villages of Atniah and Tanbadi, Maghagha district, have been declared infected with typhus. From these facts it is plain that typhus occurs in extremely hot weather, at very low altitudes, in summer, and in coastal cities. The body louse likewise exists under the same conditions. On the 13th of last August when the temperature at Cairo was 34 deg. C. (93.2 deg. F.) in the shade, Mohammed Shakir was examined to determine his physical capacity; body lice and their young were crawling in abundance over the back, chest, and arms. Moreover, the body temperature is never below 36.5 deg. C. (97.7 deg. F.) the world over; yet the body louse exists on the body with the said temperature; this is another salient proof that the body louse lives comfortably well above the temperature of 20 deg. C. (68 deg. F.). Hence the Mexico findings are not universally applicable. Like every existing thing, the louse and the virus of the typhus can acclimate themselves.

Pathological Anatomy.—Decomposition sets in early after death; rigor mortis is retarded; the characteristic eruption remains in spite of death. In general, the aspect resembles that resulting from a profound toxemia with venous engorgement superadded; sometimes myocardial changes are found as a result of this. The blood is dark and its coagulation time is increased. Meningeal irritation and edema of the lungs are found. The lymph glands, liver, spleen, and kidneys are enlarged and congested; Bauer in one case found a hyperplasia of the lymph follicles in a nearly normal spleen. Welch was the first to find the marrow of the femur red; he believed that the organisms multiplied there; this was probably due to the secondary effects. Proescher correctly holds that the germ first proliferates in the endothelia of the blood vessels, that it multiplies there and not in the blood stream, and that thence the infected endothelia are abundantly exfoliated into the blood. By some it is maintained that the bacteria are thrown into the blood only from the fifth day on; but they very likely appear about the second day. Fraenkel has observed peculiar alterations in the small cutaneous arteries where a sort of a periarteritis nodosa occurs. Bauer found the characteristic changes in the spleen, kidneys, stomach, intestines, thyroid, and all the other organs; he is certain of the correlation of the spleen's condition and Fraenkel's skin lesions; he also confirms the changes in and around the intima of the arteries in every organ.

The red corpuscles and their hemoglobin are increased; leucocytosis is present. Michie states that the white corpuscles vary from 18,000 to 50,000, that the polymorphonuclears form 90 per cent. and that the lymphocytes and the large mononuclears are decreased. E. C. Hart, on the other hand, holds that the relative and absolute increase in the large mononuclear cells, is enormous. The eosinophiles are often absent.

Course and Symptomatology. — Typhus is a disease of almost all climates, seasons, and altitudes, as has already been shown, though it is more prevalent in moderate temperatures. Its virulence varies from the attenuated form described by Brill in New York, to the severe types witnessed elsewhere.

Generally one attack confers immunity for life. Several types have been described under different names; but in reality they are only modifications of the same underlying cause. Naunyn considers typhus to be a syndrome rather than a disease; Furth endorses this theory; however, this is improbable, as the different forms met with are but different manifestations of the same disease, the difference being due to the different predominating sets of symptoms. The disease is generally sudden in its onset; often, however, slight prodromes precede it for a day or two; such are languor, anorexia, slight headache, and pain in the limbs. The course of the disease may advantageously be studied under (1) stage of invasion, (2) stage of eruption, and (3) stage of reaction.

1. The period of incubation varies from ten to twelve days; in rare instances it may be as long as seventeen days; some of old, such as Strümpell, held that in rare cases the incubation period lasted but a few hours; this is to be doubted, however. The disease is rapidly ushered in, commencing with a chill, sudden rise of temperature, severe headache, and pain in the neck, back, and legs. Great fatigue accompanies the disease; an early prostration, which is general, is characteristic. Pain in the loins and extremities is violent; the face is flushed; conjunctivitis often exists. Vertigo, spots before the eyes, and ringing in the ears are generally present. The tongue is dry, thickly coated, and often of a brownish dark color. Sometimes there is nausea; vomiting may occur; the bowels are usually constipated; tympanites and diarrhea are rare. Occasionally there is a nasal catarrh; a slight pharyngeal congestion may supervene; the respiration is increased in rapidity; now and then, there is some bronchial irritation; epistaxis is almost pathognomonic in combination with the other symptoms. The

pulse is accelerated and comparatively rapid; the heart is bounding; the absence of eosinophiles at this period is an unfavorable sign. The urine is scant, concentrated, and contains some albumin. The temperature in typhus is very characteristic; it is sudden in its onset and rapidly rises, sometimes in a few hours, to 40 deg. C. (104 deg. F.) or more; it remains high with very slight morning remissions. The skin is hot and dry. This stage lasts about four days; sometimes the eruption appears in its latter part.

2. The stage of eruption is characterized by three main features, viz., the skin eruption, the nervous symptoms, and the muscular affection; these are accompanied by a general aggravation of the whole picture.

The eruption from which the disease gets the name of spotted fever, supervenes about the fourth day; it may appear as early as the third or as late as the seventh day. The rash differs in different cases; it may be in the form of maculæ, petechiæ, or a marmorisation with all the gradations between. It generally appears about the axillary folds, the back, and the abdomen in the order mentioned. At first, the eruption is distinctly papular; then the papules become ovoid in form and vary in height from one-fourth to two-thirds of a millimeter; their color is a dirty pink; each seems to merge insensibly into the surrounding skin. On pressure they fade but do not disappear; sometimes the skin is diffusely reddened between. These spots are deeply seated, resemble subcuticular mottlings, and often simulate the rash of measles; as the disease advances, they frequently coalesce. In the very severe cases the rash becomes hemorrhagic about the second day. As a general rule, the face, palms, and soles usually escape the rash, though occasionally the palms and soles may be affected; the rash has even appeared below the ears. It reaches its full efflorescence about the eighth day; the papules assume a more rusty pink color with central hemorrhages. In some cases, the eruption is scanty or even wanting.

From the start the nervous system is deeply upset; when the eruption reaches its height, the headache begins to wane but the whole sensorium of the patient becomes more profoundly involved. Delirium sets in; this is either wild and active or low and quiet. In the active form. which is expansive, the patient may quarrel with and beat his attendants; he may suddenly jump from his bed or even attempt to throw himself from the window. In the quiet form, the patient mutters to himself and raves without any clear expression of ideas; his speech becomes incoherent. He becomes oblivious of what happens about him; stupor now may set in. The original somnolence is soon replaced by wakefulness; unconsciousness supervenes, when the eyes become wide open and staring into vacancy.

At this stage, the entire muscular system is so affected with prostration that the patient falls as a loose, helpless heap with trembling lips and limbs. Carphologia is often very marked; subsultus tendinum increases. The pulse becomes weaker and more rapid; there is a dusky appearance of the whole body; sometimes cyanosis is superadded; this is most marked about the lips and nails. Involuntary evacuations of the bowels and bladder may occur. Enlargement of the spleen is marked. The temperature remains high, generally above 40 deg. C. (104 deg. F.), in all severe cases; the morning remissions are slight, usually less than a degree Centigrade. Sometimes in favorable cases the perturbatio critica occurs on the seventh day. On the whole, in the latter part of this stage, the patient shows symptoms of profound toxemia with all the signs of pending dissolution. This desperate condition in the nonfatal cases, ushers in the third stage.

3. The stage of reaction or decline sets in about the thirteenth or fourteenth day of the disease; occasionally it may set in as early as the twelfth day or as late as the fifteenth. In the favorable cases, the reaction is characterized by a crisis, the temperature dropping suddenly to the normal or even subnormal in a few hours or less; the patient then enjoys a restful sleep and all the discouraging signs fade away as by magic. In some cases the temperature rises slightly on the following day; but it soon sinks to the normal. There is no other disease where the transition from extreme illness to health is so sudden as in typhus fever. After the crisis, convalescence sets in and lasts from two to four weeks, when complete recovery is attained.

As to the cause of the crisis, Olitsky in conjunction with Plotz and Baehr, declared before the New York Academy of Medicine in 1915 that the blood forms antibodies against the small, Gram-positive bacillus and that opsonins, precipitins, agglutinins, and complement fixing bodies develop in the blood of typhus patients and appear only shortly after the crisis, being absent during the fever; according to the same, the crisis is due to the activity of the cells and not to the sudden destruction of the bacteria. The last assertion is unsustainable. Fevers are due to the toxins of the causative germs; the blood produces an antitoxin to neutralize the circulating toxin; thus we have two forces arranged against each other, viz., the invading germs with their toxins and the white blood corpuscles with their antitoxins. As the conflict goes on, both continue producing their war materials of toxins and antitoxins; in the fight, the white corpuscles, the phagocytes, seek to destroy, envelope, and digest the bacteria; it is only when the latter are overcome that recovery takes place. As long as the intruding germs are not destroyed, they continuously discharge their toxins into the blood stream and maintain the fever; thus no crisis can take place as long as the germs are capable of producing their toxins. On the other hand, the view that the crisis is solely due to the destruction of the bacteria is equally untenable, for if the invading germs were destroyed without the neutralization of the already existing toxins, the fever would still remain and would disappear only when the poison was eliminated. What really takes place is probably this: By a final and supreme effort, the vital forces produce a sufficient amount of antibodies through the activities of the cells; these antibodies neutralize the floating toxins and probably paralyze the bacteria; at the same time the germs are destroyed by phagocytosis. The absence of the antibodies during the fever can be explained after Weil's theory in connection with pneumonia; he showed that during that disease the antigen was present in such large amounts tha

it bound the antibody; after the crisis with the disappearance of the antigen, the antibody could be found. And so it is with typhus; the antibodies appear only after the antigen has disappeared with the crisis through their preponderance.

The picture drawn so far is that of a case of moderate severity that ends favorably. However, there are many grades and shades of variations, with the abrogation of many of the severer symptoms in the light cases and the aggravation of the same in all the graver cases. In typhus exanthematicus levissimus the entire course varies from 5 to 8 days. In some of the cases the temperature does not fall by a typical crisis; the descent in such casis is more or less prolonged, but is always more rapid than in typhoid fever. Endemic typhus resembles the epidemic form on a reduced scale; it is milder and more attenuated. This is but natural, since constructive nature builds its defensive barricades to obstruct the intruder and reduce his virulence. Brill says that the headache in the endemic form is progressive to the end and that it recedes to the background at the end of the first week in the epidemic type.

In the fatal cases, no crisis takes place; the general symptoms become worse; the two heart sounds become alike; the urine is decreased or suppressed, with an increase in the amount of albumin; the eruption becomes more profuse and bloody, assuming a darker color; the temperature shoots up; there is a leucocytosis with a complete suppression of the eosinophiles. Hematogenous jaundice sets in, first appearing in the conjunctiva; the lungs become edematous; mucus accumulates in the pharynx; soon profound stupor crowns the scene, when the patient dies of toxemia. If the case is very severe, the patient may succumb in the first four days; in malignant cases, death may occur on the second or third day. In cases of less severity death occurs from the ninth to the fifteenth day. Gangrene of the fingers, toes, nose, and the scrotum occasionally occurs shortly before death. In some instances the patient dies after the crises as the result of the intense exhaustion supervening.

Complications in typhus are not very frequent. However, otitis, parotitis, bronchopneumonia, pleurisy, furunculosis, purulent cellulitis, dysentery, icterus, and bedsores may occur.

Diagnosis.—In enumerating the distinctive clinical marks of typhus the following points of Hort are worth bearing in mind: (1) the characteristic rash; (2) the peculiar smell of the skin; (3) previous cases to which the case may be traced; (4) the profound toxemia and stuporous condition in severe cases; (5) the critical drop in the temperature; (6) the intense blood infection; (7) the severe involvement of the muscular system; and (8) the profound involvement of the nervous system, with such symptoms as delirium, tremor, somnolence, stupor, coma-vigil, and maniacal excitement.

Typhus may occasionally be mistaken for other diseases such as malaria, relapsing fever, meningitis, etc.; but the principal disease with which it is apt to be confounded is typhoid fever. The following are landmarks that will steer one into safety: (1) Typhus is more sudden and rapid in its onset; (2) it is generally accompanied by a rigor; (3) the nervous symptoms are earlier and more severe; (4) the pain in the loins and limbs is severer; (5) the typhus lasts about a fortnight and rarely 17 days; (6) the fever drops by crisis; (7) in typhoid the rash is far more limited and never becomes petechial; (8) typhoid lasts from three to four weeks, paratyphoid excepted; (9) the temperature falls by lysis in typhoid fever.

The laboratory tests are numerous and have followed the different evolutions in the study of the disease. However, the following may summarize the principal views: (1) The presence in the blood films of large diplobacillary and diplococcal organisms; the presence of the same in fresh urine; (2) according to Hort and Ingram, the centrifugalized fresh urine contains minute Gram-positive, Gram-negative, and pleomorphic organisms; the same can be isolated and cultivated from the blood and cerebrospinal fluid; a culture of these organisms or of fresh typhus blood injected into bonnet monkeys gives rise to the disease; (3) Olitsky, Denzer, and Husk found that the agglutination tests were negative in the early part of the disease, occasionally positive at or near the crisis, and always positive after the crisis; (4) the urine may give a positive diazo test; (5) the most recent and positive reaction in the determination of typhus is the Weil-Felix reaction with the Proteus (x 19); this is an agglutination test and Friedberger looks upon it as a reaction of the organism against the pathogenic agent itself; (6) H. Kreuscher advances another agglutination test for typhus; he found one of the pyocyanic group to be electively agglutinated with the blood of typhus patients; under different conditions, the agglutination remained unchanged; this germ offered the same biological and bacteriological characters as the Proteus (x 19).

Prognosis.—This largely depends on the severity of the attack. A drop in the temperature about the seventh day and the increase of the eosinophiles and the large mononuclear leucocytes are favorable signs. The absence or marked decrease of the eosinophiles is a signal of danger. Recently it has been claimed that no cutireaction occurs during the febrile period of exanthematic typhus; but the MEDICAL RECORD of last March reported that Dumitresco-Monte experimented on 109 cases with crude tuberculin, 1-1000 solution; in all the cutireaction was elicited; his conclusions may be summed up thus: "A positive reaction in a febrile or defervescent or convalescent patient is a good prognostic sign. Conversely, if the reaction is negative after defervescence, the general state of the patient showing no corresponding improvement, the outlook is gloomy, and if reaction continues in a convalescent who has developed a febrile complication the prognosis must include the possibility of a fatal issue." As to the exact percentage of deaths, it is difficult to make any statement; in some epidemics it has been as low as 2 per cent; in others it has been as high as 70 or 80 per cent.

Prophylaxis.—Vaccine therapy has been tried with little success so far as a preventive measure. Recently P. Neukirch has experimented with a serum derived from typhus cases as a preventive against the disease; he prepared his serum by shaking it with chloroform; of this he gave two doses, each of 2 c.c., at an interval of two or three days. This also has not yet proved its worth; it would

not be surprising, however, if a prophylactic vaccine or serum were found some day. The most efficient measures for the present are the eradication of the causative factors of the disease. The following general rules should be strictly adhered to: (1) every positive or suspected case should be reported as early as possible to the health authorities concerned; no concealment should be allowed; the evil should be combated from the very start; (2) complete isolation must be adopted; those affording to be treated at home should be kept in an upper, well-aired chamber bare of all furniture except what is absolutely necessary; (3) those who cannot afford to have themselves treated at home should be removed to a hospital specially set for the purpose; (4) all contacts and suspects should be registered on a special list and seen daily for at least 12 days, or for 17 days, according to Pfeiffer; (5) contacts and suspects who leave for another locality should be traced and the health authorities of their destination informed, so that they may be made to complete the period of observation; (6) the house must be thoroughly disinfected after the patient's cure or death; everything should be removed and disinfected; flushing the place with sublimate, closing up vermin holes, whitewashing, and fumigating with formaldehyde are excellent measures to adopt; exposing everything to the sun and fresh air is an efficient adjuvant.

Our chief efforts, however, must be directed against the louse and a vigorous anti-louse campaign must be instituted from the very start to reduce lice infestation and destroy the parasites with their nits on the bodies, clothing, and bedding of all cases, contacts, and typhus suspects. Those visiting typhus patients should wear short trousers and skirts in order not to get lice. Cleanliness is the foundation stone in avoiding the louse and typhus.

Insectides: A minute's immersion in gasolene or any of the paraffin bodies destroys lice and their nits; benzene, toluene, and acetone are equally effective. Methane, ethane, ethylene, and their derivatives are lethal to the parasite; chlorine and its derivatives may be used with advantage; 40 parts of anis oil and 60 parts of pure alcohol is a good mixture to use. Sulphur, formaldehyde, ethereal oils, and oil of turpentine are excellent. Dichlorobenzol is a useful paraciticide; ammonia, chloroform, and tobacco smoke have destructive powers over the nits. High pressure steam for disinfecting portable and personal belongings is most effective.

In heads infested with lice the hair should be clipped off and burned; olive oil and kerosene in equal parts may advantageously be applied to the scalp. For the body louse a complete change of garments is necessary; the clothes, bedding, and other articles harboring the parasite should be thoroughly boiled or subjected to high pressure steam; a 25 per cent. mixture of dichlorethylene or trichlorethylene in vaseline is a good application to use on the body after the change of apparel. To get rid of the crab louse the infected region should be shaved and blue ointment applied.

Treatment.—Typhus has no specific treatment. Plotz prepared a vaccine; vaccines of the Proteus (X 19) have been produced, but so far they have not proved their utility. The handling of a typhus case crystallizes into the symptomatic treatment. The following points may be helpful: (1) absolute rest in bed is essential; (2) proper nursing should immediately be instituted; (3) the patient's room should be tidy and airy; (4) quietness about the patient is of prime importance; (5) the patient should be given plenty of refreshing liquids throughout the disease to wash away the toxins; (6) hydrotherapy and ice to the head should be very frequently resorted to; (7) symptoms are to be expectantly dealt with; (8) solid food that can be easily assimilated may be given as soon as the tongue begins to clear; (9) the patient should be kept in bed at least a week after the pulse has become normal.

141, RUE ABBAS.

INFLUENZA—A COMPARISON.*

By SIMON BARUCH, M.D.,

NEW YORK.

WATER has always been the therapeutic stepchild of medicine, being bandied about since the time Hippocrates first recognized its merits in "De Aqua et Locis." Medical history demonstrates, as clear as day, that the rise and fall of hydrotherapy was always contemporaneous with the rise and fall of intelligence among medical men. Hippocrates was without doubt a brilliant medical mind, for his axiom that Nature cures is to-day the foundation of the best therapy. Of all the remedial agents in vogue in his day, water appears to be the only one that has survived the vicissitudes of changing doctrines. Indeed, during my own career of fifty years the most active remedies have come and gone out of vogue, but water appeared firmly entrenched until the coal-tar antipyretics competed with it as a temperature-reducing agent in the latter decades of the last century. That this rivalry was destined to result in the defeat of water would have been ascertained earlier had medical men borne in mind that Hippocrates wrote, many centuries ago, "cold water warms, warm water cools." If you take away with you this afternoon no other thought than this true apothegm, I shall be content. "Write it upon the doorpost of thine house and upon thy gate," says the good book about the Ten Commandments. And I say to you that the constant remembrance of this absolutely true dictum of the Father of Medicine will prevent your falling into the pitfalls that have misled and are to-day misleading the ablest men of all countries. Following the teaching of Hippocrates, which has been confirmed by experience, when I am asked for a temperature-reducing bath I advise a tubbing of half an hour or more in water at 100° F. and not a bath of 60° F. For I have not forgotten that physiology teaches that whenever the organism is attacked by cold it immediately sets in motion the heat regulating functions to compensate for the loss. Bear this fact in mind, if you please, and you will never injure your patients nor produce shock or collapse. When by reason of this fatal teaching of the Germans cold baths had fallen into deserved desuetude as an antipyretic, they were rescued for a time from entire abandonment by Ernest Brand, a physician of Stettin, who during the

*A lecture at the Walter Reed General Hospital, Washington, D. C.

Franco-Prussian war treated typhoid fever among the French prisoners of war with cold baths so successfully that Glénard, a professor of medicine in Lyons, who was among these prisoners and assisted Brand in treating his fellows, introduced it in France after the war. Here it became established, especially in Lyons, while in Germany it was discontinued probably because Brand was not a professor in a university. It would appear that the same junker spirit that has brought ruin to Germany hampered the advancement of this life-saving measure, for Curshman, whose clinic in Leipzig I visited in 1902, treated his typhoids with baths at 85° F. with a mortality of 15 per cent. despite the fact that Brand's statistics gave 3 per cent. mortality in a large number of cases. The statistics of this therapy are the most instructive and reliable in medicine. Of 120,000 cases gathered under regular treatment of all kinds, 20 per cent. died, while of 7,426 cases treated with strict Brand baths only 4.24 per cent. died. Loomis of New York stated that the mortality of typhoid fever in New York City hospitals was reduced 50 per cent. by this treatment. And W. Gilman Thompson stated in his textbook (1902) that in the Presbyterian and other hospitals typhoid mortality had been reduced from 15 to 6 per cent. by the strict Brand bath—70° F. with good friction every three hours when the rectal temperature was above 102.5°. Just as after Hippocrates and Celsus the water treatment went into desuetude, so is it neglected at the present time, for in the very hospitals in which it had been most successful it is now "more honored in the breach than in the observance." Some day I shall try to present the difference in mortality since the abandonment of the regular bath treatment. Here you observe clearly a fault of *omission.*

That we are guilty of a fault of *commission* at the present time when the disregard of the maxim of Hippocrates destroys life, I shall demonstrate to you beyond cavil from undeniable records. In 1895 there was an epidemic of sunstroke in New York City which destroyed 648 lives. It appears from the statistics of Alexander Lambert that 25 out of every hundred of these could have been saved by due regard of the teaching of Hippocrates that cold water warms and warm water cools. For in the St. Vincent's Hospital, under the late Dr. O'Dwyer, the mortality was 6 per cent. in 197 cases of hyperpyrexia treated with cold affusions of tap water, sometimes iced, while in Bellevue Hospital, where the patients were treated with iced baths, the mortality was 33 per cent. And yet nearly every textbook advises to-day that in sunstroke the first indication is to reduce the temperature and the best remedy is very cold baths.

Far be it from me to cite these sad historical facts in a spirit of criticism. My aim is to "learn from the faults of yesterday the wisdom of to-day." The fault lies with those who have not learned the lessons of the history of medicine. It may be claimed and granted in the first instance (Brand method) that it is the right and privilege of physicians to accept or not the statements of Brand and others who may be regarded by them as enthusiasts in hydrotherapy. But it is not the right and privilege of any humane physician to continue the ice bath or similar homicidal practice in sunstroke when the facts have been published by men who are not advocates of hydrotherapy and are known to be fair clinicians. For twenty years people have been dying from sunstroke because of *excessive* use of cold water. I sometimes wonder if the mortality from influenza may not be partly accounted for *by the neglect of water.*

A comparison between water and drug treatment in this disease, which has brought more sorrow and death into households than any other visitation of modern times, may serve to save lives. The fatality of this scourge has perhaps been larger than it should have been in view of our knowledge of the fact that the disease manifests itself as a toxemia, the chief force of which is exerted upon the vasomotor system, as indicated by the uniformly slow and compressible pulse, etc. Let us see whether or not the treatment in vogue is justified. I quote verbatim from a report with the caption "Therapeutics of Influenza," in one of the most reliable medical journals. "Influenza was treated largely symptomatically. Acetylsalicylic acid 15 grains every three hours until symptomatic relief is secured." Another journal reports: "In severe cases the fever and other evidences of profound intoxication call for the salicylates, one of the synthetic antipyretics, or quinine!" From an able article in the latter journal I quote, "Sudden death in the epidemic of influenza has resembled in some respects an overwhelming toxemia affecting the vasomotor system." These ideas are reiterated in all the literature at my command and in communications with army and navy surgeons and other colleagues. Do they not reecho the slogan of other days, when *typhoid fever was also treated "symptomatically,"* to the detriment of the patient?

The unanimity of this therapeusis in typhoid fever and the fatality which led to its abandonment emboldens me to sound this note of warning: May not history be repeating itself? I trust that the error of the present coal-tar drugging of influenza may be revealed more quickly than was that of typhoid fever and lead to its abandonment.

"Warm packs may give relief, although in the ——— Hospital hydrotherapeutic methods failed and were discarded." Note, if you please, first the indefiniteness of this prescription of warm packs. I have taken the precaution, before appearing here, to ask one of your nurses what she regarded as "a warm pack." She replied: a woolen cloth wrung out of water as warm as the patient could bear. Now imagine the patient writhing under a temperature from 100° to 106° F. when this "hydrotherapeutic procedure" was applied. Would it reduce his fever? Would it help his handicapped heart? Certainly not, for we know that the warm moisture would prove to be a poultice that would relax the cutaneous vessels and render the skin wrinkled and cyanotic, and thus add to cardiac asthenia. Shall other "therapeutic methods be discarded because an improper one failed? A similar illogical course has, unfortunately, caused the discarding of the cold friction bath in typhoid fever. I ask you to read my "Don'ts" in Hare's "Practice of Medicine," which point out the proper method of changing the bath when unfavorable manifestations appear from too low temperatures, etc.

"When pneumonia develops," goes on this therapeutic lesson, "every effort must be made to provide

for an adequate supply of intake of fluids, and nourishment must be given in fluid form to a large extent." At another place it is stated: "In the cases of secondary pneumonia, many of which resulted fatally, the chief conditions to be combated are the severe toxemia and the vasomotor depression. The toxemia may be combated by the usual methods—getting fluids into the system by proctoclysis and hypodermoclysis, securing elimination with large doses of salts, calomel, venesection, oxygen, etc." "With any indications of the failing heart stimulants are indicated." How these latter remedies remind us again of the discarded practice of our forefathers in typhoid fever! I leave you to judge, also, if your physiological knowledge will sanction this waterlogging of the system and this overburdening of the already handicapped heart with the elimination of all this fluid.

Now let us see how the *judicious* application of water in this toxemia would operate, so that you may in future pandemics of this infectious disease bear it in mind and thus save life and relieve suffering. Water below the temperature of the skin is a thermic irritant. That its therapeutic action is rationally explained on this theory is evident in its application to the stillborn infant, which, as you and I have been taught, and have successfully practised, must be sprinkled with cold water; if not effective, it must be dipped in cold water, or, if necessary, be alternately immersed in cold and hot water. The result is, as the merest tyro in medical practice knows, the conveyance of the excitation of the sensory terminals in the skin to the central nervous system and its reflection upon the respiration and circulation.

Now, this is a lesson in hydrotherapy, an epitome of the whole subject, in that it not only offers a practical demonstration of the theory but also of dosage and of clinical proof. The small dose of cold water in sprinkling being insufficient, we were instructed in our student days to apply a larger one —the dip of the entire body, or a still larger "dose" in the contrast dipping, which raises the sensitiveness of the skin nerves and vessels by warmth, so that the subsequent cold may act more intensely. Now, if we were to apply this method in the toxemia of typhoid fever, or in opium poisoning, "the dose" would be far too small to arouse the nerve centers. Between these extremes, however, there are, happily, mild measures, each acting in proportion to the contrast between the skin temperature and that of the water, the area of skin treated, frequency of repetition, etc.

I would apply this "dosage" and did apply it in a few consultation cases (two in this hospital) in accordance with the conditions to be met—not, however, as a symptomatic remedy as the drugs above referred to were applied, but as a refreshing procedure by which the toxemic condition would be counteracted if not neutralized, as I and others have observed a thousand times in typhoid fever and other toxemias. The disease being of short duration, unlike typhoid, I advised friction baths of 90° Fahr. reduced during ten minutes to 80° Fahr. and repeated every four hours in some cases when the patient was not sleeping naturally. The patient was placed upon a small rocking-chair on which a blanket and old sheet had been spread, was drawn backward to the bath room, and replaced after the bath, which had been given with friction. The bath was followed when cautiously rising by an affusion of a basin of water at 75° Fahr. over the shoulders. He was returned to bed. If the temperature was over 102.5° rectal, he remained in the sheet and blanket till dry, otherwise he was quickly dried and placed on the other side of the bed. So soon as he was warm a compress of two folds of a linen towel without fringes, of a size to cover the anterior part of the body was wrung out of water at 60° Fahr., a flannel binder was slipped under him, the wet compress snugly applied and secured with the flannel band. The sheets were kept dry with towels beneath and above the binder. This compress was renewed every hour, when its edge felt warm. The result was renewed stimulation and consequent refreshment when the compress was applied and some antithermic action by evaporation of water through the flannel, all of which meet imperative indications in which the coal tar drugs not only fail but accentuate. In two cases the compress alone sufficed.

You now have the comparison in technic and effects between the drug and the water treatment. I grant that the former demands less care, but it is depreciating and handicaps the patient, while the wet compress begun early enhances his resisting capacity. This should be the main object of therapy in infectious diseases.

Millet, the great painter, was asked how he mixed his paints to produce such wonderful coloring. He replied, "with brains." This applies to the application of water in disease. In fact, no remedial agent is worthy of our confidence unless it meets three conditions: (1) that it must be readily obtainable; (2) that its rationale must be physiological; (3) that clinical proofs of its value are accessible. Water fulfills all these conditions—at least as well as most drugs. Why, then, is it not in common use after its exploitation by the most brilliant men for twenty-three centuries? Among other reasons is the lack of instruction in our schools and the fear of shock. There are two conditions greatly misunderstood in hydrotherapy, *shock* and *reaction*. The so-called *shock* from cold water is an unpleasant surprise to the cutaneous nerves, which is taken cognizance of by the brain. *Reaction* is usually regarded as requiring a reddening of the skin. The latter is really not necessary, so long as the patient does not feel chilly fifteen minutes after the treatment.

It was my intent to demonstrate the wet pack this afternoon. This procedure had been filmed here by the Surgeon General's Instruction Laboratory. By courtesy of Commander Edward Old of the Hospital Ship *Solace* it was put on the screen on his ship, after which I had the honor of explaining its value as a hypnotic. A few days ago Dr. Old wrote me as follows: "During the recent epidemic of influenza a number of the pneumonia cases were delirious and very restless, having to be restrained, these symptoms being beyond control by the use of drugs. Some of the men would remain awake day and night, the whole time in marked delirium, and the condition was one such as at times tries the nerves of physicians and attendants. Remembering the film which you showed us and your dis-

course on the benefit of the wet pack in controlling insomnia, we tried the treatment so strongly advocated by you, on the above class of cases, and I know that you will be pleased to hear that in nearly every case it was found most successful and of marked benefit to the patient."

This is surely a demonstration by the Surgeon General's Instruction Laboratory in saving life and comfort.*

In chronic and subacute cases in which appetite and digestion need to be enhanced, the addition of neurovascular training induces more rapid improvement. In domestic practice the patient may be seated in an empty tub with the outlet closed or in rural dwellings in a washtub with feet outside. Water dipped from a bucket with a basin is poured from the latter over the shoulders and chest and back, its temperature beginning with 90° Fahr. and reduced daily one or more degrees so long as reaction is good, until 60° Fahr. is reached. Then larger quantities are used, beginning with 80° Fahr. and lowering daily, unless reaction be poor, when the same temperature is continued but only half the number of basins. After drying, the patient is sent out doors. In institutions like this great hospital the skin is warmed in a hot-air bath. This is followed by a fan douche at 90° Fahr. for two or more minutes, which is reduced daily as above. The patient is sent into the fresh air after treatment. This is termed neurovascular training because the nerves and vessels of the skin are inured to lower temperature and increased duration as are the arm muscles in dumbbell exercises. The results comprehensively termed "tonic" will aid powerfully in the reconstruction efforts of this great hospital, when added to other measures now in vogue.

If I have succeeded in impressing upon you the importance and simplicity of hydrotherapy by the comparison of the proven effects of drugs and water in disease and if I have induced you thereby to study and practice the application of water in disease, I shall regard the hours I am spending in this great hospital as profitable.

51 West Seventieth Street.

THE TWO MOST IMPORTANT SIGNS IN CHRONIC APPENDICITIS.†

By ROBERT T. MORRIS, M.D.,

NEW YORK.

A boy came running into the office one day and asked me to hurry and see Louis who had appendicitis. "Who is Louis?"

"My brother."

"How do you know that he has appendicitis?"

"Louis and I were throwing snowballs and he had to stop because he had so much pain in his stomach. Mother called in Dr. X. who said that Louis had eaten something that had gone wrong with him. After the doctor had given him a prescription and had gone home, Louis complained so much about the pain in his stomach that I pushed on his appendix to see if he had appendicitis. When I did that he yelled right out, so I went for the doctor again and told him that he must come back because I had found that Louis had appendicitis. Doctor came back and said, 'Yes, that is so, go down and get Dr. Morris.'"

That was a good many years ago. The day has passed when we have to leave the diagnosis of acute appendicitis to children. Almost any sort of a doctor now makes the diagnosis of acute infective appendicitis, but that does not relate to a commoner chronic lesion of the appendix as I observe in consultation. The acute infective disease is more emphatic in its demonstration and attracts attention more quickly, consequently we have rather come to think in terms relating to an infective process whenever an "itis" of this vestigal organ is up for discussion. There is another infective lesion besides intrinsic infective invasion of the organ. An extrinsic infection proceeding from a Falloppian tube or from the peritoneum or from some other organ or structure may involve the appendix incidentally, the latter then going on with its own set of symptoms.

Of the four common forms of appendicitis two are infective lesions and two are irritative lesions. Among the irritative lesions what we may call syncongestive appendicitis is the least important. There is a congestion of the appendix synchronously with congestion of other structures in the vicinity as a result commonly of some interference with the blood or lymph circulation. The appendix feature comes into evidence because the inner coats of the appendix trying to swell within the tense outer sheath become more or less pinched and painful. This is a very harmless form of the trouble and disappears when the congestion of neighboring structures has been relieved. The commonest of all forms of appendicitis is an irritative lesion, not an infective one, and it appears in fibroid degeneration of the organ. The appendix is prone to undergo fibroid degeneration in most of us late in life, but in the neurotic neurasthenic group of patients early fibroid degeneration of this vestigial structure seems to appear very early as a stigma of arrested development, associated with other stigmata which the neurologist commonly discovers. Fibroid degeneration of the appendix probably takes the patient to the doctor's office more frequently than any other form of appendix trouble and this irritating lesion with its accompanying gastro-enteric features will often lead pretty good diagnosticians into mistaken diagnoses. Another irritative lesion of the appendix, not infective, is one in which the appendix has become involved to greater or lesser degree in scar tissue following some previous acute infective invasion. In this sort of a case nerve elements remain in scar tissue very much as they do in an appendix undergoing fibroid degeneration. It is because of the persistence of nerve elements that we commonly have chronic appendicitis, not infective in character, giving rise to disturbance which sends the patient

*Since the lecture was delivered, one of the staff of the Hospital had Lieutenant Danzer apply it in a case of pneumonia with good effect.

I was asked by a colleague who had on my advice observed the fine result of an hourly anterior compress at 60° F., if 85°, which he had applied in another case of influenza, would suffice, while the patient becomes inured to the shock. "Seeing is believing" did not appear true in this instance; the fear of shock prevailed.

†A paper read before the Medical Society of the County of New York on November 25, 1918.

to the doctor's office. The matter of differential diagnosis becomes important.

There are two chief signs upon which we may place dependence when looking for the culpable organ. These two points in diagnosis do not relate to acute appendicitis. Please keep that fact clearly in mind. When a chronic irritative appendicitis has registered its nerve impulses on certain sympathetic ganglia for a fairly long time the muscular coat of the ascending colon becomes wearied. This wearied ascending colon with lax muscular coat remains distended with gas most of the time and gives us what I call the "cider barrel sign." Percussion upon the left side of the patient's abdomen gives us a note reminding one of the cider barrel in October and percussion upon the right side of the patient's abdomen gives us a note suggestive of the cider barrel in March.

The other chief sign and the most important one perhaps consists in a hypersensitiveness at the site of the fused second and third sympathetic lumbar ganglia. The older anatomists spoke of the sympathetic lumbar ganglion, including several ganglionic structures, but the later anatomists commonly make five lumbar ganglia on either side of the spinal column in the lumbar region. Persistent nerve impulse from an irritated appendix appears to be registered selectively upon the fused second and third ganglia so that we have hyperalgia of more or less permanent character relating to this ganglionic point. If we press deeply upon the abdomen about an inch and a half to the right of the navel and a trifle caudad the patient speaks up when we are pressing upon this particular ganglionic point in cases of chronic appendicitis but he does not interest himself in this point particularly if we do not have chronic appendicitis. When I first made presentation of this point at the Academy of Medicine Dr. Robert F. Weir brought with him for the discussion a number of anatomical plates and argued that there might be some error in the observation because there was no direct nerve connection between the appendix and these lumbar ganglia. I then assumed that we might be dealing with the question of sensori motor synapsis by way of the spinal cord but Dr. Albert C. Geyser has made more elaborate explanation. It is his belief that the irritated appendix calls for a determination of blood to the vicinity and that regulation of the blood supply being dependent upon the sympathetic nervous system the sympathetic ganglia called upon most persistently become hyperesthetic. In any event when an afferent impulse is sent from an irritated appendix to a segment of the spinal cord an afferent impulse with two definite manifestations is manifested. One of these consists in sensitiveness of the skin in the Head zone for the appendix and the other and more important sign consists in hypersensitiveness at the sympathetic lumbar ganglionic point situated about one inch and a half to the right of the navel and a trifle caudad from that point.

In cases in which hypersensitiveness of the left lumbar ganglion is discovered on pressure we discount the importance of the sign relating to the appendix and look for some irritative lesion in the pelvis. The pelvic sympathetics gather and transmit impulses over such a wide distribution that both sets of lumbar ganglia may become hyperalgic but when the appendix alone is involved the right lumbar ganglionic sign standing alone becomes the most important one in differential diagnosis. If the first lumbar ganglion is involved, the one to the right of and somewhat cephalad from the navel we have Mayo-Robson's point relating to the pyloric and gall-bladder region.

616 Madison Avenue.

HEARING AND ITS REGULATION. ESPECIALLY IN MIDDLE AGE AND EARLY SENESCENCE.

By J. MADISON TAYLOR, A.B., M.D.,
PHILADELPHIA, PA.
PROFESSOR OF APPLIED THERAPEUTICS, TEMPLE UNIVERSITY, MEDICAL DEPARTMENT.

Hearing is next in importance to seeing. The brain needs to be aroused by hearing quite as much as by seeing, especially in circumstances of bodily peril. The ear must inform as to direction and distance as well as nature and quality of warning sounds. Acuity of auditory sensitiveness is a fundamental requirement; it should be preserved and kept in a high degree of efficiency through training. This training process may be of the simplest; an intelligent attention and differentiation through our ears to familiar and unfamiliar sounds.

Heedlessness is the foster brother of stupidity, and opens the gates for losses of valuable information; exposes one to incalculable losses as well as perils. Errors through inattention are unforgivable. The loss may be of impressions useful, minatory, pleasurable, or inestimable. The more you reflect upon it the more surely you will come to admit that no one can afford to neglect not only keeping one's hearing up to par, but equally training what one has of auditory capacity, so as to be always available and remunerative.

Just as there are some persons more largely influenced by sensations of sight, "eye minded," so are there others whose being responds more acutely to impulses received through hearing, "ear minded." Some delight in music, thrill to "the concourse of sweet sounds" whether these emanate from intentionally arranged sound producing elements or merely the more generalized, less defined auditogenic factors which go to make up that entity called by the rather exaggerated phrase "the music of the spheres," assuming by that is meant the composite sonorousness produced by widely acting movements.

Among collective resonant agencies may be reckoned the cadences produced by the wind, "Eolus" (*i. e.* "Eolian harp"), the breathings of nature, the passage of the wind through trees, shrubbery, "the wind among the barley," through rocky gorges, chimney tops, around the house, the sound of falling water, rain on the roof and the like. A grade above these sensory delights are the sounds from woodland creatures, insects, birds, "the lowing of kine." We hear of "the diapason of the great cities," of the many rippling waves of the sea (arithmon gelasme pontecon town).

Less agreeable or actually offensive sounds tend, on the other hand, to distress an over-sensitive ear, especially at certain times and under diversified circumstances and associations. If auditory distress be due to mere esthetic over-sentiveness or hyper-exaltation nothing need be said; if an element of aural abnormality exists then a careful exploration should be made, and that lesion should be remedied. However, a continuity of offenses through unescapable evil sounds may act as a serious strain on nerves and mind, inducing distress and damage. Often enough the resentment felt is merely a selfish attitude of mind. Here we approach the domain of erroneous habit formation which requires ethical education and self-regulation.

We have, as you will note, hinted at two opposite but pertinent grounds for educating the sense of hearing. Next we may allude to the gravity of losses in acuity of hearing so common as middle age progresses, also the urgent need for personal cooperation in any scheme of conservation or repair of hearing.

Hearing as a source of pleasure and profit, so my impression goes, is neglected much more than vision. We may except of course those whose special occupation or professional interests lie in the domain of sound production or reception. Few pay adequate attention to their auditory possibilities or unobtrusive impairments.

While not personally specializing in ear or throat troubles, these problems were brought sharply to my attention while serving for several years as assistant to the late Dr. Carl Seiler and also later in a special clinic of my own. An invaluable basis was afforded for observation as to the significance of visual and auditory competence in solving problems of personal conservation and reconstruction. I have frequently been able to discover beginning and occasionally long neglected or totally unrecognized causes of decrepitudes referable to defects in sense organs, which often acted as the chief agency in yet more urgent disablements.*

Of course if suspicious phenomena point clearly toward trouble in the ear and an expert is consulted, the difficulty will be recognized and alleviated. If not, it is up to whomsoever is advising, to exercise alertness as to possible sense organ sources of the difficulty.

A considerable number of chronic ear disabilities depend on a greater or lesser impairment in elasticity in the structures in or about the ear. These being overcome, or mitigated, more or less auditory competence is restored, as well as any associated distresses removed. A personal case will serve to illustrate the principles involved: Sixteen years ago the mother of two girls, trained nurses and experts in physical culture, had grown distressingly deaf. The best aurists had been consulted and informed her that chronic catarrhal states (otitis media) had progressed to a point where no relief could be expected. In order to test my convictions, I inaugurated, with the help of the daughters, a series of passive and active movements designed to restore elasticity to the tissues of the neck, the jaws, and the ear structures. The patient was then 69 years of age; she is now 87. A large gain was made in a few months which was estimated at 30 per cent. Of late this gain has shrunk, but still hearing remains far above what it was when we began.

The stimulus to make this trial grew out of my confidence in the efficacy of mobilizing and elasticising the structures of the neck and jaws. I had heard from Dr. Seiler in 1880 of a famous woman teacher of singing in Vienna, who had achieved surprising effects in enhancing vocalization by employing grimaces, mobilizings, and special jaw exercises.

An interesting review of a book by Herr Lantz of Vienna was given in the *Scientific American* for January, 1917, p. 671, on "the yawning cure for throat diseases." His method is based on that of Josephine Richter, a teacher of singing. The method is a combination of vocal and physical culture, particularized movements of the jaws which ultimately give the pupil astonishing control over the soft palate, muscles of the face, neck, and chest.

He quotes Helmholtz to the effect that flabbiness of the soft palate and back of the mouth acts as a damper upon the voice, hence tonicity of the controlling muscles of the face and throat is impaired or lost. This fact becomes of the utmost importance when abnormalities of the parts exist.

In an untrained throat, the soft palate and uvula hang limp and constrict the vocal passages which are further narrowed by prominent tonsils. The tonsils of a trained singer are retracted and strong; the uvula has disappeared, giving the voice clear passages and firm walls, hence an increase occurs in the volume and quality of phonation and vocalization.

The exercises of Herr Lantz are those of yawning which bring all the respiratory muscles of the chest into action, hence is the most natural means of developing them. He advises every one to yawn as deeply and frequently as possible, with the arms out-stretched, to change completely all the air in the lungs and stimulate expiration. One can teach oneself to yawn by suggestion and preliminary exercises in deep breathing. In each treatment 6 to 8 deep yawns are followed by swallowing. He warns that deep breathing may be overdone by persons with weak hearts. The obstacles which the yawning cure is alleged to remove are those which are useful in preventing the entrance of hurtful bacteria.

Fernet (*Semaine médicale*, March 15, 1911) discusses in detail the functional impotence of the muscles of the ear, the accessory role they may play in hearing, and the necessity for their reeducation. He refers to the great mobility of the ear in animals, and is convinced that a majority of people can,

*An illustrative incident which impressed me greatly occurred in my earlier years while assistant of the late S. Weir Mitchell. An elderly gentleman of great prominence in the industrial world consulted him and was referred to me for examination and history taking. He had suffered for years from an intolerable vertigo; had spent months in Europe, consulting diverse nerve specialists without relief. On his way home in the West, as a last resort, he stopped over to see what Dr. Mitchell could do for him. I had gone over him carefully, taking copious notes. After looking over these, Mr. Mitchell said, "Did anyone examine your ears?" On being answered no, he examined the ears and found in one a mass of wax and cotton pressed against the drum. This he removed, syringed out the fetid canal, and the next day all seemed well. Subsequently the patient remained a healthy and happy man.

by voluntary effort, move the ear upwards appreciably, as well as backwards and forwards. Duchenne has studied these muscles under faradization, and has shown that the muscles of the tragus and antitragus, of the helix and antihelix, all share in moving the lobe of the ear, and can even modify its shape. The effect is to favor the access of sound waves to the tympanum, and also to protect the ear against too strong impressions. The muscles of the middle ear are more important still. All these muscles, extrinsic and intrinsic, are innervated by the facial nerve, and the author suggests that, as there is a relationship between the contraction of the extrinsic muscles of the ear and those of the epicranium and face some similar relationship may exist between these muscles and those of the middle ear.

The extrinsic muscles of the ear, according to this author (Fernet), are capable of reflex contraction under ordinary conditions, and the action can be reinforced by voluntary effort. The act of listening intently stimulates the activity of these muscles. Acting on these principles the author suggests, in addition to massage and electrization, a series of auricular gymnastics such as movements of the scalp from before backward, this to be followed by relaxation and a reversal of the movement. Associated with these are to be made similar movements of the ear, which is dragged backwards by the epicranial, as well as by its own muscles. This is likewise done in the case of the other muscles of the ear, and finally without the aid of the epicranial muscles, the endeavor being to produce a sort of circumduction round the auditory orifice. It is necessary to proceed slowly during the seance, a short series of movements being followed by rest, as overfatigue might lead to giddiness.

The author recommends these exercises in the early morning for a period of time lasting from ten to fifteen minutes. Reflex movements are also to be encouraged by such means as listening to the ticking of a watch, and very gradually increasing the distance. The sustained effort of listening seems to exalt the auditory sensibility, whether from a succession of sound waves—which might not happen in the case of a single excitation—or because the extrinsic muscles of the ear assist in the manner described above. A defective ear must be encouraged and the tendency to listen always with the better ear avoided. This regularization and coordination of all the functions of such an organ as the ear results in more perfect development, and the author suggests that in certain cases of middle-ear deafness the muscles of the dilated Eustachian tube may also be beneficially acted on in this way, as they likewise are innervated by the facial nerve.

Summary, Conclusions, and Procedures.—The possibilities of improving states of neglected or impaired audition will thus be noted as encouraging. They consist in emphasizing attention and self-regulation of the patient to his function of hearing; in learning the direction and degree of under-development both in structure and function, or a combination of structural and functional neglect, inattention, and apathy, and improving the conditions.

The chief objectives are (1) to achieve conscious control over all parts concerned in hearing, direct and associated, *i. e.* in training of voluntary and semivoluntary structures, and (2) to direct intelligent attention, critical and helpful, to elaboration, cultivation, and refinement of the function of audition, to bring up to par all the latent powers which reside in the aural equipment as a whole.

Procedures: 1. Passive motions, manipulations applied to the structures; seize the concha with the encircled fingers, draw it up and down, backward and forward, round and round; in applying manipulation to the neck, the posterior scalp—which is usually found rigid and adherent, also to the dermal structures over the 2nd, 3rd, and 4th thoracic vertebræ (vasomotor subcenters) by pressure and relaxation, by lifting and pulling the overlying skin, and also by mobilizations of the joints of these vertebræ at corresponding levels by alternating pressures.

2. Making active movements of the jaws, opening widely as possible, rotating, side to side, forward and back; also in yawning and swallowing afterwards.

3. Active movements of the neck, to the right, to left, also thrusting the chin forward each time, then chin up vertically, forward, and back.

4. Inducing the patient to seize the back of his head with hands clasped and to bend far forward and down, then to push the hands back with the head (neck muscles) and repeat five or six times with increasing force.

The whole procedures occupy about six or eight minutes and should be repeated at least once, preferably three times daily.

1504 Pine Street.

BRAINS AND MILK.

By CASPER L. REDFIELD,

CHICAGO.

More than forty years ago I read an article by an eminent scientist of the day. I do not remember his name and I have forgotten the details of the article, but I remember its general drift. It was to the effect that Edison, in attempting to make a commercial incandescent electric light, was simply exhibiting before the public his ignorance of scientific principles. The answer is the incandescent electric lght.

That scientist knew more things than Edison knew, but he did not have so much brains—that term being used in its popular significance to indicate the mental power which accomplishes things. Since Shakspeare's time we have had other playwrights who knew more things than Shakspeare knew, but we have had none with brains enough to produce such imperishable literature.

In our recent international unpleasantness new men came to the front and old authorities were relegated to the rear. Those men who came to the front were not so much walking encyclopedias as they were men of brains. To be anybody, a man must have both accumulated knowledge and brains, but when real things are to be accomplished, it is the brains end of the combination which bulks large.

Whence come the brains which distinguish one man from another? Many persons think that such men as Moses, Columbus, Luther, and Lincoln were

raised up by divine power for divine purposes, and that Judas, Guy Fawkes, and Emperor William were mere tools in the hands of the Lord. Other persons believe that great men are "happenstances" which occur occasionally without any cause whatever. The eugenists, and the biologists upon whom the eugenists lean for information, say that a man with brains is such because he is descended from ancestors with brains. Let us examine this last.

During the past century we have had a good many Americans, who, if not exactly eminent, were very superior persons. A large number of these men are descendants of the New England colonists. If the picked superior men of the last century were such only because equally superior men existed in the New England colonists, then that band of colonists must have been extraordinary supermen.

Or, take the same thing on a broader scale. Since the beginning of the Christian era there have been many thousands of eminent men. All of those eminent men had ancestors living in the first century before Christ. If the brains in that one century were equal to all of the brains in the nineteen centuries since, then the men of that century must have been wonderful men.

Every once in a while there arises an exceptional man. The exceptional man is superior to his great-grandparents. If he were not superior he would not be exceptional. We cannot say that the man with brains is such because he had one or more ancestors with equal brains. Follow any such doctrine back step by step and it lands us in the doctrine of special creation with Adam and Eve, equal to anything which has existed since.

Mental power is inherited. A man cannot inherit from a parent something which the parent did not have. To assume that a man can be born with something which he did not inherit is to assume special creation to be a continually operating thing. It is generally conceded that man is descended from a common ancestor with the ape, and that that common ancestor was mentally inferior to the men of to-day—had less brains. To get such improvement without special creation it must be possible for a parent to transmit more brains than he inherited.

If a parent is to transmit more mental power than he inherited, then he must acquire that mental power in some way after he is born and before he reproduces. The one and only way to acquire mental power is to be mentally active, and to acquire much mental power a man must be mentally active for a long time. If this is the process by which mental power is built up so that a man may transmit to his offspring more than he inherited from his parents, then men with extraordinary brain power should be sons of old men, because only old men have been mentally active for a long time.

A general view of the situation shows that the man of great brain power does not arise suddenly from parents of inferior stock, but that he is the culmination of several successive generations of gradual improvement. This fact has been noted by Galton and others, and is well established by a great mass of evidence. Hence, if the real source of mental improvement from generation to generation lies in acquired mental development before reproducing, great men should arise from several successive generations of old parents.

As a matter of fact that is the exact way in which men of great brain power do arise. Such a man is sometimes the offspring of relatively young parents, but he is never the result of successive generations of young parents. In fact, when we come to very great men, no one of them is produced by average, or normal breeding extending over three generations. They come only from progenitors averaging older than the average age for parents. In this connection I want to call attention to the fact that I had a substantial money offer standing three years for the production of a single contrary case. The offer was widely advertised, and many persons tried to find that contrary case, but none succeeded.

In matters of this kind it is well to look at other sources of information as a check to prevent some unconscious mental twist from leading a person into erroneous conclusions. One of these other sources which I examined for this purpose is the milk-producing power of cows. The organs employed in the production of milk are, in many respects, analogous to the brain of man. What is true of one is largely true of the other. If we find by investigation that milk-producing power in cows is evolved in the same way that brain power is evolved in man, then we have a check on our first investigation.

I tested this matter in Holstein-Friesian cows. In those animals a cow produces more milk when she has her second calf than when she has her first one, still more when she has her third calf, more yet when she has her fourth calf, and so on up to some unknown point. This may be seen by a short table taken from official tests, in which table cows of the same age are grouped together.

HOLSTEIN-FRIESIAN MILK PRODUCTION.
Seven-day Official Tests. 1913.

Average Age.	Pounds of Milk.
2 years and 2 months	322.7
3 years and 2 months	400.3
4 years and 2 months	446.8
Over 5 years (av. 7 years)	473.8

Going back to an earlier date when the average milk production was somewhat less than in 1913, I traced the same cows through successive years of lactation to see to what extent continued exercise brought about continued development of power. The result is shown in the following table.

HOLSTEIN-FRIESIAN MILK PRODUCTION.
Seven-day Official Tests. 1904-6.

Average Age.	Pounds of Milk
6 years and 6 months	450.7
7 years and 7 months	472.6
8 years and 3 months	499.8
9 years and 7 months	564.8
10 years and 7 months	563.7

Not every cow in this table increased in milk production every year, but the table itself shows that the increases largely exceeded the decreases. It includes every cow over five, and under eleven years of age recorded as tested in successive years at the dates given. One cow, not in the table, produced 33 per cent. more milk at twelve years of age than at ten and a half.

If a cow produces 400 pounds of milk in a week the question of whether she is a large milk producer, or a small one, is determined by how old she is at the time. If she is a two-year-old, that 400 pounds means that she is a large milk producer, but if she is more than four years old, 400 pounds is a small production.

In testing this matter I made a scale ranging

from 333.2 pounds of milk in seven days for a two-year-old, to 557.4 pounds for a five-year-old. From cows born after Jan. 1, 1901, and tested up to Feb. 15, 1907, I picked only those cows whose milk production for their ages exceeded the high figures in this scale. I could find only 137 of them. By a slight relaxation of this rigid rule I raised the number to 144 cows, and the pedigrees of these cows written out for three generations gave me 1000 female ancestors in these pedigrees. The ages of these females as they appeared in these pedigrees were calculated, and that calculation was compared with a carefully determined average for what is normal. The result showed that the 1000 dams found in these 144 pedigrees averaged nearly 33 per cent. older than what was normal for the breed. In other words, each and every one of these 144 large milk-producers came from successive generations of old dams. Not one came from successive generations of young dams.

The results of this investigation appeared in five articles published from April to June, 1907, in the *Holstein-Friesian Register*. In the first of these articles I stated that any test of this matter must be based on total milk produced, and not on some variable fraction of it as butter fat. And I explained the reason for this in detail. In the last of the five articles I gave examples of how a test directed to butter instead of to milk gave misleading information.

In Vol. 6 of the American Breeders Annual (page 310), F. S. Putney of Columbia, Mo., gives an account of some investigations he made into the pedigrees of Jersey cows at the Missouri Agricultural College. He refers to and quotes from my articles, which shows that he was familiar with them. He says that his work was done "with a view of testing" my "theory." As Putney's investigation has been cited frequently as contradicting what I have presented, we will take a look at his work.

Putney uses Jerseys, but he does not tell us how much milk a two-year-old Jersey is supposed to produce in a week, or month, or year. Neither does he tell us the amount of milk which should be produced by cows of any other age. Neither does he classify his cows in relation to age and production, but lumps them all together. And what is still more, he does not direct his investigation to milk production at all. He directs it to the production of butter, and he does so with full knowledge of my statement, explanation and illustration of the fact that the matter cannot be tested in that way.

There is another angle to this matter. Through the *Journal of Heredity* I offered $1,000 if anyone could show a single case of improvement coming in any other way than in accordance with what I had set forth for men, horses, dogs, and cows. In writing to the editor on Jan. 11, 1916, I said: "If cows are used, the basis must be milk and not butter."—See Dynamic Evolution. In the February issue following the editor says that Putney's investigation was "undertaken for the purpose of testing Mr. Redfield's theory of heredity."

It should be evident that Putney's work had no such purpose, and that the editor knew that fact when he made his statement. As a test of what I presented, Putney's investigation is nothing but a fake palmed off on the public as being the thing which it is not. I have no objection to Putney, or anyone else, making that kind of an investigation if it pleases him and he can give any good reason for doing it, but I object to it being used to deceive the public.

That $1,000 offer was widely advertised and stood for more than a year. That herd of Jerseys at the Missouri Agricultural College is a large one, and Putney tells us that complete milk records have been kept for every cow since 1892. They know at that college where they have got improvements, and where they have not. If they ever got any improvement in milk production in that herd in any other way than in that which I set forth, they should have brought that case forward and claimed that $1,000. It is significant that they did not.

The thing which the reader should particularly get into his mind is the fact that animal powers are developed by exercising them, and not in any other way, and that as long as there is a high degree of activity, powers will continue to develop up to the last years of life. I have given tables which show what occurs with Holstein-Friesian cows under seven-day tests. As corroboration, observe what is found by year tests of 1,497 Jersey cows.

JERSEY COW MILK PRODUCTION.
Year Records—Official Tests—1916.

Ages at Calving.	Pounds of Milk.
Under 2 years	6242.2
2 years to 3 years	6710.0
3 years to 4 years	7317.1
4 years to 5 years	8040.2
5 years to 6 years	8255.0
6 years to 7 years	8340.2
7 years to 8 years	8702.2
8 years to 9 years	8667.0
9 years to 10 years	8643.3
Over 10 years	8900.0

Observe that the oldest cows produce the largest quantities of milk, and that, except for a small irregularity beginning at seven years of age, the increase is quite uniform from beginning to end. The object here, however, is not to to show what occurs under miscellaneous conditions, but to show that continued exercise brings about continued development of the powers exercised. Ordinarily cows are kept in active milk production, but not always. Sometimes they go farrow, or are dried up early for some cause or other.

The largest quantities of milk are produced by old cows, but such cows do not produce the largest quantities simply because they are old. They produce large quantities because they have developed their powers continually for many years.

These tables for the cows show definitely and positively that milk-producing power may continue to develop in the cow up to the later years of her life. We do not have similar tables for the continuous development of mental power in man, but we know a few facts which will enable us to see the same thing here. It requires mental power for a man to carry knowledge in his memory. When a man is thirty years of age he carries more things in his memory than he did at twenty. When he is forty he can carry more than he could at thirty. When he is fifty he can carry still more, and so on up to the last of life.

The next important thing for the reader to get into his mind is the fact that the offspring inherits the power development which exists in the parent at the time of reproducing, and not the power development which existed at some earlier date, or will

exist at some later time. For milk production in cows and brain power in man we may make a direct comparison between the age of the parent and inherited quality in the offspring, because normally power development continues from year to year.

But for trotting power in horses the matter is not quite so simple, because many breeding animals are idle animals. An idle animal loses power by idleness instead of gaining it by exercise, hence, in studying inheritance in horses we must investigate the individual activity of each individual horse. But when we do that we find the same story. The offspring inherits the power characteristics existing in the parents at the time of reproducing.

525 Monadnock Block.

A METHOD FOR USING DAKIN'S SOLUTION FOR CONTINUOUSLY IRRIGATING THE MASTOID WOUND.

By ALFRED KAHN, M.D.,

NEW YORK.

The following is a description of the technique employed by me in irrigation of the mastoid wound with the Dakin solution.

At the time of the mastoid operation the wound is entirely closed except at the upper and lower angles. A rubber drainage tube is inserted and retained in these angles. The drainage tube at the top is left rather long so that it can be easily connected or disconnected at will with the tube leading down from the siphon tube which will be mentioned later. The tube at the lower angle is comparatively short, as it is only intended to keep the most dependent portion of the cavity open for drainage. The wound is not packed with gauze, but is left open so that the fluid can flow in and touch every part of the wound cavity. If it is thought wise, the operator may also place another tube in the external auditory canal. The wound is then covered with gauze and the usual mastoid bandage applied. The tube at the upper angle is allowed to extend out a short distance beyond the bandage. When the solution is not flowing this tube can be disconnected and clamped off from the siphon tube. The arrangement of these tubes at the upper and lower angle

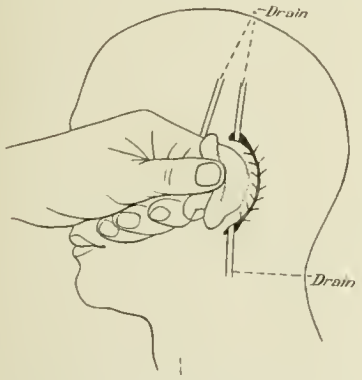


Fig. 1.—Wound closed with tubes inserted into the angles.

of the wound and the closure of the wound is illustrated in Fig. 1.

The patient is then put to bed, and when it is desired to allow the solution to flow the tube at the upper angle is connected with the siphon tube of the syringe. The fluid then flows from syringe to siphon tube and upper drainage tube through the mastoid cavity and out at the lower angle of the wound. The patient is placed so that the mastoid wound will be downward. The head is supported

Fig. 2.—Ring pad with gutter for carrying away the drip.

on an air-cushion pad, not unlike the Kelly pad used in gynecology, but very much smaller. The pad should not be so large that the patient's head will burrow into the gutter of the pad, but only of sufficient circumference so that the opening will surround the bandaged ear. This detail is illustrated in Fig. 2. When the patient is in bed his head rests in the pad and the fluid drips from the mastoid bandage into the pad and is carried off into a waste vessel under the side of the bed.

When the patient is sufficiently well to sit up or be out of bed the following method is adopted. A pad, Fig. 3, is then made a part of the dressing. This pad, Fig. 3, is of rubber, the lower portion shaped like a funnel, its object being to drain the fluid as it passes down from the mastoid wound into the funnel. This pad is firmly attached under the ear and to the side of the head by gauze bandaging placed around it at various points as shown in the illustration. The upper half of this pad covers over the mastoid bandage and aids in directing the solution into the funnel portion of the pad, from which it flows out. Fig. 3 shows the pad firmly attached to the ear and side

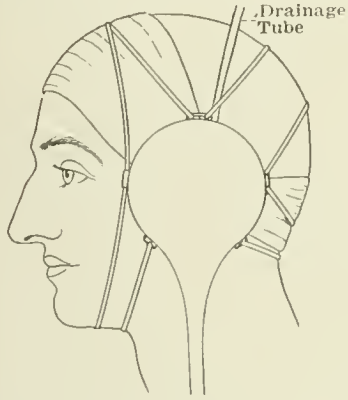


Fig. 3.—Pad for maintaining the dressings in place.

of the head with pad closed. The solution now flows from the syringe, following the same pathway as in the recumbent position, except that the bed pad is replaced by the pad herein described.

50 East Forty-second Street.

THE CLIMATIC ILLUSION IN THE TREATMENT OF TUBERCULOSIS.

By HOWARD CRUTCHER, M.D.,
TULAROSA, NEW MEXICO.

NAPOLEON is credited with saying that "imagination rules the world," and it must be admitted that much evidence may be adduced in support of the statement of the great soldier. Emotionalism has played so large a part in the affairs of mankind that one may well wonder how the light of scientific teaching ever made headway against it. After centuries of bitter experience man learned that he was merely a part of Nature, not superior to its laws and principles, and the fact became clear to him that he must conform his ways to fixed principles and not depend upon miraculous interference in his behalf. Tuberculosis, typhoid fever, and malaria, once looked upon as dispensations of Providence, are now known to appear as the result of natural causes, and their eradication must fall strictly within the scope of applied science. Such absurdities as "cures" and "specifics" are no longer permitted to befog the pathway of the scientific worker in search of rational measures of relief from the ravages of disease.

It may sound wholly incredible, but it is the literal truth that a generation ago draughts of air were regarded as being a fruitful cause of tuberculosis. A frail girl of twenty years, nervous, anemic, and dyspeptic, was suspected by the family physician of "being threatened with weak lungs," a very familiar phrase in those times, and she was forthwith confined within the narrow limits of a stuffy bedroom, where no murderous draughts could reach her, fed sparingly upon dainties, and warned that the slightest exposure to fresh air would be as fatal as a deadly poison.

Medicine, as that term was generally employed, was expected to work wonders, and as often as expected as often failed. A nauseous mixture of fish oil and whisky was depended upon to supply the deficiency in fresh air. A repulsive compound denominated an expectorant was expected to prevent the waste of physical energy from coughing. Dainties of one kind and another were trusted to take the place of wholesome food. My preceptor, a man of no ordinary practical wisdom at the bedside, said one day with mournful resignation, "Cancer and consumption spring from a common cause, the real nature of which we know nothing as yet. Iron and quinine are recommended for consumption, but you may as well give beefsteak and ice cream. No remedy does any lasting good. Our future knowledge of these diseases must come through the microscope. Gross shook his head over cancer as much as Trousseau did over consumption."

Light came, however, not so much from the use of the microscope as from the teachings of practical experience. The story as I first heard it ran somewhat in this style: A young man living somewhere in the East was detected in some financial irregularity and as a punishment was sentenced to a prison term. The prison physician upon examination detected a true case of "weak lungs." The Governor of the State upon appeal granted the offender a pardon and advised him to return to his home and "die under the care of his mother." Instead of doing this, the young man broke his word, journed into the deep pine woods of northern Wisconsin and under an assumed name began life anew as a woodchopper. As his strength returned, his riches grew, until he was abundantly able to return to his Eastern home, repay all old obligations, and settle down as a valued and honored member of the community.

This story, charming as it was, might have lost something of its practical bearing had not another wayward young man under like conditions journeyed to Kansas, where there were no pine woods, and regained abounding health by farm work and stock raising. He, too, returned to the East, where his presence aroused mingled feelings of amazement and admiration among his old-time associates.

These instances, not encumbered with names, places, or dates, of course, were circulated some years before the epoch-making labors of the lamented Trudeau in northern New York began to attract serious attention through his reports to the MEDICAL RECORD. At last, through some fortunate means, the fact became generally acknowledged that innumerable people in all the walks of life, in every region of the country, from the pineries of the Adirondacks to the sterile deserts of Arizona, had resisted the infection or had recovered from its milder manifestations in the earlier stages by breathing pure air, eating wholesome food, cultivating proper bodily habits, and observing generally the teachings of clean living.

It must not be inferred that the writer would approve of any "wholesale" methods of treating tuberculosis or any other disease; on the contrary, no disease demands keener individualization or more unremitting care on the part of the physician than tuberculosis. Meat, eggs, and milk can not invariably be depended upon by any means. Some patients thrive surprisingly well on a dietary largely vegetarian in character. A few well-selected medicines are of the highest value at times. So far as the cough is concerned, it is the same under similar conditions in all climates. Here again the physician must exercise discretion based upon individual experience, one sufferer improving upon cold, dry air, whereas another will do better in a region of more heat and moisture.

As to a change of climate, that also must be determined by cautious individual analysis. That any particular region or climate is better suited than any other region or climate to a preponderance of the human family on account of any pathological condition is the utmost folly. For a person in settled business in the East to break up all ties and fly to some desolate, ill-kept boarding house located in some far away desert, under the pathetic illusion that isolation is a panacea for disease is such pitiable nonsense that the wonder is that any rational being should be guilty of it. In countless instances the ability to earn bread is fully as important as the power to digest it. Those dependent upon their labor from day to day for the means of living must not suppose that the impossible can be accomplished more readily in one region of country than in another. Nor must unbounded confidence be placed in the highly colored and too-frequently misleading reports that emanate from purely interested sources. The most preposterous

absurdities are frequently sent forth by honest but misguided persons who mistake illusions for realities. Many things pleasing to the eye and profitable to the mind bear no relation whatever to the cure of disease. A charming landscape is no substitute for wholesome food, comfortable surroundings, and skilled medical supervision. There is no more a specific for tuberculosis than there is for poverty and old age; and so far as climate alone is concerned it has no more curative effect in this condition than it has in gallstones or cancer.

Medicolegal Notes.

Where Sunstroke Held an Accident.—An accident insurance policy against bodily injury sustained through accidental means and resulting directly and exclusively of other causes in immediate continuous and total disability included sunstroke suffered through accidental means. The holder, when riding on a street car to his work, suffered a sunstroke when about to alight. It was held that he was injured by "accidental means." The court said: "The contention of appellee [the insurance company] is that in the term 'accidental means' as therein used some violence, casualty, or vis major is necessarily involved, and that disability or death engendered by exposure to the sun's heat, or other atmospheric influences, cannot properly be said to be accidental, unless the exposure is itself brought about by circumstances which give it the character of an accident. In other words, if the exposure to the heat of the sun was intentionally encountered in the ordinary performance of a person's usual duties of life or occupation, it is not accidental; but if a person should by reason of shipwreck or other like occurrence, be left in a position in the heat of the sun, and thereby suffered sunstroke, the means would be accidental. This is the view taken in the case of Sinclair v. Maritime, etc., Co., 3 Ell. & Ell. 478, and that case is followed to a great extent by the following cases: Dozier v. Fidelity, etc., Co. (C.C.), 46 Fed. 446, 13 L.R.A. 114; Semancik v. Continental Casualty Co. (1914) 56 Pa. Super. Ct. 392; Continental Casualty Co. v. Pittman (1916) 145 Ga. 641, 89 S.E. 716; and Bryant v. Continental Casualty Co. (Tex. Civ. App.) 145 S.W. 636. * * * We are of opinion that the better reasoning points out, and the weight of authority holds the true test to be, that if in the act which precedes the injury, though an intentional act, something unusual, unforeseen, and unexpected occurs, which produces the injury, it is accidental; but, if in the act which precedes the injury something usual, foreseen and expected occurs, which produces the injury, it is not accidentally effected. We are supported in our holding by the following cases, which involve the question of whether sunstroke suffered, while engaged in the usual daily duties, is accidental: Continental Casualty Co. v. Johnson, 74 Kan. 129, 85 Pac. 545, 6 L.R.A. (U. S.) 609, 118 Am. St. Rep. 308, 10 Am. Cas. 851; Pack v. Prudential Cas. Co. (1916) 170 Ky. 47, 185 S.W. 496, L.R.A. 1916 E 952; Higgins v. Midland Cas. Co. (1917) 281 Ill. 431, 118 N.E. 11; Bryant v. Continental Casualty Co. (1916) 107 Tex. 582, 182 S.W. 673, L.R.A. 1916 E 945, Am. Cas. 1918 A 517. The last case above cited overrules the holding of the lower court in the same case reported in 145 S.W. 636, upon which the Pittman and Semancik cases, supra, were largely based."—Elsey v. Fidelity & Casualty Co., Indiana Supreme Court, 120 N.E. 42.

Accident Insurance—Presumption Against Suicide.—Strictly speaking, a means is accidental only when dissociated from any human agency, but this narrow interpretation is not recognized in the law of accident insurance. Any event taking place without the foresight or expectation of the person affected is here considered accidental, even though the accident would not have happened but for his voluntary act. In an action on a policy of accident insurance for death caused by drinking carbolic acid, the petition averred death from "accidental carbolic acid or toxic poisoning." This the answer denied and averred "suicide by the intentional drinking of a deadly poison, namely, by the drinking of carbolic acid." The reply contained a denial and admission of death from "drinking a deadly poison, to wit, carbolic acid." It was held that the burden was upon the plaintiff to produce evidence showing that the death was accidental and not suicidal. The presumption against death by suicide is prima facie only and rebuttable. It prevails when the cause of death is unknown. It does not prevail as a presumption in the presence of facts bearing upon the question whether death is intentional or accidental. When evidence is adduced which is contrary to such presumption, or the presumption is met by conflicting presumptions, it disappears, although the fact upon which it rests may still remain proper to be considered in arriving at a conclusion.

There is the almost conclusive presumption that when one drinks he knows what he is drinking, especially so if he is drinking carbolic acid; the presumption that when one drinks carbolic acid he knows the poisonous character of the liquid; and the presumption that one intends the natural consequences of his own act. These presumptions bear upon the question of intent, and the force of the original presumption must be lessened by the force given to them. While it may well be urged that we are still uncertain as to the actual intent, the presumption against intentional death can no longer prevail as prima facie proof. Judgment for the plaintiff was reversed.—Grosvenor v. Fidelity & Casualty Co., Nebraska Supreme Court, 168 N.W. 596.

The Use of Saccharin.—Reversing a conviction for the alleged adulteration of strawberry soda with saccharin, the New York Appellate Division holds that the use of one one-hundredth of 1 per cent. of saccharin in bottled strawberry soda labeled "Sweetened with sugar and one one-hundredth of 1 per cent. of saccharin (benzo-sulphinide)" comes within the proviso of Sanitary Code of City of New York, Section 68, relating to a mixture of compounds known by their own distinctive name. Since saccharin is not injurious to health, the court holds its use in food products may be regulated, but cannot be prohibited, under the exercise of the police power.

The court said, in part: "The uncontroverted evidence shows that the use of soda water as a beverage containing this quantity of saccharin could not possibly be injurious to health, and that there is greater danger of injury to health from consuming too much sugar than from the consumption of saccharin in such a percentage. It also appears that the use of sugar in any form is injurious to people suffering from diabetes and some other diseases, while the use of saccharin by them to flavor food and render it palatable is prescribed by medical authorities.

"The only possible theory on which such use of saccharin could be prohibited is to prevent deception, by leading purchasers and consumers to think that the food products had been sweetened by sugar, which contains a food value, and not by saccharin, which has no food value. There is no evidence of deception, and the label is designed to prevent deception. Soda water is not a natural food product, but is a compound of food products, and I am of opinion that such use of saccharin comes within the proviso contained in said section 68 of the Sanitary Code relating to a mixture of compounds known by their own distinctive name, and that the label complied with the requirements thereof * * *

"If a standard of purity with respect to the ingredients to be used in making soda water had been prescribed by the Legislature, or by legislative authority, then it might well be argued that no other ingredients could lawfully be used in making it. See dissenting opinion of Leonard, P. J., in People v. Cipperly, 37 Han, 324, on which the decision was reversed, 101 N. Y. 634, 4 N. E. 107. It is perfectly obvious that, entirely aside from the question of disease or medical advice, some people may desire, especially in hot weather, a cooling beverage that contains no food value, or that has been sweetened to render it palatable by the use of saccharin, instead of by the use of sugar, and there is, therefore, no occasion or authority for prohibiting such use of saccharin." People v. Excelsior Bottling Works, 171 N. Y., Supp. 733.

Military Medicine.

Surgery of the Chest as Carried Out at the Front.—Perhaps no branch of surgery has been more greatly revolutionized during the war than the methods of dealing with injuries of the chest. The change has been simply that of harmonizing of adapting the principles of surgery as they are now applied to other wounds to those of the lung and chest.

As Colonel William Taylor, A. M. S., Consulting Surgeon to the Forces in Ireland, points out in a review of the surgery of the chest as carried out at the Front, published in the *Dublin Journal of Medical Science*, November, 1918, this change has been the outcome of the work of Duval and many other surgeons, British, French and American. It was estimated that the mortality due to chest wounds at the aid posts was from 25 to 30 per cent. The seriously wounded die either on the field or at the aid post. Hemorrhage and mechanical asphyxia, open thorax with traumatic dyspnea are the two chief causes of death. Deaths on the field are mainly due to hemorrhage from the large vessels. Cases of that type do not appear in any statistics. The mortality of chest wounds at the casualty clearing stations averaged from 18 to 20 per cent. In stationary or base hospitals the mortality was about 10 to 12 per cent. The mortality is thus proportionately lower the further one proceeds from the fighting line. The cases which reached the base hospitals were those in very good condition who had survived the complications of the first few days. The mortality of these cases at the three different places at which they might be treated averaged from 18 to 20 per cent. That did not include the mortality arising from chronic sequelæ, such as long-standing empyema, abscess of the lung and late complications generally. Such a mortality was unsuspected before the war.

According to Taylor the explanation is simply that experience before the war was based upon the practice of bullet wounds, whereas in this war shell wounds have preponderated. In Duval's experience, the proportion of shell wounds to bullet wounds was as 3 to 1, whereas the mortality of shell wounds to bullet wounds was 14 to 1. A bullet wound is either fatal at once, from hemorrhage due to injury of a large vessel, or it is comparatively benign. A bullet wound is either aseptic or seldom followed by grave infection, and to this is due its lower mortality. It is the danger of sepsis in connection with shell wounds that renders them so serious.

A shell wound in which a foreign body is retained in the lung is attended by a much higher death rate than a through and through shell wound. Duval was the first to state positively that immediate operation could save some of the cases of severe pulmonary hemorrhage. Hartmann, who was at first strongely opposed to operation for the arrest of pulmonary hemorrage, became strongly in favor of it. Tuffier followed suit. All cases of severe chest wounds are in a condition of grave shock, and one must judge quickly whether the dangerous condition is due solely to shock or to hemorrhage. If there is an open thorax, or if the blood is flowing freely from a small entrance or exit wound, there is no difficulty in determining the question. It is in cases of intrapleural hemorrhage that one is in doubt as to how to act. Blood pressure alone is of use in determining the question. If, in spite of warmth, the blood pressure progressively falls, operation is indicated, as hemorrhage is outweighing shock. It has been shown that thoracotomy has practically no effect on arterial pressure. The operation can be performed with a very low blood pressure, when a laparotomy could certainly not be tolerated. In short, the patient's general condition never offers a contraindication to thoracotomy. It is believed that two-thirds of the cases of chest wounds with hemorrhage can be saved by early operation and direct arrest of bleeding from the lung. Infection of the hemothorax in bullet wounds is exceptional. Colonel Elliott, F. R. S., has demonstrated that the infection of the hemothorax originates in the clots of fibrin and blood which form on the surface of the wound, and collect in the pleural cavity.

The treatment of penetrating wounds of the lung will depend upon whether the wound of the lung is entirely superficial, whether the foreign body is retained, or whether the case is one of the through and through types. (1) For a superficial wound of the lung, excision may be practised, and the wound sutured, so as to arrest hemorrhage. (2) In penetrating wounds with retained foreign body, the foreign body should be extracted through its entrance tract. Fragments of clothing should be removed. The tract should be then cleansed, and the opening into the lung sutured, so as to guard against subsequent infection of the pleura from the lung. (3) In penetrating through and through wounds, suture of the entrance and exit wounds must be performed, but Duval has never carried out the ideal procedure of cleansing out the entire tract. Sepsis in the lung occurs early, much earlier than in the pleura, hence early operation is advisable. Bullet wounds may be left alone unless they give rise to dangerous hemorrhage. Minute fragments of shell may also be left alone, as they do not carry in pieces of clothing, and they are often sterile. "Open thorax" is a term coined to describe those cases in which the thoracic wall is widely opened and air passes directly into the pleural cavity with each respiratory movement. For two reasons such a wound must be closed: to lessen the danger of asphyxia, and to protect the pleura against infection from without.

Wounds of the diaphragm must always be sutured. If hemorrhage is taking place it must be dealt with first; otherwise a wound of the diaphragm should always be treated first. If the liver is involved the opening is, if necessary, enlarged, so as to give access to that organ. The liver wound is then cleaned with a Volkmann's spoon, followed by swabbing, and sutured. It is strongly emphasized that a foreign body should never be left in the liver. The opening in the diaphragm is then closed, with one or more mattress sutures, and the chest is subsequently treated. Duval delivers the lung on to the chest wall, almost in the same way as the small intestine from the abdomen. He has proved that the rules of general surgical technique are perfectly applicable to the lung. Drainage of the pleura need never be considered. It is not required, and is not practised. When the thorax is

opened, the lung should be dealt with first, and the toilet of the pleura performed subsequently.

Taylor states that there are three methods to arrest hemorrhage from the lung. (1) Plugging, which is only a makeshift, but which under certain conditions must be resorted to. (2) Suture of the lung. (3) Ligature of the bleeding vessel, which is ideal. Practice has shown that one can count upon the resistance of the lung tissue itself to arrest hemorrhage in a tract, both ends of which have been closed.

With regard to the extraction of foreign bodies, it is generally stated that it is best not to make a new incision, but to make every effort to extract the foreign body through the opening by which it entered. The tract is subsequently cleaned out with a gauze wick held in a long forceps. Suturing should be accurately performed, and the pleura carefully adjusted. The pleural cavity must be emptied of blood and clot, and the whole extent of the pleural cavity wiped dry. The opening in the chest wall is then closed by careful suturing in layers. The air may or may not subsequently be withdrawn. Distress in breathing is often completely relieved by its withdrawal. If a septic effusion develops later it can be drained.

Massage and Electrotherapeutic Work in a War Hospital.—It has been demonstrated in all the orthopedic hospitals of Great Britain that the employment of massage and electrotherapy is an essential part of treatment for the relief and cure of pain and joint stiffness subsequent to injuries by wounds, or for medical conditions. To Sir Robert Jones is due not only the realization of this truth but also the carrying out of a scheme to place such treatment within the reach of all wounded soldiers. As is well known, through the Liverpool orthopedic surgeon's initiative, a chain of orthopedic hospitals has been established throughout Great Britain provided with all the means for employing massage and electrotherapy to the best advantage. While the details of treatment are familiar to members of the medical profession no attempt appears to have been made to indicate the results of treatment. In the *Practitioner* for December, 1918, Capt. N. Morris, R. A. M. C., has endeavored to supply to some extent the hiatus and has contributed a paper based upon the results of about 1200 cases treated in the Lord Derby War Hospital, Warrington, England, during the past nine months.

The majority of the cases treated were surgical, and by far the larger number of these consisted of injuries in which movements of joints were involved to a greater or lesser extent. Morris calls attention to the need for the early treatment by massage of wounds which do not directly involve joints. Scarring in the tissues, with the formation of large bloodless cicatrices pressing on the surrounding muscle substance subsequent to flesh wounds, is frequently responsible for pains and stiffness of the joints. Of course, the danger of spreading septic material into the neighboring tissues is a risk which must be considered in early treatment, but Morris thinks that in cases in which sepsis is not very extensive, if the massage is gently done, this may be neglected, while the tonic influence may go a long way to ensure speedier healing. The one contraindication is when the massage causes the patient discomfort. However, whatever opinions may be held on septic cases, there can be no question that once the granulations are healthy, massage ought to be started immediately. The author goes so far as to suggest, while acknowledging that the idea is somewhat Utopian, that each ward of a general hospital should have attached to the staff a masseuse, who could give massage and faradism. Of the various forms of treatment massage is the most valuable, mainly because of its simple nature. Passive movements are very important and the indication for the duration and extent of the movements is the pain felt by the patient. Radiant heat has been found very useful in lessening the pain of joint injuries, and as a preliminary to forcible movement under an anesthetic. It appears, to some extent, to get rid of the induration of the tissues, and is thus a very useful adjunct in all cases of that nature.

Faradism is very important in joint and nerve injuries, especially in the latter. Morris is of the opinion that although ionic medication is of some value, its value has been rather overestimated. In some cases of chronic rheumatism so-called ionization with a 2 per cent solution of potassium iodide seems to have a temporary beneficial effect. Also ionic medication appears to be of considerable value in loosening tight cicatrices and in the freeing of nerves, provided the treatment is begun early enough. One class of cases in which ionization is of little or no value is that in which there has been involvement of bone with consequent formation of callus.

Each patient ordered massage and electrotherapeutic measures was examined before beginning treatment and all defects of movement and sensation, subjective and objective, were noted. If there were any signs of nervous involvement, the electrical reactions of the muscles suspected of being implicated were tested. During the period of treatment, notes of the progress of the case were taken weekly as far as possible, and the condition of the patient on discharge was noted.

The results on the whole were satisfactory, depending of course, to a large extent, on the character of the injury. With regard to the use of splints the author points out that the full return of mobility was in many instances greatly retarded by the prolonged use of slings and splints. This cannot be deprecated too much, for the tendency of joints to stiffen is very great when kept fixed. If splints are necessary for any length of time, it is essential that massage and some slight passive movements should be given daily, if at all possible.

Nine patients in the Lord Derby War Hospital, who had injuries to the hand, suffered from causalgia which was relieved more or less by stabile faradism or ionic medication with potassium iodide. Seven patients on whom bone plating had been performed were treated by massage, and it is interesting to note that in five on whom massage had been begun soon after the operation good union was the result, while in the other two, massage having been postponed for some reason, the union was delayed and the limb was much weaker. Twenty patients were treated for trench feet, twelve of whom were more or less completely cured, and six were greatly relieved.

One Million Persons Killed by Lice.—Lieutenant Lloyd, chief entomologist in northern Rhodesia, in a recent publication declares that of the insects responsible for the death or disablement of hundreds of thousands in the war zone, the louse was the most deadly, and is accountable for at least one million deaths. This is said to be but a rough estimate, the probability being that the toll is much larger, for in Serbia alone typhus infected nearly one million persons, killing 500 a day in the little city of Jassy alone, while 200 of the 1,200 medical officers in the country died of the disease, which spread over Russia, Austria, Germany, and the Balkans generally. Many thousands of cases of relapsing fever and trench fever were also caused by the louse. This report, in discussing the typhus outbreak at the Wittenberg Camp in Germany, from which the German doctors fled, makes the statement: "The Germans knew, as we do, that typhus is spread by lice, and that the epidemic could have been cut short and stamped out a week after its commencement by the disinfection of all prisoners." But disinfection was not attempted, and the doctors fled. A Russian prisoner of war who recently returned to Russia, asserted that when typhus struck the Russian prison camps in Germany his comrades died at the rate of 500 a day and were buried three deep in a grave. It is reported that 750,000 died in prison.

Care of Wounded on Stranded Transport.—The American troop transport, *Northern Pacific*, which ran ashore off Fire Island on January 1, had aboard 1,671 men and 73 officers who were sick or wounded. Col. J. M. Kennedy, surgeon of the Port of Embarkation, despatched Lieut.-Col. F. J. Pierce of the Medical Corps with 220 officers and enlisted men by special train to Bay Shore to care for the patients as soon as they could be landed. The litter cases were sent to Debarkation Hospital No. 3, in the old Greenhut store, the mental cases to the Messiah Home in the Bronx, the contagious cases to Secaucus, N. J., while the less serious cases were distributed among the other military hospitals in the vicinity. The local Red Cross fed the troops as soon as they were landed, and the Woman's Motor Corps had six ambulances at hand to aid in the transfer of patients to the train.

Enlist Nurses in Public Health Service.—The Council of National Defense will muster out its nursing committees this week, after having completed the work of recruiting nurses for war service. The National Organization for Public Health Service, with headquarters in New York City, will help recruit nurses into peace service. To encourage the nurses who will leave war work to undertake civic duties, the National Organization of Public Health Nursing is planning to establish short courses in public health work to which army nurses will be eligible. In addition, the organization hopes to raise a scholarship fund to pay the expenses of the nurses during training. The value of the service rendered by the public health nurse has so impressed government officials that such men as Secretary Baker, Secretary Wilson, and Surgeon General Rupert Blue of the Public Health Service have issued an appeal to the National Organization for Public Health Nursing for more nurses to carry out the national reconstruction program.

Army Health Improves.—The Surgeon General's report for the week ended December 27 shows continued improvement in health conditions of troops in the United States. Both influenza and pneumonia cases decreased. The Hoboken port of debarkation was the only station reporting more than 100 new cases of influenza for the week. Eleven new cases of beri-beri were reported from Camp Las Casas, Porto Rico.

Major Victor C. Pedersen has received honorable discharge from the Medical Corps of the U. S. Army and will resume practice in this city.

Deaths in the Service.—LIEUT. JOSIAH A. POWLESS, M. C., U. S. Army, of Oneida, Wis., a graduate of the Milwaukee Medical College, in 1904, on duty with the so-called Lost Battalion of the Three Hundred and Eighth Infantry, Seventy-seventh Division, died on November 6 as the result of a shrapnel wound of the lung received in battle in the Argonne Forest on October 14, aged 46 years. He was an Oneida Indian and a graduate of the Indian school at Carlyle, Pa.

LIEUT. EDWARD GLENN HENRY, M. C., U. S. Army, of Oil City, Pa., a graduate of the University of Pennsylvania, in 1911, aged 29 years, died in American Red Cross Military Hospital No. 4, Mossley Hill, Liverpool, England, on November 7, from pneumonia.

LIEUT. JOHN WALTER RENNER, M. C., U. S. Army, of Hilliards, Ohio, a graduate of the Ohio State University, in 1912, aged 28 years, is reported to have been killed in action in Flanders on November 4.

LIEUT. DIETRICH LUDWIG BARTLING, M. C., U. S. Army, of Bloomfield, Neb., a graduate of the Chicago College of Medicine and Surgery, in 1917, died while on duty at Fort Sill, Okla., from pneumonia following influenza, on October 20, aged 31 years.

CAPT. JOHN BUSBY URY, M. C., U. S. Army, of Defiance, Ohio, a graduate of Rush Medical College, in 1903, died at Fort Oglethorpe, Chickamauga Park, Ga., about December 8, from pneumonia following influenza, aged 40 years.

LIEUT. JAMES FRANCIS DORMAN died of influenza at his home in South Manchester, Conn., on December 28.

CAPT. HARVEY LASHER THORPE, M. C., U. S. Army, of Los Angeles, a graduate of Rush Medical College, in 1909, who left for overseas on October 15, died of pneumonia, following influenza, at sea, on November 2, aged 36 years.

LIEUT. JOHN EDWARD WILLIAMS, M. C., U. S. Army, of Roselle Park, N. J., a graduate of the College of Physicians and Surgeons, New York, in 1913, died from paratyphoid fever in Chaumont, France, in August, aged 26 years.

LIEUT. LEECK KEY CRACRAFT, M. C., U. S. Army, of Elm Grove, Wheeling, W. Va., a graduate of the University of Virginia, Charlottesville, in 1905, died from pneumonia, following influenza, at his home, on November 26, aged 36 years.

LIEUT. THOMAS REED FERGUSON, M. C., U. S. Army, of Kirkwood, Pa., a graduate of Jefferson Medical College, in 1906, died from pneumonia, following influenza, in the Lancaster, Pa., General Hospital, on October 2, aged 33 years.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, January 11, 1919.

THE ETIOLOGY OF SPRUE.

THE etiology of a very considerable number of the tropical diseases is unknown, and sprue is one of these. Perhaps the latest of the many causes which have been suggested for this profound alimentary disturbance is that it is a streptococcal infection. Sir Leonard Rogers was the first to attribute sprue to this origin. In the *Lancet*, June 6, 1914, he reported the successful treatment of two patients with a vaccine of streptococci which had been isolated from their mouths. Dr. Lucius Nicholls, director of the Bacteriological Institute, Ceylon, writes in the *Indian Medical Gazette*, November, 1918, concerning streptococcal infection as a possible cause of sprue. He wisely draws attention to the fact that streptococci can be isolated from the mouths of the majority of persons in normal health and that consequently any claim that they are the cause of a disease requires considerable substantiation. Moreover, it is very necessary to attempt to define the character of the streptococcus associated with sprue; and this raises the vexed question whether or not the organisms of this class which are found in etiological relationship with so many and various diseases can be described satisfactorily. The results of various morphological, cultural, and serological tests made by Nicholls for the purpose of distinguishing between different types of streptococci were as follows: So far as morphological and cultural tests are concerned, the outcome may be summarized thus: The streptococci isolated from cases of sprue do not possess a capsule, they are nonhemolytic, they are not lyzed by ox bile, they do not produce acid from mannite in the serum water of Hiss, and they produce green colonies on blood agar. Nicholls has tested the sera of sprue patients with the organisms isolated from their mouths, but the results have been so irregular and indefinite that he could form no conclusion in such cases.

With regard to the complement fixation test, he has tested the sera of three patients who showed all the definite clinical symptoms of sprue, and serum from two persons in normal health was used for control. The result was that 0.01 c.c. of the serum of patients suffering from sprue failed to fix the complement, whereas .05 c.c. produced complete fixation. Normal serum showed practically no power of fixing the complement. With streptococcal vaccines Nicholls has treated or has under treatment nine patients, and he is strongly of the opinion from the results thus far that the good results obtained from vaccine by Rogers will be duplicated in the nine cases. It must be borne in mind that pathogenic organisms exhibit virulence and elective affinities for various tissues, and it is known that streptococci are able to acquire or lose these properties.

The author points out that sprue is almost wholly confined to thickly populated countries in which the climate is humid and warm. Further, the majority of the inhabitants of Ceylon are addicted to the habit of chewing, this conduces to the habit of spitting and therefore there is every chance of streptococci being continually passed from one person to another whose mouths have been irritated by chewing. It does not seem, then, unreasonable to suggest that in this manner streptococci may increase in virulence and acquire an elective affinity for the alimentary mucosa.

It has been frequently suggested, of course, that sprue is a disease due to errors of diet. It has been even hinted that it might be placed in the category of what are known as deficiency diseases. In fact, sprue possesses many symptoms in common with pellagra, which is generally regarded as a deficiency disease or as due to errors of diet. Pellagra and sprue somewhat closely resemble each other in many of their manifestations. There is the same wasting of the organs and thinning of the walls of the alimentary tract, and sore mouth and intractable diarrhea. As Nicholls remarks, the suggestion that an error in diet has prepared the way for a streptococcal infection of the alimentary tract will explain many factors associated with sprue, and it may be added with pellagra also.

Some well-known investigators have held the view that scurvy was due to a streptococcal infection, and if the view is correct it may be that the absence of a vitamine from the food renders the system open to an attack by streptococci. Nicholls notes, that according to Rogers (*Indian Medical Gazette*), April, 1918, many military officers have observed when on campaign that the number of cases of scurvy can be reduced to almost a disappearing point by strict attention to mouth cleanliness among the troops. It appears quite within the realms of probability that the so-called deficiency diseases are not directly owing to lack of vitamines, but to the fact that this deficiency of the vitamine element has so reduced the resisting powers of the body that it is susceptible to the attacks of streptococci which are lying in wait in the mouth for such an opportunity. It certainly does seem that sprue has several points in common with pellagra and to a less extent with scurvy. Experiments in this direction should be productive of valuable and interesting results. In the meantime enough is known already of sprue, scurvy, and pellagra to state that in their treatment the indications are to eat suitable food,

that is, food containing the essential vitamine elements and to keep the mouth scrupulously clean. The maintenance, especially, of a clean mouth is a preventive measure against disease, the importance of which is frequently overlooked.

THE CEREBROSPINAL FLUID IN SYPHILIS.

Besides the Wassermann reaction in cases of syphilis it is also of absolute necessity to ascertain if the central nervous system has become infected by the spirocheta, and to what extent it has become involved. When the meninges are involved in the process the organism assumes an offensive attitude in the form of a more or less marked lymphocytosis, and therefore a means of great precision for detecting this resides in an examination of the cerebrospinal fluid. In the normal state the cerebrospinal fluid contains one or two cells (Nageotte's cell) per cubic millimeter, so that if this number is increased infection may be said to exist, and this is all the more pronounced the greater the number of cells present. Thus, in certain instances of general paralysis, tabes, or secondary luetic meningitis, more than one hundred white cells per cubic millimeter will be found. To obtain the requisite amount of cerebrospinal fluid (from two to ten cubic centimeters) spinal puncture should be made between the last lumbar and first sacral vertebræ. Albumin and the globulins should be looked for, and although in no way specific, the presence of the former indicates an involvement of the meninges, while on the other hand an increase in the globulins is distinctly specific.

For the research of the albumins twenty centigrams by weight of pure nitric acid is added to one cubic centimeter of cerebrospinal fluid. The result is read in five minutes, and with a little practise the amount of albumin is readily ascertained. For more precision Bloch's scale may be used. This scale is composed of tincture of benzoin in glycerinated water. Normal cerebrospinal fluid contains twenty centigrams of albumin per liter; thirty to fifty centigrams represent a slight albumin reaction, while from sixty to eighty centigrams represent a strong reaction, such as is found in tabes or general paralysis. The research for the albumins and globulins should be carried out with great precision, and two methods are at our disposal and should be employed together. The first is Nonne's test, which consists in mixing equal parts of cerebrospinal fluid and a saturated solution at 80° C. of ammonium sulphate C. P. The presence of globulins is made evident by a more or less marked turbidity. It is always prudent to use a control tube in which a physiological saline C. P. solution takes the place of the cerebrospinal fluid.

The second method is due to Noguchi. Take from 0.2 to 0.4 c.c. of cerebrospinal fluid and five times its volume of butyric acid C. P. (free from caproic or acetic acid). Boil the mixture lightly and add normal soda in a quantity equivalent to the quantity of liquid. Boil again lightly and then allow it to rest. According to the case, the result can be read in from five minutes to one or two hours. The richness of the globulin content is proportional to the flakiness of the liquid. The use of a control tube is essential.

Wassermann's test is made in the cerebrospinal fluid according to the ordinary procedures, but the liquid must not be heated. It is now known that besides tabes and general paralysis there is almost always a secondary luetic meningitis, and that the reaction of the cerebrospinal fluid will be distinctly influenced by energetic treatment. It happens, although perhaps less frequently than during the primary stage, before the appearance of the roseola, that the meninges may be involved late, so that at the end of treatment, after having obtained a negative blood reaction, the cerebrospinal fluid should also be examined, and one must not be content simply with a Wassermann of the blood.

PRIMARY SUBACUTE TUBERCULOUS PLEUROPERITONITIS.

Among the various manifestations of tuberculosis on the serous membranes, primary subacute tuberculous pleuroperitonitis, first individualized by Fernet, requires a place by itself. It should in particular be distinguished from acute pleuroperitonitis and the forms secondary to a visceral tuberculous lesion in evolution. Thus defined, it is clinically a distinct entity, usually occurring in robust and healthy individuals, but whose antecedents, when carefully gone into, will reveal the influence of many of the predisposing causes of tuberculosis, particularly heredity and alcoholism. The lymphatic origin of the affection maintained by the earlier writers on the subject should now probably give way to the blood theory, which better fits in with recent research work on tuberculous affections of hematogenous origin. Having entered the organism by the respiratory or digestive tract, the bacillus of tuberculosis, after having developed or not a latent lymph-node focus, travels by the circulation and colonizes on the serosa. The reason for this localization as yet escapes us, and only hypotheses can be offered, such as the preference of the tubercle bacillus for certain tissues of common origin or the fragility of the serosa. At all events, this granulosis undergoes its evolution in such a way that it can unquestionably be regarded as an evidence of attenuated infection and resistance of the organism. For that matter, this resistance may be forced, and the tuberculous infection then continues its evolution after this first phase. Although anatomically it is a miliary process, which can be differentiated from similar processes, it offers clinically, from the simple fact of its particular localization, a symptomatic *ensemble* which is always identical and of a distinctly special behavior.

Following upon indefinite prodromes, mild general and digestive disturbances, a slight ephemeral febrile state, an adhesive or ascitic peritonitis su-

pervenes, accompanied by pleural phenomena, with a small amount of fluid in the thorax. After the lapse of a few weeks the physical signs regress and the patient enters upon convalescence. But although the subject may be considered cured of his pleuroperitonitis, the tuberculous infection has not become arrested for all that. It may very well continue to undergo its evolution, and it not infrequently terminates in visceral localizations. Although the evolution may be favorable, a most guarded ultimate prognosis must be made.

The diagnosis of a tuberculous pleuroperitonitis is easy to make in most cases by an attentive examination of the patient, supplemented by laboratory research. After having distinguished acute pleuroperitonitides, polyseritides, and the hepatic cirrhoses, the physician should next establish the primary character of the process by a careful search for possible tuberculous foci undergoing their evolution in the organism. In this way one will be able to distinguish Fernet's syndrome from the secondary types, a matter which is of the greatest interest and importance from the viewpoint of the prognosis.

Incompatibility of Quinine and Aspirin.

Dr. Saenz de Santa Maria y Marron, writing in *El Siglo Medico* for October 12, relates that during a year's experience in the use of aspirin he has learned that the combination with quinine is an undesirable one. In giving remedies in combination we expect synergism in action, a result superior to that obtained by uncombined use. Failure to obtain a heightened effect is itself sufficient to do away with the combination. But in such combinations we may get failure of a higher type—either refusal of one remedy to act or else actual untoward result of some kind. The writer states that his expectation was often defrauded, and cites examples. There was one patient who was getting 25 cgms. of each drug three times daily, and who showed on the following day a severe tachycardia, restlessness, and adynamia. The case was one of influenza, in which, in the author's experience, the heart frequency is by no means unduly great, by reason of some action by the grip toxin on the vagus. The possibility of an idiosyncrasy was dashed by noting analogous behavior in a series of other cases. The problem was taken to the pharmaceutical laboratory, and the evidence appears to show that under the catalytic action of aspirin in the stomach or blood the quinine was changed to a toxic derivative which was termed quinotoxin. This latter, an isomer of quinine, appears to be known to chemists, and it has the reputation of being able to cause death. The brevity and vagueness of the article prevent a complete visualization of the author's notions on the subject, but he is opposed to polypharmacy on the principle that while one remedy may potentize another in some cases, there is also a danger that one remedy can denature another into a toxic substance. The lessons are plain, for every alleged synergistic combination must have this possibility excluded before use on man, and new substances must not be carelessly mixed with old ones.

Freedom from German Chemical Domination.

Among the compensations of the war, not the least has been the impetus given to chemical industries in this and other of the allied countries under the lash of necessity. The German-made stocks of dyes and drugs being exhausted, it was seen to be a question of making them here or going without. Salvarsan and neosalvarsan, novocain, aspirin, salipyrin, veronal, and other drugs have for some time been made here, usually under special names, and recently valerianic acid and the valerates have been added to the list of American-made products. It now rests with the physicians and pharmacists of the United States to prevent the strangling of this new industry by the German manufacturers, who will try to dump their wares here as soon as the war is over, underselling us for a time until our own manufacturers have been forced out of competition. Then the prices will go up, and Germany will again have us in economic thraldom. The time to prevent this is now, and the way to prevent it is to insist upon the use of American-made drugs only.

The New Directory.

The Medical Directory of New York, New Jersey, and Connecticut for 1918 made its appearance in December. The size of the work has been greatly reduced, to its very serious hurt. Among the omissions is that of the list of hospitals and dispensaries, and another most useful feature which has been dropped is the alphabetical list of physicians. These omissions, probably thought necessary because of the high price of print paper, have greatly impaired the value of the Directory; its beauty was spoiled several years ago by the adoption of a stiff paper cover with an incoercible tendency to warp. The new Directory contains the names of 18,481 physicians, of whom 2,723 reside in New Jersey, 1,435 in Connecticut, and 14,323 in New York, 7,921 of the latter being in New York City.

News of the Week.

New Governor Outlines Policy on Public Health Problems.—Governor Alfred E. Smith of New York, in his inaugural address made a number of recommendations in reference to social and public health legislation. He believes that it is of particular importance to the State to secure adequate protection for workers, especially women and children, and recommends the passage of legislation to lift labor out of the category of commodities or articles of commerce. He recommends the establishment of a minimum wage commission of three members which shall have the power to fix the minimum wage to be paid to women and children. Governor Smith would amend the compensation law in keeping with the constitutional provision, to the end that occupational diseases and injuries may be subject to its provisions. He strongly urges the enactment of a health insurance law which he believes will not only protect the wage earner in case of sickness but will also result in greater precautions being taken to prevent illness and disease and to eliminate the consequent waste to the State therefrom. Proper provision,

he says, should be made for maternity insurance on the interest of posterity and of the race.

Advocates Serum for Influenza.—Dr. Eugene R. Kelley, Commissioner of Health of the State of Massachusetts, has recommended to Governor Coolidge an additional appropriation of $5,000 for the instruction of physicians in the treatment of influenza and bronchopneumonia cases with the blood serum of persons who have had the disease. A commission appointed by Dr. Kelley to investigate the blood serum treatment report that at the Naval Hospital in Chelsea the mortality in influenza and pneumonia was markedly lowered after the introduction of the serum treatment. Dr. Kelley plans to have a number of physicians instructed in the use of the serum at the Naval Hospital and later to demonstrate the method in hospitals throughout the State.

Juvenile Crime Increases.—In her annual report as chief of the Children's Bureau, Miss Julia Lathrop states that more than 6,500,000 children have been weighed and graded in the Bureau's Children's Year Campaign to save at least 100,000 infant lives. The report shows that juvenile delinquency was increased in many cities by war conditions. Especially notable was the increase in the number carrying concealed weapons.

Automobile Fatalities in 1918.—The National Highways Protective Society, in its annual report, shows that the total toll taken by motor cars throughout the State of New York during the past year was 969 persons. The deaths from automobile accidents in New York City numbered 528, as against 417 for 1917. Of 441 fatal accidents outside the metropolitan area 416 occurred between April 1 and December 31, and only 25 between January 1 and March 31. Col. Edward S. Cornell, president of the society, recommends the enactment of a law in New York State similar to the statutes which have proved their worth in Connecticut, New Jersey, Massachusetts, and Maryland. The New Jersey law has been responsible for cutting down the number of fatal accidents from 245 in 1917 to 197 last year.

Hospital Asks Help.—Owing to the unusual demands made on its resources because of war conditions, St. Mark's Hospital, New York, states that it is urgently in need of money, and asks the public to come to its assistance. The hospital has recently increased its beds to 150. Last year, 126,227 patients were taken care of; 180,627 free hospital days of treatment were given, and the number of visits made by poor patients was 229,405.

Charges Against Hospital Management Unfounded.—The charges recently made against the financial management of the Bronx Hospital Association are characterized as preposterous and slanderous by the president of the proposed hospital, Dr. Alexander Goldman. The former manager of collections made the charge that as a result of waste of money, extravagance, and maladministration the greater part of $150,000, which was collected for the hospital fund, had been dissipated. Dr. Goldman states that less than one-third of this sum was collected, that the books of the institution have been carefully audited by a certified public accountant and are open to inspection, especially by the State Board of Charities. The latter organization states that it has no jurisdiction inasmuch as the Bronx Hospital Association has not accepted city or State funds. The Bronx Hospital Association purchased the old Eichlen mansion at Fulton Avenue and 169th Street last May, which it planned to equip as a hospital building by September 1.

Doctors Charge Illegal Conspiracy.—The Medical Association Realty Company, Inc., of Brooklyn, made up of twenty-five physicians, acquired property on St. Marks Avenue, where it planned to conduct a sanitarium. It is now bringing a damage suit for $50,000 against certain residents in the vicinity on charges of an alleged conspiracy to prevent the erection and maintenance of a sanitarium at 746 St. Marks Avenue. It is alleged that the defendants influenced the United States Title Guarantee Company to withhold a loan of $20,000 necessary to erect the sanitarium.

Influenza Again on Increase.—During the week ending January 4 there has been a recurrence of the influenza outbreak in New York City. The number of cases being reported daily to the Department of Health has suddenly increased from one to two hundred daily during the past four or five weeks to 415 on January 3 and 549 on January 4. The number of pneumonia cases also showed an increase for this period. Health Commissioner Dr. Royal S. Copeland prophesied that there would be an increase in influenza and pneumonia in New York as a result of the overcrowding and exposure incident to the celebration of the arrival of the United States Navy. A very decided recurrence of the epidemic is reported from Providence, R. I.

The New York Physicians' Association in its annual meeting elected the following officers: *President*, Dr. Israel Grushlaw; *First Vice-President*, Dr. John Morely Hitzrot; *Second Vice-President*, Dr. Samuel Kleinberg; *Treasurer*, Dr. Alfred Hellman; *Secretary*, Dr. Morris Grossman. The next meeting of the association will be held at the Chemists' Club on the night of January 23, 1919. Dr. Solis Cohen of Philadelphia will read a paper entitled "Lessons from the Two Grippe Pandemics."

Dr. Simon Flexner of the Rockefeller Institute for Medical Research, New York, has been appointed an officer of the Legion of Honor by the French Government. Dr. Flexner was also elected president of the American Association for the Advancement of Science, at its annual meeting in Baltimore, on December 27.

Dr. John P. Davin of this city has been mentioned as a possible nominee by Governor Smith for the office of drug commissioner. If we must have a State drug law, Dr. Davin would make a good commissioner, and the interests of the medical profession would be safe in his hands.

Obituary Notes.—Dr. JEREMIAH PHELAN of Brooklyn, N. Y., retired, a graduate of the Long Island Hospital Medical College, in 1884, died, after a year's illness, in St. Peter's Hospital, Brooklyn, on January 2, aged 60 years.

Dr. DONALD H. CURRIE of the United States Public Health Service, physician of the port of Boston, died at his home in Brookline, Mass., of pneumonia, following influenza, on December 23, aged 42 years. He was a graduate of Washington University Medi-

cal Department, St. Louis, Mo., in 1897, entered the United States Public Health Service in 1899, and served eight years in Hawaii, where he did research work among the lepers of Molokai, the value of which was recognized by medical men throughout the world. He was the United States representative to the Leprosy Congress in Bergen, Norway, in 1909. Dr. Currie was also associated with Dr. Rupert Blue in fighting the bubonic plague in San Francisco and yellow fever in New Orleans.

Dr. JOHN P. HUSSEY of Providence, R. I., died suddenly of acute indigestion and dilatation of the heart on December 19, aged 46 years. He was a graduate of the Georgetown Medical School in 1903.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

REHOUSING AND MEDICINE — THE PURCHASE OF GLYCERIN AND ALCOHOL—THE INCIDENCE OF DENTAL CARIES—DEATH OF DR. GEORGE OGILVIE—WHEN IS A MAN DRUNK IN THE EYES OF THE LAW?

LONDON, December 21, 1918.

COMMON to nearly all the election addresses of parliamentary candidates, male and female, was the promise to support in every conceivable way a Government scheme for rehousing. What the actual shortage of houses may be no one can say, while it is clear that different people will have different standards not only as to the amount of houses that must be built but as to the quality of house property which ought to be abolished. Further, while many persons already find it extremely difficult to get houses where their business lies, many other persons are grossly overhoused. The former class by gradual backward pressure, using up too much space both in town and countries, give rise to the domestic overcrowding, at the periphery of poverty, which lies at the root of so much physical pain and disease. The overhoused form a standing argument for the doctrines of extreme socialism, along which lines at the present moment imperial progress will hardly be made. Where everybody wants to tidy up everything simultaneously, nothing can happen but muddle and no rehousing scheme, dependent upon an evident dispossession of the wealthy, will take place. The medical profession is profoundly interested in the immediate starting of practical schemes for the rehousing of the poor and do not want to wait for the millennium. The best efforts of preventive medicine are defeated by the domestic environment in which twenty-five per cent. of the population of these islands reside, and, what is more dangerous, other measures of preventive medicine are paralyzed naturally, though quite unnecessarily, by the feeling that they will be ineffective when administered in the existing lamentable environment. The Local Government Board has issued a circular with reference to the housing of the working classes in which the extreme urgency of the matter is referred to, remembering the problems which will arise in connection with demobilization and the setting free of labor and materials for civil purposes. Of course it does not matter what grounds the Local Government Board gives for urgency, but to medical men it will seem that far more urgent reasons than those alleged have been rampant for years. The work of preventive medicine has been hindered for example. The Board has circularized the Councils of Metropolitan Boroughs, and the urban and district councils, those being the three forms of local authority, and requested definite information as to whether the local authority will provide the houses necessary for the working classes of their own district at an early date in accordance with the Board's terms, and when any building schemes will be ready for submission. The circular also asks how many houses will be provided; if the sites have been selected or acquired; and if there is any work such as the development of sites and construction of roads, sewers, etc., awaiting approval. Upon this information the President of the Local Government Board should be in a position to advise the Government as to whether the local authorities can be relied upon to provide the necessary houses, or whether other measures must be taken to ensure their provision; and it is the general belief that the latter course will be necessary. The housing question is not considered to have received adequate attention from the late President of the Local Government Board, Mr. Hayes Fisher, the activity of the Department bearing no relation to the importance of the information placed in its possession by local authorities over a year ago. At that time nearly 1400 local authorities replied to a departmental questionnaire that houses were needed within their areas, and of these over a thousand intimated their willingness to build, and the joint result of these replies was an estimate from the Local Government Board that about a quarter of a million houses would be required. One year later, namely, last summer, it turns out that definite building schemes for eight thousand houses, meeting the needs of eighty-four local authroities, have been approved, while the plans for the building of eight thousand other houses are awaiting revision. Shortly after this position of the housing question was revealed, Mr. Hayes Fisher resigned in favor of Sir A. Geddes. It seems fairly clear that at such a rate of progress, the further measures contemplated will have to be taken. The metropolis seems to have been more generally progressive than the provincial centers and for once in a way in a public health problem aggregation of material has not in itself been a drawback. The Housing Committee of the London County Council has reported that 92 metropolitan authorities have resolved at a conference that all the local authorities of Greater London should cooperate in working out housing schemes. In view of the difficulties of building anticipated for seven years after the war, and the high cost of slum property, the Conference went on to urge legislation for accelerating and cheapening the acquisition of such property. Legislation along this difficult path has been promised for many years, and many of those medical men who take an interest in current politics believe that this is the most promising direction in which to speed up great rehousing schemes. The housing ques-

tion is undoubtedly at the bottom a question of access to land, both for the site of the house and for the materials so that the opening up of land is an absolute necessity.

The Ministry of Munitions, whose activities are now coming to a close, has just made public notification that the purchase of glycerin and alcohol for domestic purposes is again legitimate, subject to the conditions under the Board of Customs and Excise in the case of the latter commodity. The manufacturers should now be able to obtain their requirement of alcohol for industrial purposes, but in Great Britain the finer chemical industries and extensive research alike suffer under the inability to purchase alcohol at a reasonable rate. Pharmacologists will welcome the presence of glycerin among things that can be prescribed and employed freely.

Major Nickolls Dunn, of the Horton War Hospital, Epsom, makes an urgent plea for a thorough examination, if necessary, through the medium of a royal or departmental position, into the cause of dental caries. This has been often done before but Major Dunn makes the shrewd plea that if the inquiry were held *now* the etiology could be very satisfactorily discussed because such a large number of the subjects have clearly not been subjected to one of the two causes, to which dental caries is most usually attributed, viz., abuse of sugar, and use of white flour. Sugar has been at a very low ration for some time and no children under four, and probably under five years, can possibly have had too much. White flour has also been prohibited, and only flour in which a high percentage of husk remained could be obtained. Yet caries continues. Major Dunn asks: Why does the tooth, the hardest part of the body, rot in the nursery and the school room? and the question badly needs answering. The misery due to dental caries has been extreme among the soldiers when serving in distant zones of war where proper dental attention could not be obtained; and even where facilities for remedial interference might have been expected, they were not full provided for the whole country is short of qualified dentists. The question of making it illegal to act as a dentist without a qualification is a difficult one. Some say that if an act penalizing the unqualified were passed the improved prospect of the qualified would lead to a swelling of their ranks. Others point out that qualified men could never be expected to practise dentisty as a single profession in a thinly peopled locality unless he made his fees high—when probably no one would support him, and *sub rosâ* quacking would reappear.

The death is announced at the age of 66 of Dr. George Ogilvie, who was for many years a well-known London consulting physician, with a remarkably cosmopolitan practice. He was educated at the University of Edinburgh, but made full use of the linguistic opportunities offered by much post-graduate work in Paris and Vienna, and became a fluent conversationalist in French and German. Later he learned Spanish, and in all three languages his services were generally used by the medical profession when it was necessary to address foreign medical guests in their own tongue. Ogilvie made these speeches very happily.

The transactions of the Medico Legal Society over the period of the war, *i.e.* 1915-1918, have just been published and among the papers will be found an interesting essay, entitled, "Drunk in the Eyes of the Law," by Dr. F. J. Smith, physician to the London Hospital, and the president-elect of the society. The whole question of what is meant by "drunk" becomes a difficult one when drunkenness, as so often happens, complicates an illegal action. How great an effect must be produced by alcohol upon a person before he can be called "drunk" and receive the benefits or pains attached to the condition? Some medical men have one standard and some another, and Dr. Smith urges that the question which the Inebriety Act in Section 1, requires to have answered is: "Would the accused have done what he did do if he had not taken the alcohol?" The evidence which the doctor can collect as to confusion of ideas, slurring of speech, want of due balance of body, and so on may form contributory proof that the suspected individual is under the influence of liquor, and from such evidence the basic question can be answered by the medical men up to a certain point, beyond which the examiner will have to form individual conclusions. But Dr. Smith's definition of the term will have great use in law courts if it becomes accepted, because there will be no quarrel among rival witnesses as to how drunk a person is, the only question being did he do the thing *because*, and *only because* he had had alcohol.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

INFLUENZA—THE FIRST TRAIN FOR LILLE—GERMAN ATROCITIES AT LILLE—THE THERAPEUTIC USES OF PIE—STUDY FOR THE SOLDIERS KEPT IN FRANCE.

PARIS, December 2, 1918.

THE decrease in the influenza epidemic in Paris turns out to have been more apparent than real. The number of deaths during the 43d week (ending October 26) of the year was the largest since the beginning of the epidemic. The daily returns for the 27th, 28th and 29th show an increase, the 29th having a total of 230. It appears from particulars of ages that the greatest mortality is among adults between 20 and 50 and that women pay a greater tribute than men. The figures are: Up to 2 years, 16 males, 10 females; from 2 to 9 years, 12 males, 36 females; from 10 to 19, 68 males, 98 females; from 20 to 39, 212 males, 493 females; from 40 to 59, 100 males, 122 females; 60 and over, 38 males, 58 females; total, 446 males, 817 females.

The first train for Lille left the Gare du Nord on Sunday evening. The station bore a holiday aspect. Many refugees who, as every Sunday, came from different meeting places to crowd the railroad trains were eager to be among the first to leave for the recently liberated capital of French Flanders.

Regular trains are not yet running on the old schedule passing through Longueau, Amiens, Arras, Douai, and Lille. It is necessary first that the roads be put into condition to permit the maintaining of a regular service. The train for Lille is the Calais train. One may now leave Paris at 8.05 o'clock, arriving at Calais at 6.43, reboarding the train at 7.15

for Saint André, on the outskirts of Lille, at 10 o'clock in the morning. For the present the train cannot go farther.

There were numerous passengers on the 8.50 train, but only a few held the coveted tickets (that a great many collectors would be happy to obtain). The manager had issued fifty-one tickets for Lille, as one cannot go there without the necessary authorizations of the Prefect of Police, certified by the British Staff Office. The few inhabitants of Lille, the first to be permitted to go back to that city, were afforded comforts. Joy was seen radiant in their faces. Some of them cried, so great was their emotion. The hour approached, the moment of last confusion. The doors were closed. Along the length of the platform a guard shouted: "Passengers for Lille, all aboard!" Exclamations of joy were raised as each one repeated: "Lille! All aboard!" It was fifty months ago since they had heard that shout in the great station.

The permanent secretary of the Academy of Medicine at the last meeting read an address signed by the savants of Lille detailing and protesting against the atrocities committed by the Germans during their occupation of that city. It will remain for history, said they, to judge of the destruction, the incendiarism and all of the other ruthless acts which may be attributed to acts of war, but they registered their protest, said they, against the deportations and against the tortures inflicted upon the civil population. During the Easter season of 1916 ten thousand young girls and women were torn from firesides and carried into Germany, where they were subjected to such shameful treatment as to be unspeakable and were treated no better than if they were beasts. The slightest protest on their part was instantly visited by violence without ceasing.

At a little later period they arrested the young men and all of the girls between 18 and 14, as well as the aged men, and put them to work in the front lines subjected to the fire of their own people. Many were killed.

Then came the selection of 1,000 hostages, 400 of which were women chosen from the intellectual and élite of the city. They were compelled to travel 8 days and 8 nights crowded into freight cars, and were thus conducted into Poland in mid-winter, and as an act of reprisal were compelled to work in occupations of the most degrading character. A great number of this martyred company succumbed. We can never pardon nor can we ever forget this flagrant violation of human rights. For these unspeakable outrages, planned and executed with studied cruelty by General Solner and his aide-de-camp, Colonel Hemmel, the German people can be held responsible, as the soldiers in general participated in all of them.

The Academy was profoundly moved by the reading of this letter, and immediately appointed a committee to prepare the reply which follows and which was voted without a dissenting voice: "The Academy is deeply moved by the letter signed and sent to them by their brother savants of Lille. The Academy has decided with them to cease all relations with the German savants who do not solemnly declare that they actively opposed the inhuman actions of their compatriots. The Academy bears an inexpressible admiration and desires to offer its united and brotherly salutation to the noble souls so cruelly subjected to the unspeakable horrors of a brutalized enemy."

Doctor Capitan presented at this meeting a report of exceeding interest on grippe with grave complications of bronchopneumonia. He treated with two remedies 208 cases in his service, one remedy being arsenic and the other colloidal silver, but of 40 cases which were considered as hopeless he succeeded in saving 50 per cent. Immediately following the injections the temperature fell and remained at normal after a period of 2 or 3 days. The pulmonary congestion rapidly disappeared with a profuse expectoration.

Pie is not among the articles treated of in works on materia medica, but a recent incident shows that it may have therapeutic value. In a hospital lay an American sailor, for whom everything had been done by surgeons, doctors, and nurses, and yet something was lacking. He was homesick; his mind was ever away in a little Atlantic coast town. Nothing that the good people this side of the world could do could console him. It was home that he craved, and his yearning thoughts groped for a symbol—a visible, tangible token of far-away Massachusetts. He wanted something that he could touch and say to himself: "This is a bit of home." One day, in the midst of his bodily pain and soul-suffering, there flashed upon him the object of his quest, and he murmured excitedly: "Oh, if I could only have a piece of mince pie." It was not that he wanted to eat a piece of pie, for he was too ill for that. His hunger was for what the pie represented. An American nurse who heard the wish managed, with some difficulty, to find all the ingredients for a real New England pie. When she took it to him she put with it a bit of cheese, also hard to procure in these times, so that nothing would be lacking, and in the cheese she planted a miniature Stars and Stripes. The poor boy could eat neither the pie nor the cheese, but they contributed just the home touch needed to improve his condition. When the wife of the American Consul General visited him a few days ago she remarked upon the improvement in his condition, and he said: "Two days ago I was in such misery that I could have welcomed death. Now I feel that America is not so far away as I thought and that I have got to hang on."

And more and more the boys are learning to pass the days and weeks of convalescence from their wounds in healthful reading and study. A thirst for knowledge, and especially for technical training, is everywhere being produced among young Americans by the experience of war. This fact led a distinguished visitor this week to ask the question: "What is to be done for the many thousands of American soldiers who will necessarily remain in Europe for some time after the cessation of hostilities?" It has been suggested that the great American universities, and especially the technical schools, may be led to establish courses of instruction for the Americans, perhaps in connection with the French and British universities, so that the soldiers may return to America better equipped than ever before to fulfil their part in the new era of national life.

146 Avenue des Champs Elysées.

Progress of Medical Science.

New York Medical Journal.

December 28, 1918.

1. Preventive Medicine and the Reconstruction of the Race. Frederick Peterson.
2. Results of Treatment in Six Hundred Cases of Appendicitis. Paul La Roque.
3. A Bolshevik Bolus (Concluded). William P. Cunningham.
4. Suggestions for the Use of Certificates Showing Previous Infections in the Control of Communicable Diseases. Isaac W. Brewer.
5. Orthopedic Reconstruction Work on Hand and Forearm. A. Steindler.
6. Successful Extraction of an Opaque and Dislocated Crystalline Lens. Lieut. Howard F. Hansell.

Journal of the American Medical Association.

December 28, 1918.

1. Prophylactic Inoculation Against Pneumonia: A Brief History and the Present Status of the Procedure. E. A. Fennel.
2. An Experimental Study of the Surgery of Large Arteries: Aneurysm: The Placing of Musculofascial Inserts Within and Their Use in Patching Arteries. Frederick C. Herrick.
3. Chronic Arsenic Poisoning on a Farm: Report of a Case. Samuel Ayres, Jr.
4. Treatment of Tetanus; Report of Case. Manuel D. Rojas.
5. Method for the Isolation and Rapid Identification of Dysenteric Bacilli. I. J. Kligler and Peter K. Olitsky.
6. The Effect of "Ground Glass" on the Gastro-Intestinal Tract of Dogs. J. S. Simmons and Wm. C. von Glahn.
7. Observations on an Epidemic of Bronchopneumonia in Omaha. A. D. Dunn.
8. Phlegmonous Gastritis: Report of Case. F. I. Shatara.
9. The Incidence of Typhoid Carriers in a State Insane Asylum. Charles Krumweide, Jr., and E. M. Somers.

1. Prophylactic Inoculation Against Pneumonia: A Brief History and the Present Status of the Procedure.—E. A. Fennel gives a brief historical review of this subject, showing how the discovery of Neufeld and Händel, in 1909, that a certain strain of disease producing pneumococci could stimulate, in an animal, a specific immunity response to that one particular strain, led to an investigation of the groups into which pneumococci might be divided, on a basis of their ability to stimulate *specific* antibody production. Classifications of these groups were published independently by Dochez and Gillespie in America and by Lister in South Africa. The four groups of the American observers are well known, but Lister on account of the greater multiplicity of groups prevalent in South Africa was able to carry his classification further, *i.e.* into ten groups of pneumococci classified according to their group antigen qualities and another unclassified group "X" into which he places strains which give rise to no antibody production when injected into animals. Of these groups, A, B, and C are of prime importance on the Rand, while group H, in a localized epidemic, suddenly sprang into prominence. The relative importance of these types, as measured by the incidence and mortality of the pneumonias caused by them, varies from time to time and with localities, a fact which might have received more recognition than it has. This point was well illustrated in the influenza pandemic, and attention was drawn to it by Friedlander and his coworkers, who found an incidence of about 80 per cent. of Type IV in their pneumonias at Camp Sherman. The results obtained by Lister in his work on pneumococcal vaccination are startling, and his Crown Mine Experiment is of particular interest. During a nine months' period approximately 11,000 natives were inoculated with a vaccine that included groups A, B, and C. Eighty-two cases of lobar pneumonia resulted, but not a single case was caused by any one of the three groups contained in the vaccine. Had the prevalence of these groups remained constant with the other types, cases due to these groups A, B, and C to the number of 120 would have developed. It would seem from Lister's observations that an effective vaccine should be almost 100 per cent. efficient for the specific types. Lister inclines to large doses and considers a total of 6,000 million cocci as the minimum; three inoculations at intervals of seven days are necessary. The work of Lister has been confirmed in this country by Cecil and Austin, who prepared a saline pneumococcal vaccine of Types I, II, and III, which was used at Camp Upton to vaccinate 12,519 men. The vaccination of troops began February 4, 1918, and was continued for about ten weeks; three inoculations were given at seven day intervals, except in cases which showed a marked reaction after the first or second dose, when inoculation was discontinued. The results showed that Types I, II, and III vaccine seemed to prevent cases of pneumonia due to those types and also caused an apparent protection against Type IV and against *S. hemolyticus* and *S. viridans*. Fennel suggests that this apparent protection may be due to a mobilization of ferments and leucocytes caused by the injection of foreign protein and therefore increased natural resistance, or that the change in ferment-antiferment balance has conferred on the individual, besides a specific immunity, an additional resistance against a large number of other bacterial invaders. Saline vaccines, however, have the disadvantage of rapid autolysis; furthermore, saline injections are frequently followed by a sharp reaction. These disadvantages are overcome by the use of lipovaccines, which may be given in massive doses; and it would seem that that oil not only retards absorption but reduces toxicity. A triple pneumococcus lipovaccine has been perfected and is now in use in the military camps. Such a vaccine is rather more laborious to produce than the saline vaccine, and the necessary equipment is more expensive. While it is too early to judge of the results of inoculations—during October and November, 1918, the Army Medical School prepared and sent out more than two million doses of vaccine—in addition to the specific immunity conferred, a freedom from respiratory diseases in general seems to have followed the use of the vaccine. Experiments would seem to show that lipovaccines render the mouse more susceptible to large doses of streptococci, but more resistant to smaller doses; and this may explain some of the so-called "cross-protection" results. The author concludes: (1) That prophylactic pneumococcus vaccination is successful over an extended period of time for those groups represented in the vaccine. (2) That a pneumococcus lipovaccine, of slight toxicity, to be given at one injection, has been elaborated, and has had widespread use, and that early reports indicate its usefulness.

The Lancet.

December 7, 1918.

1. An Experimental Study of the Influence of Diet on Teeth Formation. May Mellanby.
2. Treatment of Antenatal and Postnatal Syphilis. John Adams.
3. An Investigation of the Antiscorbutic Value of the Raw Juices of Root Vegetables with a View to Their Adoption as an Adjunct to the Dietary of Infants. Harriette Chick and Mabel Rhodes.
4. Hemorrhagic Bronchitis: Castellani's Bronchopulmonary Spirochetosis. H. Violle.
5. Local Anesthesia and Twilight Sleep in the Surgery of Exophthalmic Goiter. S. H. Rouquette.
6. The Treatment of Extensive Septic Wounds. H. Gardiner.

4. Hemorrhagic Bronchitis: Castellani's Bronchopulmonary Spirochetosis.—H. Violle found a number of cases of broncho-spirochetosis in France in 1916. At Toulon a comparatively large number of cases occurred among native troops from the Far East, and also in Europeans. The disease was first discovered by Castellani in Ceylon in 1905 and since then has been noted by various observers in the West Indies, the Philippine Islands, India, and other tropical countries. The symptoms observed by the author in France were: Hemoptysis, the case generally having been diagnosed as tuberculosis, and the expectoration being of a peculiar vivid pink; and frequent cough, worse at night. Physical examination of the chest often revealed little or nothing; in some cases there were signs of bronchitis with or without emphysema, or signs of consolidation. The general condition of the patient was often good, and frequently there was no fever. There may be a slight degree of anemia in such cases but the number of leucocytes is normal, as is also the leucocyte formula. Microscopical examination of sputum reveals enormous numbers of the *Spirocheta bronchialis*, an organism which varies in length, shape, and number of spirals. The length may be from 4 to 30 microns, and is usually from 7 to 14. According to Fantham, the medium forms are derived from long ones by transverse divi-

sion. Certain of the spirochetes have very few spirals; others have a large number very close together. This spirochete has not yet been cultivated. The author has not been able to reproduce the disease in rabbits, guinea pigs or pigeons, but Chalmers and O'Farrell have done so in a monkey by intratracheal injections. The disease is very contagious, probably by means of "coccoid bodies" derived from the spirochetes. The author believes that this spirochete may be present in small numbers in many individuals, as is the case with the pneumococcus, and that with lowered vitality of the tissues they may multiply and invade the whole of the bronchopulmonary system. In regard to the possibility of infection spreading from the mouth to the bronchi, none of the author's patients had any mouth lesions of spirochetal origin and their teeth and gums were in good condition. Diagnosis is based on finding the *S. bronchialis* in the expectoration in the absence of the tubercle bacillus, of hyphomycetes and of ova of *Paragonimus westermanii*, Kerbert. Clinically, if a patient exhibits bloody expectoration of a vivid pink color and is in good health, broncho-spirochetosis should be suspected. Cases of mixed infection occasionally occur. Prognosis, as a rule, is favorable. Symptoms may disappear in three to four weeks. Relapses seem to be frequent, and chronic forms occur with mucopurulent, greenish, or bloody expectoration. In many cases, rest, nourishing diet, and country air effect a cure. Ergotine and tr. iod., a few drops well diluted, should be given if hemoptysis is severe; and if there is much secretion and cough is painful, opium preparations may be given. Arsenic and tartar emetic and arsenobenzol have been used in treatment and may be indicated in chronic cases. The possibility of this disease should be remembered in cases of hemoptysis. Correct diagnosis is important, not only to relieve the patient's mind of the fear of tuberculosis, but also from a medicolegal standpoint, since tuberculosis entails permanent discharge from the Army with pension whereas bronchial spirochetosis merely means a few weeks rest for the patient.

6. The Treatment of Extensive Septic Wounds.—H. Gardiner describes a method of treatment for septic wounds with extensive discharge without a permanent dressing. Incisions and openings are made as usual but with the idea of obtaining the maximum effect of gravity in the subsequent treatment. The wound is then packed with gauze and bandaged in the usual way in order to stop oozing of blood. Forty-eight hours later all dressings are removed. The wound is syringed with a mild antiseptic, and a guard of perforated zinc cut to appropriate size and bent in the form of a cradle, placed over the wound and covered with a sterilized towel. If possible, an ordinary cradle is placed over the whole. The discharge is allowed to run out from the wound and is taken up by a sterile pad of wool or spagnum moss, placed so as not to touch the wound. The wound is then syringed and swabbed at intervals, on an average twice a day. This treatment is continued until all pockets and recesses have been closed by granulation, the granulated surface is smooth, and the discharge has practically ceased. The wound is then dressed in the ordinary way with gauze and wool. The difficulties experienced in this method of treatment have been threefold: (1) The difficulty of arranging the wound by operation for opening pockets and of altering the position of the patient so as to obtain the greatest effect of gravity; this may be partly overcome by the judicious use of gauze wicks and by frequent cleansing of the wound by syringing. (2) The difficulty of continuing the treatment at night, when patient is restless. The limb may be placed in a splint or an ordinary dressing and bandage applied at night in cases where it is necessary. (3) It is difficult to keep the neck and side of the trunk covered at night. In some cases a rampart of spagnum moss may be built up round the wound and kept in place with a towel or bandage. The advantages of the method indicated are: (1) Perfectly free drainage. (2) Absence of tendency to pocket, provided the wound is exposed and arranged so as to allow gravity its maximum effect. (3) Absolute painlessness of dressing even the most extensive wounds. (4) Dressing can be performed without manipulation of the wounded part. (5) A great economy in dressings is effected. The author points out that the edges of wounds so treated may tend to become hardened and small scabs may develop. These should be removed at once and can usually be prevented from forming altogether by careful cleansing and swabbing of the wound. In case of deep pockets in the wound, a rubber drainage tube should be employed to prevent premature closure.

British Medical Journal.

December 7, 1918.

1. The Bent Back of Soldiers. Lieut.-Col. A. F. Hurst.
2. Some Remarks on the Morbid Anatomy and Histology of Rheumatoid Arthritis. T. P. S. Strangeways.
3. Observations on the Cause of Rickets. D. Noel Paton, Leonard Findlay, and Alexander Watson.
4. Vanghetti's Operation. Major W. F. Brook.
5. Hysterical Tremor. Major W. Johnson.
6. Preliminary Note on the Complement Deviation in Cases of Malaria: A New Aid to Diagnosis. Captain J. Gordon Thomson.

3. Observations on the Cause of Rickets.—D. Noel Paton, Leonard Findlay, and Alexander Watson were led to produce rickets in a number of young dogs on account of the difficulty of getting satisfactory material from children to enable them to carry out their investigations on calcium metabolism in this disease. Previous observations made in the same laboratory—the Physiological Laboratory of the University of Glasgow—had shown that rickets could be induced by simply keeping the pups in the animal house. It had also been shown that thymusectomy had no effect on the onset of the disease, and an extensive study of factors in the causation of rickets had seemed to show that some factor other than diet was involved. As a result of their own investigations the authors found: (1) That pups kept in the country and freely exercised in the open air, although they had actually a smaller amount of milk fat than those kept in the laboratory, remained free of rickets, while the animals kept in the laboratory all became rickety. The observations seemed to show that some other factor than diet is the prime cause of rickets in dogs, and afforded no evidence that milk fat (butter) contains any accessory factor protecting against the development of rickets.

6. Preliminary Note on the Complement Deviation in Cases of Malaria: A New Aid to Diagnosis.—Captain J. Gordon Thomson has succeeded in preparing a specific antigen for malaria in the following manner: He made a culture of malaria parasites from a heavily infected case according to the method described by J. G. and D. Thomson (1913). After twenty-four to forty-eight hours' incubation, the supernatant fluid was pipetted off and an excess of distilled water added to the remaining corpuscles. This was then shaken up and centrifuged, the supernatant fluid being removed each time. This process was repeated until the fluid was quite free from hemoglobin. The sediment at the bottom of the centrifuge tube then consisted of the bodies of malarial parasites, the washed envelopes of red cells, and leucocytes. This sediment was then dissolved in as small a quantity of decinormal sodium hydrate as possible, and a straw-colored viscid fluid obtained. This was neutralized by adding normal hydrochloric acid solution drop by drop. The more numerous the malarial parasites and the less fluid used in dissolving them, the stronger the antigen will be. This solution was then diluted ten times with normal saline and its anticomplementary action tested by titration with varying dilutions of guinea-pig's serum. Further dilutions should be carried out until an antigen is obtained which does not of itself prevent the action of complement. This antigen was found to act well diluted 1 in 30 with normal saline. Its anticomplementary powers were found to vary enormously and it may be necessary to dilute the original antigen one hundred times. The higher the dilution, of course, the weaker the antigen, and the aim should be to obtain as strong an antigen as possible which is not too anticomplementary. The author has used an antigen composed of ten different strains of benign tertian malarial parasites with satisfactory results; it gave a positive reaction with known cases of benign and malignant tertian malaria. The antigen must be titrated before use to estimate the minimum dose of complement required. Patient's serum is diluted 1 in 10 with normal saline, and for

each serum four test tubes are put up, three containing antigen and the fourth being the serum control. Two and a half, three, and three and a half doses of complement are introduced into the tubes containing antigen, and two and a half doses are added to the serum control. An antigen control is put up with each series. The method used is long fixation in the cold, the tests being kept overnight in the ice chest. In the morning the sensitized red cells are introduced and the results read after fifteen minutes in the water bath at 37° C. Readings must be carefully taken immediately after the negative controls; serum and antigen controls show complete hemolysis. The author has performed tests on the serums of 200 known cases of benign and malignant tertian malaria, with and without parasites in the peripheral blood, and at all stages of treatment by quinine. Positive results were obtained after short courses of treatment and in some cases after a considerable amount of treatment; but the reaction becomes weaker. As a rule, after prolonged treatment and in cases where there has been no attack of malaria for many months, the result was negative. Great care is essential in the performance of this test; the serum should be drawn with aseptic precautions into sterile tubes and should be used as soon as possible after being taken from the patient. Serums of syphilitic patients give a positive result and therefore this disease must be excluded. This preliminary note is published by the author so that others may make collateral studies with a view to obtaining a test sufficiently delicate to indicate complete or nearly complete recovery in the case of a patient who has been suffering from malaria.

Münchener medizinische Wochenschrift.

October 22, 1918.

The Diagnosis of Syphilis by the Sachs-Georgi Precipitation Method.—M. Mandelbaum has very greatly simplified the technique of the diagnosis of syphilis by flocculation. Three drops of fresh human non-inactivated serum are mixed with one cubic centimeter of a NaCl solution and inactivated by heating at 56°C, for one-half hour. Then half a cubic centimeter of a cholesterinated extract of calf's heart, to a dilution of 1/6, is placed in the oven for two hours and then allowed to remain during the night at the room temperature. The flocculation represents a positive result. The results offer a concordance with Wassermann's reaction in some 91 per cent. of the cases. It is more sensitive and also much more simple than the original procedure of Sachs and Georgi, who utilized, in principle, the precipitation of the globulins under the favorable action of cholesterin.

The Heart in Myxedema.—H. Zoudek describes the radiological and the electrocardiographic changes of the heart in cardiac insufficiency of thyroid origin. By the use of the fluoroscopic screen the writer detected a dilatation of the heart on both the right and left sides, attaining considerable dimensions. At the same time the contours were irregular and the contractions only slightly visible. There was bradycardia with a normal systolic tension. An appropriate opotherapeutic treatment resulted in a decrease of the cardiac diameters quite as striking as the psychic improvement resulting from the treatment. The number of pulsations, likewise their amplitude, was increased. Zoudek is of the opinion that there is a direct action of the thyroidine on the myocardium. The electrocardiogram of the myxedematous heart denotes an absence of an auricular wave as well as a telesystolic wave. Here, again, opotherapy causes the normal type of contraction to reappear.

Radioscopy.—H. Chaoul describes a radioscopic apparatus which can be used in daylight. It is a kind of dark room, the image on the screen is reflected by a visible mirror through a lateral opening. The screen can be replaced at no matter what moment by a photographic box, which allows one to seize exactly upon the instant that a radiography presents its optima. The same apparatus allows one to reduce a dislocation or a fracture under the permanent control of radioscopy and avoiding any maneuver in darkness.

Deutsche medizinische Wochenschrift.

October 24, 1918.

An Experimental Study on the Treatment of Spirochetal Diseases with Salvarsan.—W. Kolle offers a really important paper giving the results of his researches which are the continuation of the work carried out in Ehrlich's laboratories. The new combinations constructed chemically according to *a priori* reasonings were experimentally essayed in rabbits. For this purpose, Kolle possessed a strain of spirochetes acclimated to the rabbit, which transmitted syphilis by inoculation experiments from one animal to another, sometimes even by coitus. The period of inoculation in the rabbit is from twenty to twenty-five days. The majority of untreated animals offered general manifestations of the disease comparable to secondary manifestations in man. The new preparations were experimented with in inoculated rabbits from the viewpoint both of their toxicity and their therapeutic action (estimated by the disappearance of the spirocheta, the possibility of reinfections, etc., the serologic reactions being inapplicable in rabbits). The chemio-therapeutic quotient allows one to estimate the value of each medicament, abstraction being made of the difficulties in applying to man the experimental results obtained in the rabbit. The quotient is represented by a numerator: the smallest curative dose, and a denominator: the largest dose tolerated. It is all the smaller the greater the utilizability of the given preparation. The various products studied were salvarsan, neosalvarsan, galyl (French), and finally salvarsan-silver-sodium, which the writer calls excellent and which possesses the lowest quotient (1/25-1/30) and is readily soluble. It also offers a neutral reaction. The writer proposes to publish the therapeutic results obtained in man with this product in an article to follow. He likewise announces a new product which he mysteriously designates Salvarsan 1495, but says its composition "cannot be revealed on account of the enemy."

The Bacteriology of the Present Influenza Epidemic.—F. Neufelol and P. Papamarku conclude that Pfeiffer's bacillus is the pathogenic agent of the pandemic.

The Culture of the Influenza Bacillus.—K. Hundeshagen recalls the fact that Pfeiffer's bacillus grows particularly well when cultivated with other bacteria. Theoretical considerations led the writer to add hemolyzed red blood corpuscles to the culture media which possess the same action as the added bacteria and favor the growth of the Pfeiffer to a great extent.

Wiener medizinische Wochenschrift.

September 14, 1918.

The Appreciation of Visual Defects in Its Relation to Expert Examination in Cases of Demands for Damage During War.—E. Klauber merely recalls the difficulty of determining in certain cases the part played by an affection acquired during the war and from the fact of the war and that of spontaneous disease. Thus, in the class of advanced age, the majority of cases of physiological presbyopia are the object of requests for indemnity, for the simple and only reason that soldiers attribute all that may have happened to them to the war. The writer recommends an expert examination of the ocular status of every demobilized soldier, in order to utilize it as a basis for any ulterior demand for indemnity.

Urethral War Wounds.—E. von Hofmann relates fifteen cases of wounds of the urethra. The writer does not offer any new surgical procedures, a fact that has been most striking both in German and Austrian medical literature since the war commenced. Hofmann estimates the total mortality of urethral wounds at 26 per cent. Urethral wounds, uncomplicated by fractures, intestinal lesions, etc., do not give rise to death. On the other hand, in wounds of the urethra complicated by other lesions, the death rate reaches 57 per cent.

Il Policlinico.

October 20, 1918.

Influenza Still Exists in Italy.—Micheli and Satta write of the current epidemic of influenza in connec-

tion with a research on the occurrence of three-day fever during the past three summers. While in Spain the pandemic came and went very quickly the disease in Italy goes back to about the same date but new foci continue to crop out. There were evidences of the disease in May and June, but it was not until the end of July that especially in the Piedmont region a sharp recrudescence took place, after the former visitation had been pronounced extinct. The three-day fever still was recognizable, and upon this basis, as it were, influenza rapidly spread under conditions favorable for epidemicity. Unlike the earlier visitation the disease created alarm from its extreme contagiousness and severe type. There could be no doubt that it was the old influenza of 1889, detail for detail. Pneumonic complications were present in from 10 to 15 per cent. The favorite age incidence was 17 to 40. The elderly and invalid furnished some of the deaths. During the first month of the revived disease the case mortality was 5 per cent. The autopsies showed remarkable correspondence of type. The authors profess to have evidence that the first beginnings of the influenza in Spain were at the end of April instead of the end of May. Should this be the case much could be accounted for which has been obscure. The malady could have spread to France and Italy by May or contemporaneously with the great explosion in Spain. The authors therefore think the name Spanish Influenza should stand. The benignity of the Spanish pandemic and the earlier cases in adjoining countries is also an argument for the Spanish origin, for the earliest outbreak has usually been mild. The increasing virulence is shown as the disease reaches Germany and Switzerland, and in the late summer outbreak in parts of Italy. The confusion between the first Italian cases in May and June with three-day fever is eloquent proof of its mildness at that period. The latent interval in Italy between the mild and severe type was about one month.

Correspondenz-Blatt für Schweizer Aerzte.

October 19, 1918.

Treatment of Severe Influenza with Convalescent Serum.—Liebmann states that at the end of June the severe character of the epidemic began to be recognized, with especial reference to lung complications and septic phenomena. Deaths began to accumulate with the final picture of extreme intoxication. Everything possible was tested, including convalescent serum. Do these patients secure any immunity toward new infection? If not, this serum would not be rationally indicated. The majority of patients do develop immunity of some sort or degree. It would indeed seem that recovery in the severe cases would be impossible without the development of antibodies. One writer, Scholz, saw no benefit from convalescent serum. The first case tested was one of lobar pneumonia with hemoptysis in a woman with a mitral lesion. She was seven months pregnant and the prognosis was apparently of the worst. The opposite lung became involved. The case was aborted by repeated injection of small doses of convalescent serum, and while relapse promptly followed it yielded to treatment in the same fashion. Whether the woman aborted is not stated, but apparently this could not have occurred as patient was "discharged cured" at a relatively early date. In a second case the woman was also a victim of lobar pneumonia, unilateral, and suffered two relapses. She recovered but three doses were necessary before the first fever abated. The relapses yielded promptly. Of two severe cases of double pneumonia, evidently croupous, one recovered and the other succumbed. Five other deaths from unilateral or bilateral croupous pneumonia are not included because of the lateness of the date when serum was exhibited. A long series of successes follows in which the action of serum was at times dubious, although in other cases prompt and efficacious. Every case seems to have been ordinary croupous pneumonia modified by the disease. The affection seems not to have extended above the lower lobes and was often unilateral throughout. Despite the relatively small involvement of lung tissue, however, the general disease picture was of the kind that is associated with grave prognosis. The absence of bronchopneumonia from this series is not commented on by the author, but had any of these cases been coexistent they surely would have been submitted to the same treatment. Although the author styles these cases grip-pneumonias and sometimes interstitial pneumonias, study of the cases shows that at least a good share were distinctly unilateral, with rusty sputum—the kind that usually terminate by crisis. There are no bacteriological reports submitted nor autopsy reports of fatalities.

Revue Médicale de la Suisse Romande.

October 20, 1918.

Mongolian Idiocy and Quadrupedal Gait.—Bourdillon refers to the well-marked characters of this form of idiocy which is not of frequent incidence—Comby saw 69 personal cases in 13 years. The author has recently seen two cases, one of which exhibited a form of behavior not hitherto described, as far as he knows. This was the quadrupedal gait, which was well marked; moreover, the suppleness of the joints, the acrobatic poses and tendency to mimicry suggested the Simian. Other behavior was much like that of some domestic animal, but this, of course, is commonly observed. The child loved to be petted, was itself affectionate, was docile and quite harmless. One could not call it ill for it showed full enjoyment of life and was apparently completely developed up to a certain point like an animal. There was no element suggesting a throwback to a Simian ancestor.

Lasegue's "Delire de Rêve" in a Menstrual Psychosis in a Debile.—Naville refers to the original description of this affection by Lasegue in 1881 under the name *Delire de Rêve*, while in 1894 Regis called the same phenomenon *Dream Delirium*. It occurs in various mental states, and in late years has been much studied by Freudians. As far as the author knows, it has seldom been seen in true psychoses. The patient was a debile who was also a microcephalic. When interned the case appeared to be one of frank hebephrenia. The subject had recently been employed as a chambermaid, and the mental symptoms had appeared suddenly. Save for a slight mental defect she was of average capacity, possessing good common sense and a good disposition. The attack in question began with a menstrual period, and she suffered habitually with dysmenorrhea associated with migraine. Before a true pathological condition developed her periods had been attended by irregular behavior, culminating in such frankly insane acts of self accusation, etc., that she was committed as irresponsible. Her mind cleared up after internment and she seems to have had considerable insight. Her fundamental mental defect became obvious and she showed the motor celerity of the microcephalic. She laughed continuously at times. Soon the peculiar dream state came in evidence when, after a nightmare, she related many happenings which in part concerned her past, which were of the nature of delirium. These dreams also pursued her during the day. After numerous monthly attacks she improved as her periods became less painful, and for the past four years has been comparatively well.

Mercurial Injections in Sodoku.—Borelli having in mind the supposed spirochetic nature of this affection, has tested injections of sublimate in the attempt to ascertain if the well known tendency to exacerbation is favorably influenced. The results appear to have exceeded anticipation, so unmistakable were they in this regard. However, the ultimate state of the patient in respect to cure has as yet to be determined.—*Il Policlinico.*

German Health Resorts.—The thermal and climatic stations of Germany and Austria before the war enjoyed an income of about 900,000,000 francs, while those of France received not much more than one-fourth of this huge sum. After the war the foreigner will visit France in preference to the Teutonic countries as a matter of sentiment and the French health resorts will have an unprecedented boom. The French statesmen look forward to this source of revenue as one of the principal ways of rehabilitating their country's prosperity.—*La Presse Médicale.*

Book Reviews.

THE DOCTOR'S PART. WHAT HAPPENS TO THE WOUNDED IN WAR. By JAMES ROBB CHURCH, A.M., M.D., Colonel Medical Corps, U. S. Army. With Foreword by Major General William C. Gorgas, Surgeon General U. S. Army. Illustrated. Price, $1.50. New York and London: D. Appleton and Company, 1918.

THIS is an exceedingly readable account of what is done for the wounded man from the time when and place where the wound is received to the final cure or loss at the base hospital. It is not, however, a bare recital of medical doings, but is rather a personal account of two years spent in France, at the front and in the interior, by an acute and accurate observer and a man endowed with much humor and a very human feeling for his kind. It is a book for the laity as well as for the profession and will interest both, though naturally more the doctor. The author has omitted the gruesome details of much that he saw, dwelling especially and by preference upon the cheerful side, the humor and the pathos and the heroism so abundantly displayed by the poilu. The work of Col. Church as military observer was done before the entrance of America into the war and so his account has not to do with the doughboys. He came across a number of Americans, however, who were fighting for France and for honor, and his meetings with them were often entertaining. This is one of the most enjoyable of the recent war books.

THE SURGERY OF ORAL DISEASES AND MALFORMATIONS, THEIR DIAGNOSIS AND TREATMENT. By GEORGE VAN INGEN BROWN, D.D.S., M.D., C.M., F.A.C.S.; Major Medical Reserve Corps, U. S. Army; Oral Surgeon to St. Mary's Hospital and to the Children's Free Hospital, Milwaukee, etc. Third edition. Price, $7.00. Philadelphia and New York: Lea & Febiger, 1918.

THIS edition is enriched with a chapter of 37 pages on War Oral Surgery which deals naturally with prosthetic and plastic work and is abundantly illustrated. Material is drawn from the most comprehensive sources. The first edition appeared in 1912 and underwent a thorough revision in 1917. The book has been slightly compressed so that there is no corresponding increase in bulk.

GENITOURINARY DISEASES AND SYPHILIS. By HENRY H. MORTON, M.D., F.A.C.S. Clinical Professor of Genitourinary Diseases in the Long Island College Hospital; Genitourinary Surgeon to the Long Island and Kings County Hospitals and the Polhemus Memorial Clinic; Member of Committee on Venereal Diseases in the Office of the Surgeon-General; Consulting Genitourinary Surgeon to the Flushing Hospital, to the Sea View Hospital of Department of Health, New York City, to the Bushwick Hospital, and to the Beth Israel Hospital of Newark, N. J.; Member of the American Association of Genitourinary Surgeons; Member of the American Urological Association; Fellow of the American College of Surgeons; Fellow of the New York Academy of Medicine, etc. Fourth Edition, Revised and enlarged, with 330 illustrations and 36 full-page colored plates. Price, $7.00. St. Louis: C. V. Mosby Company, 1918.

THE fourth edition of this popular work bears evidence throughout of its author's painstaking revision. Scarcely a chapter that is not infiltrated with at least minor changes and insertions. Chapters I and II on turbid urine and hematuria and IV and V on radiography and pyelography are new. Chapter III on tests of kidney function has been revised and modernized. The short chapter on complement-fixation test in the diagnosis of gonorrhea is new, likewise the contributions of Drs. Judd, Potter, and Burke on gonorrhea in women, the Wassermann reaction and the bacteriology of the gonococcus. The latter part of the volume is given to syphilis, and in this portion notable revisions and additions are found in those chapters on congenital syphilis, colloidal gold reaction, technique and accidents of intravenous arsenical injections and the intraspinous treatment of cerebrospinal syphilis. As in the preceding editions the author generously credits other workers in his literary references. His experiences and counsels are in harmony with contemporary urologists, and he continues to avoid any semblance to "faddism." In truth he gives consideration to a few of the old but now obsolescent methods and procedures, that might be more honored in the breach than in the observance. The volume is liberally illustrated, many of the cystoscopic plates being taken from Luys work on cystoscopy and urethroscopy.

LONG HEADS AND ROUND HEADS, or What's the Matter with Germany. By WILLIAM S. SADLER, M.D. Professor at the Postgraduate Medical School of Chicago; Director of the Chicago Therapeutic Institute; Fellow of the American Medical Association; Member of the American Association for the Advancement of Science, the American Public Health Association, etc., etc., etc. Author of "The Science of Living," "The Cause and Cure of Colds," "The Physiology of Faith and Fear," "Worry and Nervousness," "The Mother and Her Child," etc., etc. Illustrated. Price, $1.00 net. Chicago: A. C. McClurg & Co., 1918.

PROFESSOR SADLER, in company with many other philosophers, has been led astray by the fact that the great war just ended presented colossal qualities over-topping those of any other war simply because never before in the history of the world have there been so many people to fight, nor such resources of frightfulness. We do not believe it will profit much to theorize concerning the anthropological, psychological reasons, logical or illogical, for Germany's making war. Sadler's theory, briefly expressed, is that the present-day German is a mixture of Nordic egotism and Alpine stupidity. He has written an entertaining little book and his theory is an ingenious one, and his conclusion as to the middle European barbarian is a satisfactory one, however he arrives at it. His indictment of Germany is convincing.

TREBALLS DE LA SOCIETAT DE BIOLOGIA. Publicats sota la Direcció de A PI SUNER. Any V, 1917. Barcelona: Institut d'Estudis Catalans, 1918.

THIS volume of transactions, many of the articles in which are published in the Catalonian dialect of Spanish, is remarkable for a number of beautiful colored nucio-photographs and other forms of illustration. In a volume of Society transactions it is rare enough to see illustrations of any sort. Naturally a number of papers deal with histological subjects, especially methods of staining elastic fibers. Not a few papers deal with some aspect of anaphylaxis. As becomes a biological society the range of topics discussed is very wide. There are two case reports of action-dioplasic dwarfs and one of a mongoloid dwarf. Several papers were read by French colleagues—Vincent, Quinquaud, and others.

THE ACTION OF MUSCLES, INCLUDING MUSCLE REST AND MUSCLE RE-EDUCATION. By WILLIAM COLIN MACKENZIE, M.D., F.R.C.S., F.R.S. (Edin.), Member of the Council of the Anatomical Society of Great Britain and Ireland, and of the Staff of the Military Orthopedic Hospital, Shepherd's Bush, London; formerly Lecturer on Applied Anatomy to the University of Melbourne, and Examiner in Senior Anatomy to the Universities of Melbourne and Adelaide. With 94 Illustrations. Price $3.00. New York: Paul B. Hoeber, 1918.

NOW that great numbers of wounded men are returning from the battlefield with disabilities of an orthopedic nature, this book is particularly timely. At the same time it is unusually stimulating, and puts new life into what is often a dull piece of drudgery—the action of the muscles. The author studies this subject not from the textbook view point of "origin and insertion," but from the practical aspect of comparison of the function of given muscles in normal individuals and in paralytics. He also insists on the study of the action of muscles as compared with the action of their opponents. Those who are called upon to treat our returned soldiers will find this book of unusual value; and students will recognize the work as belonging to that very small class of books on anatomy which are really interesting.

Society Reports.

AMERICAN PUBLIC HEALTH ASSOCIATION.

Forty-sixth Annual Meeting, Held in Chicago, December 8, 9, 10, and 11, 1918.

THE PRESIDENT, DR. CHARLES J. HASTINGS OF TORONTO, ONTARIO, IN THE CHAIR.

The Etiology of Influenza.—Dr. WILLIAM H. PARK of New York City concluded that whether or not the bacillus of influenza was the initiating cause of the present epidemic, it gave evidence that it had a marked pathogenic action, and this seemed to be sufficient reason for them to make a thorough trial of an influenza bacillus vaccine on the prevention, if not of the pandemic, at least of a number of the cases of infection with this bacillus. The problem of producing immense quantities of vaccine, of determining the best dosage, the time for immunity, if any, to be established, of getting the proper controls in communities not yet infected, and, above all, of keeping good records and gathering and analyzing them was one of the most important and staggering of problems. They began with the use of influenza vaccine after the pandemic had already started, and some groups were not vaccinated until after the peak of the pandemic had been passed, so unless they had been able to get enough control cases—that is, presumably susceptible unvaccinated cases exposed to the same degree and observed at the same time as the vaccinated cases—they could arrive at no conclusions with regard to the efficiency of the vaccine. The reports from the use of the vaccine were being analyzed now, and it was already apparent that the majority of them were lacking in many essentials. The intelligent use of the vaccine might have given them strong evidence in regard to the etiological relationship of the influenza bacillus to the present pandemic. As it was, unless the finished reports proved to be better than they now promised, they must wait for such evidence as might be gathered from a serological study of the various strains of the influenza bacillus isolated by them from the typical cases and from control cases.

Dr. E. O. JORDAN of Chicago stated that in the present outbreak of influenza conditions had been very different from those of which he had record, and instead of 8 or 9 per cent. of the deaths occurring between the ages of twenty and forty, over 60 per cent. had been between the ages of twenty and forty. Where we found a similar bacteriological picture in the true respiratory tract infections, it seemed fair to suppose that neither the Pfeiffer's bacillus, the pneumococcus, nor the various varieties of streptococci were responsible alone for these outbreaks. We had in cases of pandemic influenza an infection with an unknown or unrecognized virus which increased the susceptibility of the individual normally to infection with the various pathogenic respiratory tract organisms, and superimposed on the initial infection we had a variety of secondary infections.

Dr. J. W. NUZUM of Chicago said that, as regards the use of vaccines in influenza, he had seen some cases of the disease developing after the first injection of the vaccine, and he knew of instances occurring after three injections of the vaccine, but he did not care to venture an opinion until he had been able to do considerable control work. He had been impressed with the frequency of empyema in these cases. In the wards at the Cook County Hospital they had had from 50 to 100 cases with empyema, and the predominating organism was the hemolytic streptococcus, a late secondary invader.

Dr. WILLIAM H. STOKES of Baltimore said that he had found the streptococcus and the pneumococcus, types II and IV, and in about 10 per cent. of the cases, both at autopsy and in the sputum, they found the influenza bacillus.

Lieut.-Col. JAMES G. CUMMING of Washington, D. C., stated that in a series of 100 specimens he had found only 12.4 per cent. of influenza bacilli. In 27.6 per cent. he had found the hemolytic streptococcus, in 90 per cent. Group 4 pneumococci. He had found a low percentage of the fixed types of pneumococci. He had likewise found about 20 per cent. of micrococcus catarrhalis and a few staphylococci.

Dr. LUDWIG HEKTOEN of Chicago thought we must be dealing with a disease of unknown etiology, complicated by secondary infections of different kinds, depending upon local conditions in different parts of the country.

Dr. M. J. ROSENAU of Boston stated that in the first twenty-six or more autopsies he recovered the influenza bacillus as the organism described by Pfeiffer in 83 per cent. of the cases examined. He also found it in pure cultures of the lungs of the fatal cases in a number of instances. In the remaining 17 per cent. of fatal pneumococcic cases he failed to find the influenza bacillus. These patients died of croupous pneumonia due to types II and IV of the pneumococcus, and in a few instances of the hemolytic streptococcus.

Dr. WILLIAM G. WOODWARD of Boston asked what had been the prevalence of the various kinds and strains of streptococci and pneumococci in the civil population prior to the appearance of influenza, and what had been the relative prevalence of these particular organisms among groups of persons in infected communities who had not had the disease?

Dr. WILLIAM E. PARK of Rockford, Illinois, stated that, so far as vaccine was concerned, he had not used it in cases of influenza. The Government had been using a lipovaccine and had given it to several thousand civilian employees, and, as far as he knew, no case of influenza had resulted from taking the lipovaccine. He gave the vaccine for three days for pneumonia cases and no cases had developed.

Dr. WILLIAM D. STOVALL of Madison, Wisconsin, said that unless a vaccine was made by growing the type in pure culture and mixing the type according to the organism present, a vaccine of definite value could not probably be obtained, because the media favorable to the growth of the pneumococcus could not be favorable for everything. One type might overgrow the other. If they were grown in pure culture one might get definite effects from each type.

Dr. H. W. HILL of St. Paul, Minnesota, said that there was a very prevalent belief among a great many people that relatively few cases of tuberculosis had escaped influenza. He would like to know the experience of the members in regard to tuberculosis and influenza.

Dr. J. O. COBB, United States Public Health Service, Chicago, stated that at Fort Stanton, New Mexico, they had had a very decided outbreak of influenza, with 149 cases out of 300 tuberculous patients, with 18 per cent. of deaths. The cases were identical with our present epidemic and the patients died just as promptly at the Government sanatoria there as they did elsewhere.

Dr. PARK, in closing, said that in the East there had been very little influenza complicated by empyema, but in different parts of the country there had been important and different secondary complicating organisms. In the hospitals in the East they had only had one case of empyema in some sixty deaths. As to the prevalence of the influenza bacillus in the cases prior to this outbreak over other organisms, he would say the influenza bacillus had been present in the East in a great many cases in this epidemic, and undoubtedly every case of whooping cough had the influenza bacillus.

Prophylactic Inoculation in Pneumonia and Influenza.—Dr. EDWARD C. ROSENOW of Rochester, Minnesota, said that by the use of a properly prepared vaccine it was possible to afford a definite degree of protection, particularly in pregnant women, during an epidemic of influenza; there was no noticeable increase in the number of cases immediately following the inoculations, and protection lasted for a period of at least six weeks. The favorable results from inoculations indicated that the socalled secondary invaders which appeared to have exalted and peculiar infecting powers bore a close etiological relation to epidemic influenza. This relation, however, might be in merely favoring the invasion of an unknown virus. Nearly all physicians reported that the attacks of influenza were milder, of shorter duration, and convalescence more rapid in inoculated patients as compared with uninoculated individuals. The tendency to infection of the lower respiratory tract to develop pneumonia was noticeably less in the inoculated. The prophylactic vaccinations had conferred, according to the evidence

at hand, a decided immunity in pregnant women. This infection had proven so very fatal among the uninoculated of this class.

Dr. GEORGE W. McCOY of Washington, D. C., stated that in one institution where there were approximately 2 300 people they had sufficient vaccine for 500, excluding from consideration every one in the institution above the age of forty-one; but below the age of forty-one they went through every ward, they selected each alternate patient, making 400 patients. The vaccination was finished on November 15. These people were given three doses at intervals of forty-eight hours, running for a period of five days, beginning with Monday and ending on Friday. On November 15, almost providentially, no influenza appeared in that institution, and did not until November 26, eleven days after the vaccination had been done. When the disease did appear, it was a source of great regret to all of them who had anything to do with the work. The vaccine failed to protect anybody. He paid his last visit to the institution on December 4. Up to that time, among the 400 that had been vaccinated, there had been sixty-four cases of influenza and two deaths. Among the 400 unvaccinated, those below the age of forty-one, there were sixty-four cases. It was remarkable that the number was the same.

Dr. TIMOTHY LEARY of Boston said that in the treatment of influenza with an autogenous vaccine grown on human blood agar, he started on a local piece of work with first some students and nurses in certain institutions which were receiving the first cases of influenza, and in which the incidence and mortality were very high. The results indicated definite value, and he proceeded from that to offer the vaccine for immunization to doctors and nurses generally. Again the reports came back distinctly favorable, and if the agent was of definite value it seemed to him that its use should be spread. He had as yet no definite information on which to draw final conclusions.

Dr. F. O. TONNEY of Chicago said the ratio of influenza cases developing pneumonia in the unvaccinated of industrial groups studied was 1 in 21, while in the vaccinated it was 1 in 184. The ratio of influenza cases terminating fatally in the unvaccinated of the industrial groups in Chicago was 1 in 408, and in the vaccinated there were none in the 1,201 reported cases completely vaccinated. The influenza in vaccinated individuals occurred almost exclusively in those who had received one vaccination. No bronchopneumonias or deaths occurred in the vaccinated group after the second or third vaccination. The number of severe local reactions following vaccination was at the rate of three per 1,000, and of severe constitutional reactions at the rate of two per 1,000. These results were incomplete, but he offered them for what they might be worth.

Dr. J. J. MOORE of Chicago stated that he had found hemolytic streptococci in the sputum, bronchi, lungs, and especially, as Dr. Nuzum had said, from the pleural complications of this disease.

Dr. W. O. SHERMAN of Pittsburgh said that at the Homestead plant there were 1,687 employees who were not inoculated; 588 of those contracted the disease, or 30 per cent.; the number of deaths was 42, a percentage of 2.5. There were 5,964 who received one inoculation; of these 213, or 3.5 per cent., developed the disease; there were 9 deaths among these, or a percentage of 1.5. Of 5,222 who received two inoculations 174 developed the disease, or a percentage of 3.2, with 4 deaths; the death rate was .08. There were 4,720 who received three inoculations; 66 of these contracted the disease, or a percentage of 1.4; no deaths in those with three inoculations. There were 4,007 who received four inoculations at the one plant and this data was accurate; 108 contracted the disease, or a percentage of 2.8, with 2 deaths, or a death rate percentage of 1.05.

Admiral E. R. STITT of Washington, D. C., stated that they had been successful at the Naval Hospital, as they had in Boston, in treating post-influenzal pneumonias with the serum of convalescents, and a very interesting thing in connection with trying out the serum of some of the convalescents was the potency of the serum therapeutically. It seemed to be almost a specific. He had the laboratory workers in the Naval School try out immunity reactions with this potent serum, which he knew was potent from treating different cases, and they were unable to find that the various strains of influenza bacilli had any more agglutinating power over the serum that was not therapeutically efficient. There was no evidence that this serum possessed any antibodies of various strains of influenza bacilli.

Colonel VICTOR C. VAUGHAN of Washington, D. C., said that as regards pneumonia, the army had a splendid record for the first six months of the war. It had a death rate but little above that of the same age group at home, and thirteen out of the twenty-nine large cantonments had a death rate lower than the same group at home. So far as pneumonia was concerned, during the first six months these facts seemed to have been established: the city boy lived, the country boy died; the northern boy lived, the southern boy died. It had been almost impossible for them to study influenza, because men had been dying from pneumonia in great numbers, and they could not spend the time to examine the blood of patients with influenza when so many of them were dying from pneumonia. We were going to have influenza with us; it was not going to disappear very soon. So far as the prevention of the respiratory disease was concerned, we did not know any more than our ancestors did a hundred years ago. He had used influenza vaccines and lipovaccines, and from data gathered they had not done one bit of good.

Dr. B. FRANKLIN ROYER of Harrisburg, Pa., said that his experience had been that there was no dependable data so far relative to the value of vaccines so that their use could be recommended. He could mention a dozen communities as examples where the epidemic of influenza was apparently snuffed out just as efficiently with the measures they used as in those of communities where the vaccine was used.

Dr. G. H. WOOD of Detroit, stated that there had been some very severe reactions, some marked depressing effects from the use of vaccine in influenza. A safe rule to follow was not to give more than one-half of the dose recommended at the beginning, then watch the patient, and increase the dose as the results warranted.

Dr. ROSENOW, in closing, said that we could not solve the problem of influenza or any other problem regarding the management of disease unless we tried out experimentally certain methods. He had watched the occurrence of this disease through his section of the country, and for him to sit down quietly and do nothing was impossible. He stopped very vital work of other kinds to try and do something for his countrymen.

Organization of Forces Against Influenza.—Dr. M. NICOLL, JR., of New York City stated that the general mortality caused by this unknown disease had never been equalled in the country as a whole. This unknown disease killed by secondary pneumonia, usually of a peculiar bronchopneumonic type and due to a variety of organisms, including probably the socalled influenza bacillus. The uncomplicated disease caused a marked leucopenia, together with a profound toxemia, with a tendency toward the production of hemorrhage. The age of special susceptibility was that of young adult life. Among pregnant women it was especially fatal. Those who went to bed and remained there, even with ordinary nursing care, until at least a week after the establishment of full convalescence, would in the large majority of cases recover. Strict quarantine of groups of people had been successful in keeping out the disease.

Dr. WILLIAM C. WOODWARD of Boston said that the following measures had been adopted for the prevention and spread of influenza: Reporting of the disease; the use of masks, the use of vaccine; hospitalization; regulation of the use of common drinking cups in restaurants, lunch-rooms, etc.; restriction of crowding; education. Reporting the disease gave a clue to its prevalence in times of epidemic and served as a guide in taking measures for the prevention of the disease.

Dr. W. O. SHERMAN of Pittsburgh believed that there was sufficient evidence at hand to warrant us in believing that from a prophylactic standpoint there was some virtue in the use of vaccines in reducing the severity of influenza.

Dr. JOHN DILL ROBERTSON of Chicago stated that many

places of amusement were closed during the epidemic of influenza to give the people of Chicago more sleep. He believed sleep was the greatest regenerating agent known to mankind. The better class of theaters were not closed because in them ventilation was good, and such places were used as centers of education for instructing the public regarding the epidemic.

Dr. H. O. JONES of Chicago said the consensus of opinion was in favor of keeping the public schools open during an epidemic of influenza for the following reasons: A better knowledge of existing conditions could be had when the schools were made a source of information as to sickness among the children and their families. It would be possible to supervise the children and keep many of them under better conditions during the school hours than if they were allowed to stay at home and run in streets and alleys, or play on premises where persons sick with the disease lived. They had an organized staff of physicians and nurses for medical inspection of schools.

Dr. ROYAL S. COPELAND of New York City stated that in the New York epidemic any children found with running noses or coughing, or with any symptoms which indicated the possibility of influenza, were put in a room until examined by a nurse or doctor to discover whether or not they had the disease, and if they were found to have the disease they were sent home under the care of the Board of Health, and a Board of Health doctor or nurse found out the name of the family physician and determined whether there was a possibility of isolation and protection of other members of the family. If the family had no particular physician or could not afford one, the child was cared for in a hospital. This measure was found very effective in preventing the spread of the disease.

The Rôle of the Hand in the Distribution of Influenza.—Col. CHARLES LYNCH and Lieut.-Col. JAMES G. CUMMING of Washington, D. C., drew the following conclusions: "(1) The casual organisms of sputum-borne diseases, resident in the mouth and nose, leave the body of the infected through these orifices and enter the non-infected through similar channels. (2) The vehicles for the transfer of germ-laden saliva from, and to, the mouth and nose are the hands and eating utensils. (3) Crowd diseases have their origin, to a large extent, in the constant accumulative contamination of intermediate objects, which are the distributing centers of the infection for many hands and many mouths. (4) Food may be infected by contaminated hands and then spread the sputum-borne infections, as well as the intestinal-borne infections. (5) In all infectious diseases there are major and minor routes of transmission from the sick to the well. In military life the mess-kit, wash water has proved to be the major route, intermediate object conveyors by hand touch the minor route. Droplet infection is subsidiary to both, because explosive outbreaks do not result from droplet infection, and as far as mouth pathogens are concerned, 18 in. is about the maximum distance that plates on a level with the mouth can be infected by droplets expelled through the act of coughing. Moreover, since the weight of these droplets (even the finest spray) is such that they fall rapidly, the probability of infection by the flight of organisms is remote. (6) It is true that the chain of both direct and indirect transmission may be broken in several ways; one of these is by wearing the mask. This acts in two ways: It prevents droplets being expelled from the mouth and it also prevents the hands being put in the mouth. On this basis the value of the face mask may be emphasized. It value, however, lies in the fact that it serves as a barrier between the hand and the mouth rather than between the mouth and the outside air. The relative importance of this face mask to clean hands is just about the same as in the case of the surgeon who would wear a mask but neglect to wash his hands. In order for the mask to be effective the wearer must wash his hands before it is removed. Was there a lower rate of infection in cities where the populace wore masks as required by the local ordinance? According to the United States Public Health reports in San Francisco, the wearing of masks was required; the rate per 1000 was 4.6 for seven weeks; in New York masks were not worn and the rate was 4.7 for eleven weeks. (7) Very probably droplet infection, when it does occur, is indirect, rather than direct, that is to say, mouth spray does not immediately reach the mouth of another person, but reaches the hands and intermediate objects from which germ-laden saliva is picked up and carried by the hand to the mouth of the non-infected. (8) In the prevention of sputum-borne epidemics, the hygiene of the hand and the hygiene of eating utensils is of paramount importance; clean hands, disinfected eating utensils, the avoidance of intermediate object conveyors handled by many persons, the frequent cleansing of such conveyors, the keeping of the hands away from the mouth and nose, and elimination of the sick from the kitchen, these are the essentials of such prevention." But above all was the necessity for popularizing our knowledge that it was the sputum-soiled hands, and the contaminated eating utensils which played the chief rôle in the mouth-to-mouth infections.

Dr. W. H. KELLOGG of San Francisco stated that gauze masks were given a thorough trial by an ordinance enforcing their use in San Francisco. Beginning with the use of these masks there was a rapid decline in the number of cases of influenza. The experience of Los Angeles had proved that the wearing of masks was a great preventive of the disease. In that city, where they did not use masks, they had a much larger number of cases of influenza than in San Francisco. A properly made mask afforded efficient protection against droplet-borne infections.

Dr. WOODS HUTCHINSON of New York City said that the San Francisco people were asked to wear masks in the interest of public health and for public safety. They co-operated with the public health authorities in this regard with the result that there was a great reduction in the number of cases of influenza.

Dr. A. J. MCLAUGHLIN of Washington, D. C., said that until we had exact knowledge of the etiology and transmission of influenza we would not be able by laboratory methods to develop biologic agencies or products for the prophylaxis and therapeutics of the diseases. Quarantine measures and the wearing of masks were a protection to individuals.

Dr. LOUIS I. HARRIS of New York City said that the reorganization of the various health forces of the country for future emergencies and for protecting and caring for recrudescent cases of influenza was very essential. There should be adequate appropriations of money by federal, by city and State organizations, so that the work of prevention and treatment could be carried out on a scale commensurate with the importance of the problem.

The Work of the Illinois Influenza Commission.—Dr. C. ST. CLAIR DRAKE of Springfield, Ill., stated that from the onset of the epidemic up to and including November 30 reasonably active reports from 1348 Illinois health jurisdictions, within which was embraced 60 per cent. of the total population of the State, showed 193,885 reported cases of pneumonia and influenza, 53,000 of which were in Chicago. In the same areas the reported deaths numbered 13,466, of which 9,129 occurred in Chicago. It was found that no preventive vaccine had been used in twenty-one counties and that it had been employed only to a moderate extent in seventy-two counties. Only four counties in the State claimed its general employment. In addition to the vaccine furnished by the Illinois Influenza Commission and the Chicago Health Department, ten others were employed. As to whether or not these vaccines had served to prevent the spread of infection, nineteen counties offered no definite opinion, twenty-nine answered in the affirmative, twenty-seven were of divided opinion and sixteen regarded the vaccines as of no preventive value. Regardless of definite opinions as to the general value of vaccines, based upon the experiences of these counties, the following figures were gleaned from these very interesting but highly unreliable questionnaires: Counties in which there were no cases after vaccination, 23; counties claiming partial protection, 7; counties in which the severity of the disease was decreased by vaccination, 21; counties claiming prevention of pneumonia, but not of influenza by vaccination, 1; counties reporting influenza after vaccination, 24; counties claiming pneumonia after vaccination, 4; counties claiming deaths after vaccination, 4; counties claiming absolutely no pre-

ventive value, 4; counties claiming disease increased by vaccination, 2.

Dr. Owen J. Mink of the Great Lakes Naval Training Station, Illinois, stated that early in the epidemic, in military camps of 40,000 to 50,000 men, influenza followed a very typical curve in its incidence and a typical curve in its death rate. When the influenza arrived at the station the incidence increased with explosive violence for about five days. After four or five days it reached the peak, and after that it began to decline. In two weeks the epidemic began and practically ended. Of 1000 men in a regiment before the epidemic was over, between 200 and 300 men contracted the disease. One tent camp had an incidence of 300 per 1000; another camp composed of barracks had an incidence of a little over 200. A member of the hospital corps kept track of those who wore masks and of those who did not. Of those who wore masks 8 per cent, developed influenza. Of those who did not use masks 7¾ per cent. developed influenza. The use of the masks seemed to have very little influence upon the incidence of the disease. At the station there were two distinct types of influenza, winter influenza and a severe type of the disease accompanied by pneumonia.

Report of the Committee on Administration for Relief During the Influenza Epidemic.—Dr. William C. Woodward of Boston said that the committee was charged with the formulation of certain principles for the guidance of health officers in communities for administrative measures and for the relief of epidemic conditions with special reference to influenza. Under general rules the committee suggested compulsory reporting of cases in so far as it enabled the relief measures to be directed to particular cases that might be reported, and in mentioning compulsory reporting they referred to the matter of isolation and placarding, calling attention to the fact that in so far as isolation was compulsory it might lead to a diminished efficiency in reporting, so that while the committee recommended isolation by co-operation and education, it recommended that it be carried to a point where it did not diminish the willingness of the physician to report, and the principle held true with respect to placarding. Under preliminary measures the committee recommended the distribution of resources, including physicians, nurses, social workers, nurses' aids, clerks, domestics, laundresses, automobiles, and volunteers of all kinds. The local authorities should keep in touch with State and national agencies.

Report of the Committee on Bacteriology and Vaccines.—Dr. William Hallock Park of New York stated that the committee reported that the epidemic disease known as influenza was believed to be due to an undetermined organism which caused an infection that lowered the resistance of the body as a whole and of the respiratory organs in particular. This allowed the invasion of other pathogenic organisms. The most important complicating infections were due to influenza bacilli, different strains of pneumococci, different strains of streptococci, etc. In each case one or several microorganisms might be present. In different portions of the country a dominating variety or organism had been found to differ. Assuming that the cause of the epidemic was an unknown virus, it did not seem possible at present to prevent the primary disease by vaccination with known organisms. Against the secondary infections there would seem to be theoretical basis for the use of vaccines prepared from organisms responsible for the complications which might develop in various localities at various times.

Dr. James W. Inches of Detroit said the wearing of masks by the laity on the streets and in public places was of doubtful value. He regarded the wearing of masks on the streets as a pure fake. Detroit was closed up for sixteen days during the epidemic. When the theaters and other places were closed in Detroit it deprived the Board of Health of the opportunity of affording the people education in regard to the epidemic. When everything was wide open the number of cases of influenza was less.

Dr. W. L. Holt of Beloit, Wis., protested against the wholesale condemnation of the gauze mask. The mask should be made of six to eight thicknesses of gauze. Such a mask would prevent droplet infection. Scientific experiments showed that it was impossible for the pneumococcus to go through six or eight layers of gauze.

Dr. James A. Hayne of Columbia, S. C., said that on receiving a telegram from Surgeon-General Blue regarding the pandemic of influenza, the State health officers of Virginia, North Carolina, South Carolina, and Georgia held a conference and issued simultaneously an order for closing, so that every single school, church, theater, moving picture show, etc., was closed, and the closing of these places materially lessened the number of cases of influenza and the death rate. When people assembled in large crowds there was certainly a greater conveyance of droplet infection than if they did not. Eighty per cent. of the population of America was rural, and it was no easy proposition to formulate rules and regulations for the different rural communities. He heartily approved of closing in times of epidemic.

Dr. Roy K. Flanagan of Richmond, Va., stated that the schools were closed in Richmond, but what was accomplished by it he did not know. The results in Richmond compared favorably with other cities in regard to death rate. The death rate was lower in Richmond than in most cities on the Atlantic seaboard. It was 3.8 per cent. in August per 1000, and 4.2 per cent. per 1000 of deaths in the months of September, October, November. There was an epidemic prevailing at present, but the second exacerbation was milder.

Dr. E. B. Oliver of Fort William, Ontario, favored the keeping open of public places, such as theaters and churches, but was overruled. Then the people crowded into the five and ten cent stores with the result that there was a large increase in the number of cases of influenza.

Dr. Charles V. Craster of Newark, N. J., stated that the association should be slow in condemning the use of the gauze mask because its value had been demonstrated in many instances in preventing bacteria from entering the upper respiratory tract. It was advisable to stop persons from crowding together. Droplet infection was minimized by keeping people apart as much as possible. Rational closing measures should be adopted when epidemic diseases prevailed.

Dr. J. O. Cobb, U. S. P. H. S., said that Dr. Hayne was right inasmuch as there must be rules and regulations for the health officer in the sparsely settled municipalities and communities, but cities like New York, Chicago, Detroit, must have some other methods of dealing with the public during a terrible scourge like influenza. The problem must be looked at purely from what one could do and not what might be ideal. One could do in Chicago what he could not do in South Carolina. The prevention of the spread of influenza could be controlled by a properly made and worn mask. The schools should be kept open in all large cities and business allowed to go on as usual.

Dr. Thomas E. Maloney of Fall River, Mass., asked did closing close? Did masks mask? He was prompted to ask these questions after the important statement made by Colonel Vaughan that influenza was a hand to mouth disease. So far as he had observed, in many of the rural communities in New England the incidence of the disease was much greater in rural than in industrial communities.

Dr. Elias Pratt of Torrington, Conn., asked if the disease was transmitted by crowding. One gentleman said that he had closed everything in his city, and then the people went into the five and ten cent stores, crowded together, and in that way spread the disease. Did crowding help to transmit the disease? On the decision of that question would rest the action that health officers should take. If crowding did not transmit the disease or spread it, it was foolishness to stop crowding. He believed that vaccines were of value from his experience in vaccinating factory employees.

Dr. W. E. Moore of Sioux Falls, S. D., said that when the epidemic started in his city they closed up everything for seven weeks, and when they opened wide they had an explosion of the disease, and now they were having more cases than ever. He advised the use of masks for nurses and others who were brought into contact with patients suffering from influenza. An important question was, how long would the disease last? Schools and theaters could not be closed forever.

Dr. E. H. Willard of St. Joseph, Mo., stated that they had been closing picture shows and other places with a view to preventing the spread of the disease, and yet it had kept on increasing and was becoming more and more prevalent. He hoped the association would map out a definite program for limiting the spread of the disease and of treating it, if possible.

Dr. William R. Stokes of Baltimore said that the face mask was a good thing. It was said that the physicians during the epidemic in Manchuria who wore masks did not contract pneumonic plague, and those who did not use the mask had the plague. The mask should be made of three or four layers of butter cloth. The pneumococcus was able to pass through the ordinary mask.

Dr. J. L. Folston of South Dakota agreed with Dr. Inches. After the influenza began he secured a supply of the Rosenow vaccine from the Mayo Foundation, and with the free use of this vaccine he had lost only one patient. In regard to the mask, he had told his people not to wear them. He believed that masks were just as filthy a thing as a big mustache.

Dr. William W. McDonald of Jacksonville, Fla., stated that the influenza appeared in Jacksonville about the 8th of September. At first the cases were mild, with a simple rash on the chest. About one-third of the population in Jacksonville was susceptible to influenza. He had definite records of 17,000 cases, which was one-half of the number of cases they had had. In October they lost 450 cases from the complications of influenza. They closed up everything at the end of the first week in October and kept closed until the epidemic was over. The population of Jacksonville was approximately 120,000, and the death rate in the month of October from influenza was 71.5 per cent.

Dr. H. Delamater of St. Joseph, Mo., said the first case of influenza in St. Joseph came from the Great Lakes on September 15. They realized that influenza was a contact disease. The cases were isolated from the start. The use of masks was not advocated. The masks had been abused and damned by many members. If the mask was condemned for influenza, then why not condemn it in cases of diphtheria, scarlet fever, and so on?

Major C. H. Clark of Rock Island, Ill., stated that it was not known definitely whether the disease was air borne or not. If one followed the epidemic from any Army standpoint at the camps, he would find that in the first week the disease increased rapidly, the next week it took a boom, and at the close of the second week it declined so rapidly that it was practically over in two weeks. It was established that influenza was a contact disease. He did not think that closing the schools had any effect on the spread of the disease. At Rock Island the people were advised to go to bed the very minute they showed the first signs of the disease, and the people who had the disease and followed this advice had very mild attacks. The prevention of crowding was a good thing. He did not believe in wildfire closing down.

Colonel Cumming of Newport News, Va., believed in the value of the mask. It acted as a barrier between the hand and mouth rather than between the mouth and the outside air. Influenza as a crowding disease was a misnomer. Where individuals had gathered together in large crowds for the purpose of commercial exchange or theater parties the incidence of the disease had not markedly increased, but when people gathered together in large crowds for the purpose of eating there was generally an explosive outbreak.

Dr. Frederick Montizambert of Montreal believed in the use of the masks for nurses and others who came in contact with the sick. After the mask had been used for a certain time the circle opposite the mouth became moist and moist surfaces would not receive droplet infection. The droplets would not dry off and consequently they were sucked into the moist surfaces and protection was not afforded. A dry mask would stop droplet infection. Masks should be frequently changed. Another point in connection with the wearing of the mask was the possibility of infection from the conjunctiva. It was not sufficient to protect the nostrils and mouth, and nurses and others in influenza cases were exposed to droplet infection and should wear masks with transparent eye pieces.

Dr. R. M. Olin of Lansing, Mich., thought the association should not condemn anything until it knew what it was dealing with. It was important to determine some means of checking this epidemic, and until we knew how the disease was transmitted and the nature of it, we were not going to arrive at any conclusions that were justifiable. He would not condemn the use of the mask, although he had not advised it in Michigan.

Dr. John Dill Robertson of Chicago said that the association should take the position that the disease was transmitted by the air and by droplet infection. He advocated wearing the mask inasmuch as it was effective in contagious disease hospitals. It was better to take a middle ground in considering this important problem and try to embrace everything that was good.

Dr. A. W. Carnes of Dallas, Tex., was opposed to the closing of public schools, churches, and so on. The medical profession recognized the fact that child life was not the age or even school life was not the age most susceptible to influenza, but the age most susceptible was the age of those working in department stores and in office buildings and thus spreading the disease by contact. As a means of preventing the spread of the disease, it was better to close those buildings before closing schools and churches. He argued that if the schools and churches were closed, the five and ten cent stores and all business activities should be closed. When these were closed crowding would stop. Should every man and woman be sent home and business activities stopped? If so, how long were these places to be closed? Restaurants were a cause of the contagion and on general principles such places should be closed also.

Dr. Milbank Johnson of Los Angeles said he would like to speak of frequent hand-shaking in America as a possible factor in conveying the disease. Americans could profit by the custom of the Chinese to shake their own hands as a greeting rather than those of others. If influenza was a contact disease, it made no difference what kind of a microorganism was causing the trouble; doubtless the shaking of hands was a factor in causing its spread and a method of conveying respiratory diseases. He would urge the members to follow the Chinese custom and see if there was anything in it; it did not cost anything.

Treatment of Influenzal Pneumonia with Plasma of Convalescent Patients.—Lieut. Frank W. Hartmann, U. S. Navy, stated that in the present epidemic the Medical Department of the Navy had been treating not only the officers and their families and the enlisted personnel, but also all civilian employees. Up to December 6, 523 cases of influenza and complicating pneumonias were treated at the Naval Hospital. Of these 27.5 per cent. either came in with pneumonia or developed it during their residence. The outstanding feature was an overwhelming toxemia, characterized by headache, muscular fatigue and pain, mental depression and dullness, leukopenia and, in many cases, by nausea and vomiting, and the cases failed to respond to ordinary therapeutic measures, especially when pneumonia complicated the disease. He believed two factors aided in keeping the mortality percentage low in the first days of the epidemic—digitalis and venesection. Isotonic glucose and sodium bicarbonate intravenously and massive doses of camphorated oil were each given in a series of cases without beneficial results. In the later stages venesection was most efficacious in combating dilatation of the heart and flooding of the lungs. Blood was drawn with a needle into a sterile eight ounce nursing bottle so cultures could be made in every case. Pfeiffer's bacillus was grown repeatedly from sputum, lung puncture, and autopsy material, but never from the blood stream. At the height of the epidemic a suggestion came from the Chelsea Hospital, Boston, that the serum from convalescent patients might be of curative value, and he determined to give the method a trial. The following were his conclusions: "(1) The toxemia of influenza seems to be neutralized by the plasma from convalescent patients. (2) Certain care being exercised tests for compatibility are eliminated. (3) A large percentage of all plasma is active, and most satisfactory results are obtained by pooling the different lots. (4) Sharp reactions are followed by the most prompt

improvement, but are not essential to success. (5) Pneumonia must be diagnosed early and treated immediately if a high percentage of cures are obtained. (6) Mortality percentage has been reduced from 25.2 to 6.5 per cent., treating every case."

Dr. S. PIETROWICZ of Chicago said that his experience had been limited to several hundred cases seen at the Cook County and St. Mary's Hospitals, but he believed there was an era of awakening regarding this form of treatment for respiratory diseases. Many physicians still suffered with airophobia and kept their patients in hot rooms, but at the Cook County Hospital the first thing done was to place the patients in rooms with open windows, keeping them well covered, and they had found that fresh air was the cornerstone of therapy. Even patients who were cyanotic were greatly benefited almost immediately by this treatment. This had convinced them that fresh air had certain specific properties. First, it was a tonic, then a sedative, a stimulant, and an antipyretic. He was sure that its chemical value, its physical value, its respiratory and cutaneous value could not be overestimated, and this method of treatment should be used more extensively. The contraindications for this treatment were very few—old age, extreme youth, and patients with profuse hemoptysis.

Dr. A. A. GOLDSMITH of Chicago said he had been under the impression that every man had a different treatment for influenza and pneumonia, and yet got practically the same results, except perhaps at the Great Lakes and other cantonments, where the mortality was very high. He thought certain of the cases were doomed from the start and no treatment, unless perhaps the serum, was of any value. He believed in the fresh-air treatment and quiet conditions, and thought that aside from these one had very little power over the course of the disease, and that just as many patients were killed by physicians as were cured by them. Often patients were continuously stimulated and went on to a fatal termination when, if they had been left alone, many would have recovered. During the last ten years he had tried to leave his patients alone, allowing them to rest as much as possible, giving codeine for the cough, if it was necessary, and occasionally morphine, but not bothering about the stimulation. If the toxemia could be combated, that was all that was necessary, and if patients were kept quiet and allowed to sleep the mortality would be lowered.

Dr. H. N. BUNDESON of Chicago believed that the serum treatment of pneumonia and influenza was of great value, just as like procedures had given similar results in scarlet fever and diphtheria. From the reports of various workers it appeared to be almost a specific. The doses should be large, 200 c.c. of convalescent serum given very slowly over half or three-quarters of an hour's time. If there was not a quick drop in the temperature within a short time, another 200 c.c. should be injected. He believed one cause of failure in this treatment was that patients coming from one part of the country were injected with serum from a man from another part of the country and the serum was probably of a different type. The best results could be obtained from the same type of serum in the same hospital. He believed the serum treatment was efficient only when given early, as was also true of the antidiphtheritic serum.

Dr. B. S. MALOY of Melbourne, Fla., stated that he had treated 225 cases of influenza and pneumonia in the recent epidemic and had not lost a patient. On his first visit to the patient he gave tincture of aconite and tincture of veratrum viride together. This should be continued in half teaspoonful doses every half hour until six to ten doses had been given. At the same time he gave the patient 2 or 2½ grains of calomel in one-fourth grain doses, crushing the tablets and mixing with a little water. Six or eight hours after the last tablet had been given he gave one or two heaping tablespoonfuls of epsom salts. His experience had shown that this treatment would abort pneumonia in many instances. He believed these patients should be given as little medicine as possible. He gave no opiate or anodyne for the pain, and nothing for the cough until the temperature had subsided. On the first indication of a failing pulse or the slightest trace of cyanosis, the best brandy or whiskey obtainable was given in teaspoonful doses every three hours, and when necessary, increasing to a tablespoonful dose every hour. He did not believe in the use of jackets, oils, and similar things, and thought the patient should not be interfered with until he was well on the road to recovery. Hot, rich soups and broths should be given and plenty of butter, but no milk. During convalescence a good tonic was of value.

Dr. JOHN DILL ROBERTSON of Chicago was of the opinion that the treatment suggested by Dr. Maloy would bring better results than anything else. It was old-fashioned treatment and was being used with excellent results by many physicians in the present epidemic. To give opiates of any kind was to invite pneumonia.

Lieut. L. R. MELNIKOFF of the Great Lakes Naval Training Station, Illinois, said that the conclusion at the base hospital at the Great Lakes was that the so-called wonderful cures that had been reported outside of the Army and Navy camps had not been cures of influenzal pneumonia, but of straight influenza or acute cold. On the post-mortem table there was no normal tissue left in the lungs in the cases of influenzal pneumonia. The serum treatment had been tried early in the epidemic with very little success, but it was not the same method as that used by Dr. Hartmann. Venesection could not be successfully done because the circulation in the cases was practically nil and the blood clotted too rapidly. Pneumonia cases did better in the hospital units than those in tents and most cases were treated in that way. Calomel and salts were given, and in the early cases some aspirin, but this was soon discontinued, as it was found to be a depressant. If the pulse was over 100, 15 minims of digitalis were given every three hours. Codeine was given in very small doses for cough and fluid was given frequently, but very little catharsis was employed. Whiskey should very seldom be given except as nourishment. Of 3,000 cases at the base hospital 20 to 30 per cent. developed pneumonia, and of these about 20 per cent. resulted fatally.

Dr. JAMES S. BOYERS of Decatur, Ind., stated that his experience had been the same as Dr. Maloy's, and he felt that his treatment was correct. If a patient was aching he would suggest the addition of salicylate of soda and two drops of carbolic acid be added to the mixture, which would relieve the bloating of the intestinal tract beyond the stomach. This combination produced a salol which was not absorbed by the stomach. We must not forget that influenza bacilli developed more readily in an acid medium, and the first thing to do was to render the stomach alkaline.

Dr. A. C. TENNEY of Chicago mentioned a modification of the vaccine treatment as a preventive measure, thinking that the members might be interested in the results of several years' experimentation and observation, checked by laboratory tests. The idea was simply to furnish an excess of nucleinic acid in the region where the vaccine was introduced. The tissues must be thoroughly massaged after the hypodermics were given. The vaccine selected was introduced in the usual manner, and centrally from that point a dose of nucleinic acid was introduced. He recommended this procedure to those who wished to prevent pneumonia and influenza or a mixed infection from which so many people were suffering. Veratrum viride was not a new remedy. Four years ago it was shown to increase the opsonic index, and this drug in connection with urotropin had been his mainstay in the treatment of the present epidemic.

(*To be continued.*)

Leprosy in Brazil.—Figueria de Mello in a monograph recently published on leprosy and its prophylaxis states that the number of lepers in the State of Sao Paulo alone is between two and three thousand. Valverde reports the exact number as 2307. The State of Parana is the last to be visited by the scourge; there are now 400 lepers within its limits. In the State of Santa Catharina the disease is not rare. In regard to leper asylums there is a difference of opinion as to whether a maritime or terrestrial location is superior. In the campaign against leprosy notification and isolation must be compulsory.—*Brazil-Medico.*

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

One Hundred and Thirteenth Annual Meeting, Held November 25, 1918.

THE PRESIDENT, DR. HOWARD CANNING TAYLOR, IN THE CHAIR.

IN addition to the usual routine business the annual election of officers was held and the annual reports of the Board of Censors, Counsel, and various committees were presented.

Report of the Counsel.—GEORGE W. WHITESIDE, Esq., presented this report, which showed that the Counsel's activities had been wide and varied, including investigations and prosecutions against druggists and laymen practising medicine, corporations, unlicensed physicians from foreign countries and the United States practising medicine without a license, investigation of the activities of electrotherapeutists, face specialists, chiropractors, naturopaths, and abortionists. The Counsel had made a very comprehensive translation and examination of 40 foreign language newspapers, as well as a number of English newspapers, of the advertisements of quack doctors and physicians who held themselves out as specialists in certain diseases. The Counsel had appeared on behalf of the Society before the Governor of the State of New York at the public hearing held in opposition to the Whitney Bill. The Counsel had been consulted frequently by various Departments of the City, State, and Federal Government, including the Department of Education, the Intelligence Department of the Army and Navy, the Character Committee of the Bar, the Health Department of the City and State of New York, the Police Department, the University of the State of New York, the Department of Justice and Port Alien Bureau, the Narcotic Squad of the Police Department, and many organizations and individuals. With all of these the Counsel had cooperated as far as possible and had been able to contribute from the files valuable information in response to inquiries from these sources. This line of activities was suggestive of the field of usefulness of the Counsel's office quite apart from the mere prosecution of individual cases in the endeavor to eliminate all obnoxious advertising. He had presented a memorandum on behalf of the Society for the Governor in opposition to the Whitney bill, calling attention to the fact that under this proposed act a physician's professional career might be suddenly cut short by the revocation of his license to practise if, by chance, or ignorance, he was convicted of a violation of one of the many technical provisions of this statute. The conviction of a lawyer for some technical misdemeanor did not of itself constitute grounds for the revocation of his license to practise law, and the facts must be such as to show some moral turpitude on his part before the Appellate Division would deprive him of this right to practise. There was no guarantee in this State that the misdemeanor for which the physician might be convicted might not be one of the most technical character and might not result in the revocation of his license to practise. Complaints against duly registered physicians that they were trafficking in narcotic drugs were largely responsible for the inadequate statutes which placed upon legitimate practitioners of medicine apparently unnecessary hardship in the use of narcotic drugs by them in their practice. The report included a brief outline of the prosecutions made by the Counsel during the year, and a list of alleged offenders against whom sufficient evidence could not be obtained to warrant prosecution.

Report of Committee on Public Health.—Dr. FRANCIS CARTER WOOD presented this report, which was read by the Secretary, showing that during the past year this committee had received no communications which could properly be assigned to the Committee on Public Health. He had, however, through his position as a member of the Advisory Boards of the Health Officer of the Port and the Commissioner of Health kept in touch with some of the public health problems which had confronted the medical profession during the past year. He had also had a number of conferences with members of the Public Health Committee of the Academy of Medicine on debatable public health questions and had attended a number of hearings on public health matters.

Report of Committee on Legislation.—Dr. GEORGE W. KOSMAK reported that the Committee had held regular meetings at monthly intervals during the session of the Legislature of 1918 to consider all the bills of interest to the medical profession. A total of 74 bills affecting directly or indirectly the interests of the medical profession of this State had been introduced at the last session of the Legislature, and were considered and discussed by the committee. The greater number of these bills were of little general importance. Attempts to invade and nullify certain provisions of the Medical Practice Act by the introduction of bills favorable to various schools of irregular practice were unsuccessful, as was also the renewed attempt to enforce an anti-vivisection measure. Among the more important legislative measures proposed were the following: (1) The Nicoll Bill, establishing a system of compulsory health insurance for individual workers and their dependents, which might be regarded as an attempt to improve the Mills Bill of the previous session. The medical features of this bill were framed without regard to the interests of the profession and would have resulted in ultimate establishment of a form of contract practice with its attendant evils. The Society, in a set of resolutions adopted at the regular meeting on February 25, 1918, had placed itself on record as opposed to this bill and had communicated with the senators and assemblymen as well as the presidents and secretaries of the larger county societies asking their assistance in defeating this measure. Although the interests of the medical profession were paramount, it must be regretfully admitted that the force of their presentation was not commensurate with this interest. The bill, however, was not reported out of committee, but there was every probability that a similar measure would be introduced at the coming session of the Legislature with better chances of its passage if supported by the same powerful interests that were instrumental in its introduction last year. (2) The so-called Whitney Drug Bill was introduced after various public hearings and was reported to the Governor who signed it without giving due consideration to the protests of physicians against certain of its features. This committee undertook to fight the passage of this bill, but failed because of the manner in which the bill was rushed through the Legislature. This bill created a department of drug control in charge of a commissioner and to this expensive and elaborate organization was given complete control of the sale and distribution of cocaine, opium, and their derivatives. While certain provisions of the act were less onerous than the Boylan Act, the measure as a whole must be regarded as a burden to the profession, since a part of the cost of the commission was derived from an annual tax levied on the members of the profession, which was practically a duplication of what the Federal Government had already enforced. Among other legislative enactments of the past year was the creation of a Bureau of Venereal Diseases in the State Department of Health for the diagnosis and treatment of venereal cases as well as public instruction in this field. Another bill provided for the compulsory reporting by clinical laboratories of all cases of communicable disease, specimens of which had been examined, to the local boards of health. Dr. Kosmak then recalled that in view of the generally unsatisfactory character of the relation between State Legislation and the medical profession, and after discussion with the Legislative Committee and members of the Society, he had presented resolutions at the 1918 meeting of the State Society which were adopted at that time. These resolutions provided that the Medical Society of the State of New York take steps to establish a Legislative Bureau at Albany which, under proper rules and regulations to be formulated by the Council of the State Society, should centralize and coordinate the work of the local committees on legislation, and that the necessary expenses connected with the conduct of this proposed Legislative Bureau be defrayed by the State Society, the funds to be secured by certain economies in the publication of the *State Medical Journal and Directory* and by extra assessment of the member-

ship of the Society if necessary. This resolution must be held in abeyance for the present owing to lack of funds. Finally, this committee recommended that instead of a committee of nine which was unwieldy and impracticable, that the Legislative Committee be composed of three or four members who could appoint local representatives in the various constituent Assembly districts, physicians who would be in a position to be actually acquainted with their local representatives in the Legislature and in this way could assure the latter of a closer interest in legislative enactments of a medical character. He hoped this matter would be taken up by the incoming administration.

Report of the Milk Commission.—Dr. ROWLAND G. FREEMAN presented this report, which showed that during the past year practically the same amount of certified milk had been supervised as during the preceding year, 14,244 quarts daily as compared with 14,598 last year. The committee was now supervising the production of certified milk on 19 farms. The inspector reported that farms producing bottled milk had a demand for all they could produce. All farms were hampered by a lack of labor and some were not keeping their barns filled, thinking that with the high cost of feed and the scarcity of labor a few cows well cared for were preferable to a larger number not kept in such good condition.

Committee on Compulsory Health Insurance.—Dr. WALTER LESTER CARR reported that this committee had held one meeting at which there had been a general discussion of the subject of Compulsory Health Insurance. It was agreed to cooperate in opposing the Nicolls Bill. There had been no other demand for activity on the part of his committee.

Public Health Education.—Dr. ESTHER L. JEFFERIS reported that this committee like the others had carried out its work under the difficulties of war conditions. The number of their workers was limited so the course of lectures had been shortened to six instead of eight as heretofore. After reviewing the subjects of the lectures and the names of the speakers, Dr. Jefferis stated that this committee had distributed 12,000 programs, that 300 posters had been put up in conspicuous places and hundreds of pamphlets had been distributed to teachers and children in the public schools. They had had, as in former years, the hearty cooperation of the newspapers, for which the committee wished on this occasion to express its gratitude and appreciation.

Report of Comitia Minora.—Dr. DANIEL S. DOUGHERTY presented this report, which showed that the Society had held eight stated meetings during the year, with a total attendance of 1460 and an average attendance of 183. The membership on Nov. 26, 1917, was 2779. Since that time 69 had been elected to membership in the Society, and 92 members had been lost, 47 by death. The membership at present was 2756, thus showing a net loss of 23 for the year. There had never been a year in the history of the Society during which it had lost so many members and so many prominent members as during the one just past.

On motion these reports were accepted.

Committee on Anti-Narcotic Drug Investigation.—Dr. JOHN P. DAVIN stated that his committee, in its report of March 25, after carefully considering the matter of drug addiction, had come to the conclusion that the addict was entitled to the same medical care vouchsafed to any other diseased or afflicted person.

It was therefore the duty of the medical profession to treat drug addicts as sick people and to safeguard their welfare and provide reasonable and intelligent medical procedure as in the case of other "diseased and afflicted" persons. After discussing the divergence of opinion as to the character of the condition known as drug addiction and the effects of the statute enacted at the last session of the legislature giving a commissioner of drugs powers hitherto unprecedented, the speaker said it was of great importance that the practitioner of medicine be placed in possession of reliable and authentic scientific, clinical and laboratory information as to the facts in respect to drug addiction, upon which there was at present so much controversy. He therefore moved that this Society request institutions equipped for laboratory and clinical research to make an investigation and estimation of such data as had already been offered or were available on this subject, and to place at the disposal of the practitioner of medicine at an early date the information concerning the same.

This motion was seconded and carried.

The Respiratory Tract as Portal of Entry for Infectious Diseases.—Dr. IRVING W. VOORHEES presented this paper, in which he said that it was going to be emphasized more and more that the majority of acute infectious diseases found a site of origin somewhere along the tortuous path of the airways. The recent study of carriers had served to emphasize the fact that an enormous number of people harbored infective bacteria which were harmful to themselves and were capable of starting a new infection on the membranes of susceptible subjects. The diphtheria bacillus, the *B. typhosus*, the pneumococcus, streptococcus, meningococcus and many others might exist in the nose and throat without giving any signs or symptoms of their presence. Physicians and nurses in the wards of hospitals frequently showed these germs in pure culture in the nose and throat and went about all unconscious of any danger. Such were temporary carriers; once they were away from the focus of infection for a few days the bacteria could no longer be found. An acute carrier was one who had had the disease and who throughout convalescence and for a few days thereafter carried the germs of his disease, while a chronic carrier continued to carry the germs for months or years thereafter. The study of carriers had shed new light on the spread of communicable disease, and had emphasized the necessity of taking at least two negative cultures from all cases before they were discharged from quarantine. The difficulty of sterilizing either the respiratory or intestinal tract after acute pathogenic infection was obvious, but it must be done if public health was to be safeguarded, and the newer teaching of medicine must demand and see that it was done. One of the greatest dangers was the missed case. This carrier question came into light very prominently during the early weeks that America was at war with Germany because of the development of cerebrospinal meningitis in cantonments. The experience of Great Britain with this problem had been a great help to us. In discussing the meningitis carrier, Dr. Voorhees reviewed the finding of the British Commission in which the conclusion was reached that every case of cerebrospinal fever was an instance of a carrier developing the disease. By culturing the nasopharynx these cases would be recognized within forty-eight hours. The British had tried a number of antiseptics to sterilize the nasopharynx and such other parts of the respiratory tract as seemed to be involved, and finally set down chloramine solution as the most effective. An apparatus designed for room disinfection, adapted to the spraying of steam, carrying also an aqueous solution of chloramine, was in use at the Rockefeller Institute, but it was cumbersome, raised the temperature of the room about 20 degrees, and could not be turned on and shut off promptly. Such a massive contrivance was not at all necessary, for the nasopharynx was very easily medicated by a simple method described later on in the paper. The exanthemata were all interesting examples of nose and throat infections which were localized for a very short time only and then became constitutional diseases with well marked and definite symptoms. Of the exanthemata, scarlet fever deserved most study because of its complications and the well marked characteristics upon which a diagnosis was based. It would seem that much could be done to shorten the course of scarlet fever by trying to cut off the foci of infection in the nose and throat. After discussing the part that the respiratory tract played in measles, diphtheria, whooping cough and parotitis, the author stated that tuberculosis of the upper respiratory tract was quite rare, and when it occurred was secondary to infection lower down. Primary tuberculosis probably never occurred in the nose, although it was possible that the nasal mucous membrane harbored tubercle bacilli for a short time, or until they worked their way down into the bronchi and lungs. The author mentioned that the bacillus of leprosy was frequently found in the nasal secretions, and considered somewhat at length common colds, influenza and pneumonia, calling attention to cold, exposure and fatigue

as factors in lowering resistance and increasing susceptibility to these infections. He said that acidosis also seemed to favor the action of bacteria, and therefore diet and medication directed to the increase of the alkalinity of the blood were indicated. After referring to the part played by the respiratory tract in focal infection he considered the treatment of infections of the respiratory tract, stating that the principles of treatment were in every case about as follows: (1) A culture should be taken, preferably on nutrient or blood agar. (2) The nose should be opened by means of astringents. (3) From a pint to a quart of irrigating fluid should be applied. (4) A sufficient quantity of a non-irritating antiseptic should be dropped or sprayed to kill the bacteria causing the infection. (5) This procedure should be repeated twice a day, or if need were urgent, every two hours. These principles varied only in detail according to whether one was working in the nose, larynx or bronchi. As to the culture, one must be sure that no antiseptic had been applied to the nose for at least three hours before taking. It was not safe to allow patients to irrigate at home. The successful use of any antiseptic was based on the rigid adherence to the following principles: (1) The antiseptic must be strongly bactericidal for all germs that were likely to infest the airways. (2) The antiseptic must not injure the mucous membranes through its activity or in the mechanics of its application. (3) There must be thorough contact with all infected parts and care must be taken to see that the antiseptic was not vitiated by dilution with the mucous membrane secretions. (4) Concentration of the antiseptic must be sufficient but not excessive in amount. (5) All conditions necessary to thorough bactericidal effect must be maintained over a sufficient period of time. Some antiseptics commonly used in the respiratory tract were argyrol, 5 to 10 per cent.; silvol, 5 per cent.; or silver nitrate, 2 per cent. solution in a de Vilbiss atomizer, No. 52, fitted with a hard rubber stem. He had also used menthol in oil from 5 to 25 per cent. with good results in cases that were not too severe in type. Nothing, however, had proved so efficient as dichloramine-T made up in a 2 per cent. solution in oil. The detail of making up this preparation was very important. As little heat should be used as possible in dissolving the powder in the oil, and every effort made not to contaminate either the bottle or the drugs. If possible, it was better to have the dichloramine-T fresh every day. He went into the detail of the preparation because he felt that poor results were due either to faulty technique or to the way in which the solution was handled afterward. In medicating the nasopharynx the patient lay down on a couch with the head extended far over and hanging freely, as in the position of operation for cleft palate. This made the nasopharynx dependent, so that any fluid dropped into it would remain as in a basin. A thin glass pipette 16 cm. long by ½ cm. in diameter, carrying a rubber suction cap like an ordinary medicine dropper, was passed directly backward, hugging the floor of the nose as closely as possible and about 1 c.c. of the dichloramine-T oil made as described was dropped into the nasopharynx, the patient remaining in this position as long as he comfortably could. In this way not only was the nasopharynx medicated, but the posterior ethmoid cells and the posterior pharyngeal wall. It was possible that some of the solution reached the sphenoid as well. In carriers, such as the meningococcus for example, this performance should be gone through with twice a day for two days, when cultures should be made once a day thereafter. After describing the details employed in the application of the dichloramine oil to the larynx and trachea, the writer expressed the opinion that the use of dichloramine-T was one of the most important additions to the knowledge of the treatment of infections of the respiratory mucous membrane which up to the present time had been brought to light.

Dr. JOHN E. MACKENTY discussed more particularly the subject of sinusitis, which he said was one of the most important factors in the etiology of systemic toxemia, and which he therefore preferred to call "chronic toxic sinusitis." This source of systemic toxemia was frequently not manifested in the course of an ordinary physical examination, yet it was frequently the cause of serious constitutional symptoms. This subject was first brought to the speaker's attention in 1907 when he himself was suffering from infection. Dr. MacKenty described the symptoms in his case, which he said was finally diagnosed as tuberculosis, because the doctors could find nothing else. As a result of a radiographic examination disease was found in his antrum, though there was no nasal discharge or any other evidence of sinus infection. This was because in this type of disease the general symptoms overshadowed the focal symptoms. The local manifestation was most important, and often the history of a case revealed a focal infection at some previous time. In searching for a focal infection one examination was not sufficient—it was often necessary to examine the patient twenty times in order to discover a chronic toxic sinusitis. Sometimes such a condition might be manifested only by a little pus coming from a sinus in the early morning. Headache, mostly in the region of the sphenoid or frontal sinus region, was suggestive of sinus infection. Frequently the radiograph was of little avail in revealing the condition. Migraine was often due to sinusitis. His object in speaking was to impress on the minds of his hearers the fact that one might have a sinusitis without local manifestations.

Dr. WALTER LESTER CARR said the subject was of particular interest in connection with the recent epidemic of influenza. It had become a routine to think that everything was all right if the tonsils and adenoids were removed, though perhaps we might have some doubt about the teeth. A point that was apparently forgotten was the lymphatic tissue of the pharynx. This tissue seemed to be very prominent as a seat of infection. Some children with infection had a discharge from the nose and accessory sinuses. During an epidemic of influenza it was well to remember that in dealing with it we were not dealing with the influenza bacillus alone, but frequently with secondary and more serious complications. The susceptibility to infection was not always the same, and different epidemics varied in intensity. The recent epidemic of influenza had nose bleed, pharyngitis, tonsillitis and laryngitis associated with bronchopneumonia, but with a slight evidence of lymph nodes involvement as detected by palpation. The lesson we had to learn was to guard against secondary infections in influenza and other infectious diseases that might cause serious complications and death. For this purpose a mild wash, such as Dobell's solution or physiological saline solution in a simple atomizer or dropper served the purpose. Free drainage of the mucous membrane was of course essential. Generally an appliance such as an atomizer or medicine dropper that the mother or nurse could use was sufficient. Unfortunately, in our enthusiasm for new antiseptics some of them had been used too strong, as dichloramine-T. Milder solutions, such as physiological saline or boracic acid seemed to be preferable for regular use. Argyrol, 10-15 per cent., used without washing off the mucous membrane before applying it, caused a thickening of secretion and was not effective. The benefit of sunlight, fresh air, and good hygiene in all infections should not be forgotten. The value of masks for physicians, nurses, and attendants to guard against secondary infections should be insisted upon, but the need for systematic cleansing of the nose and throat could not be overemphasized.

Dr. J. G. DWYER mentioned an investigation carried on during an epidemic of meningitis in an army camp in which it was found that sinus disease and adenoids were almost constantly present in meningitis carriers. As regarded influenza, it was pretty definitely proven that the Pfeiffer bacillus was the causative agent, but a strain having an increased toxicity. It would probably turn out like the pneumococcus, in that it would probably be shown that there were several types of influenza bacilli and that the one with which they had been dealing in the recent epidemic had an increased toxicity. Dr. Voorhees spoke of scarlet fever as a strentococcus infection of the nose and throat; he thought that the streptococcus in scarlet fever was in symbiosis just as it was in other sorts of infections, but that at the present time it was not considered the cause of scarlet fever. Another point was that we had been accustomed to think of the *Staphylococcus*

albus as a harmless organism, yet he knew of an instance of acute sore throat and sinus thrombosus in which the only organism that could be found was the *Staphylococcus albus*, and he knew of other instances in which it had shown itself more pathogenic than the staphylococcus aureus. The great difference between chronic sinus disease and other focal infections was that entire infection was closed in the labyrinth of the sinus and because of this we were coming to associate certain organisms with sinus disease. A point he wished to bring out was that advances in the bacteriology of the upper respiratory tract would be among the most important of future achievements in bacteriology.

Dr. Wolff Freudenthal observed that the reader of the paper spoke of tuberculosis as being a rare infection of the upper respiratory tract, but the speaker had swabbed out the pharynx in a great number of cases and found the actual tuberculous ulcer, bleeding, and the tubercle bacilli. If Dr. Voorhees would come to the Montefiore Home he would show him these primary tuberculous lesions in the nasopharynx, and he could demonstrate that they were primary tuberculous lesions both of the post nasal space and of the larynx. The more he observed the more thoroughly was he convinced that there are primary tuberculous lesions of the larynx. As to the cleansing of the nose and the methods advocated by Dr. Voorhees, they were very good, but in applying them one would have to differentiate between old persons and children. A child with high fever and a weak heart would have to be manipulated very carefully. Personally he believed that simple cleansing of the posterior nasopharynx with a simple iodine solution was best in young children, and in those a little older one might use a ½ per cent. cocaine and adrenalin and allow nature to do the rest.

Dr. Voorhees, in reply to the question as to whether it was a good thing to use argyrol on the ground that it was not wise to stop the secretions, said he quite agreed that it was not wise to stop the secretions until most bacteria were washed away or killed. He had used argyrol for the past ten years. It and the silver salts in general increased the secretions and killed bacteria. As to primary tuberculosis of the nasopharynx mentioned by Dr. Freudenthal, this did occur probably, but tuberculosis of the nose was usually associated with advanced tuberculosis elsewhere in the body. In regard to the use of antiseptic drugs on the mucous membrane of the nose and throat, we must bear in mind that we were dealing with a very delicate structure and for this reason dichloramine-T in chlorosane oil was preferable because it did not injure living animal tissue, but killed bacteria more quickly and effectively than any other similar agent. Dr. Voorhees thought it fair to say that a new era in the successful treatment of all respiratory diseases was about to be ushered in.

The Two Most Important Signs in Chronic Appendicitis.—Dr. Robert T. Morris read this paper. (See page 55.)

Dr. R. H. C. Gibbons emphasized the point that there were two kinds of tenderness associated with the appendix, the exquisite tenderness distinguished by McBurney and a lesser tenderness to which attention had been called by George Edebohls. He thought with these in mind one should be able to diagnose appendicitis. As Mr. John B. Murphy had said, "when one found pain in the region of the appendix, fever and vorsiting, one should look for trouble." If a patient presented these symptoms one was safe in telling him that he had appendicitis of low grade. McBurney was the man to whom credit should be given for the solution of that most treacherous of all diseases, the diseased appendix.

Cerebrospinal Meningitis and the War.—The year 1915 seems to have been a record one for this affection in France and England. In the zone of war activities in France the number of cases was 1073 and in England the incidence was 2566. In 1916 there was a notable falling off in both countries, which was maintained in France, although in England a high morbidity occurred in 1917. Less than half the English cases occurred in soldiers.—*Pathologia.*

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

The Unsound Mind and the Law. By George W. Jacoby, M.D., 424 pages. Price, $3. Published by Funk & Wagnalls Company, New York and London.

Clinical Medicine for Nurses. By Paul H. Ringer, M.D. 286 pages. Illustrated. Price, $2. Published by F. A. Davis Company, Philadelphia, Pa.

On the Nature of Things. By Hugh Woods, M.D., B.A., F.C.S. 248 pages. Price, $2.50. Published by William Wood and Company, 51 Fifth Avenue, New York.

Introduction to Organic Chemistry. By John Tappan Stoddard. Second Edition. 423 pages. Illustrated. Price, $1.50. Published by P. Blakiston's Son and Company, 1012 Walnut Street, Philadelphia.

United States X-Ray Manual. Prepared under the Direction of the Division of Roentgenology. 506 pages. Illustrated. Price, $4. Published by Paul B. Hoeber, New York.

Compendium of Histo-Pathological Technic. By Anna H. Adler. 92 pages. Price, $1.25. Published by Paul B. Hoeber, New York.

Physiology and Biochemistry in Modern Medicine. By J. J. R. Macleod, M.D. 903 pages. Illustrated. Price, $7.50. Published by C. V. Mosby Company, St. Louis.

Mental Diseases. By Walter Vose Gulic, M.D. 139 pages. Illustrated. Price, $2. Published by C. V. Mosby Company, St. Louis.

Information for the Tuberculous. By F. W. Wittich, A.M., M.D. 150 pages. Illustrated. Price, $1. Published by C. V. Mosby Company, St. Louis.

Equilibrium and Vertigo. By Isaac H. Jones, M.A., M.D. 444 pages. Illustrated. Price, $5. Published by J. B. Lippincott Company, Philadelphia.

Les Projectiles Inclus dans le Médiastin. By Dr. René Le Fort. 252 pages. Illustrated. Price, 11 francs. Published by Felix Alcan, Paris, France.

Surgical Treatment. By James Peter Warbasse, M.D. Volume II. 829 pages. Illustrated. Price, $30.00 per set of three volumes. Published by W. B. Saunders Company, Philadelphia, Pa.

The Autonomic Functions and the Personality. By Dr. Edward J. Kempf. 151 pages. Price, $2.00. Published by Nervous and Mental Disease Publishing Company, New York and Washington.

International Health Board of The Rockefeller Foundation. 155 pages. Illustrated. Published by The Rockefeller Foundation, 61 Broadway, New York.

Johnson's Standard First Aid Manual. Edited by Fred B. Kilmer. 139 pages. Illustrated. Price, cloth, 50 cents. Published by Johnson & Johnson, New Brunswick, N. J.

American Red Cross Text-Book on First Aid, by Colonel Charles Lynch. Woman's Edition. 194 pages. Illustrated. Price, paper, 35 cents. Published by P. Blakiston's Son & Co., Philadelphia, Pa.

American Red Cross Abridged Text-Book on First Aid, by Colonel Charles Lynch. General Edition. 209 pages. Illustrated. Price, 35 cents. Published by P. Blakiston's Son & Co., Philadelphia, Pa.

American Red Cross Text-Book on First Aid and Relief Columns, by Colonel Charles Lynch. Illustrated. 262 pages. Published by P. Blakiston's Son & Co., Philadelphia, Pa.

American Red Cross Text-Book on Home Hygiene and Care of the Sick, by Jane A. Delano, R.N. 334 pages. Illustrated. Price, 60 cents. Published by P. Blakiston's Son & Co., Philadelphia, Pa.

The Hearts of Man, by R. M. Wilson, M.B. 173 pages. Illustrated. Published by The Oxford Press, American Branch, New York.

Psychology and the Day's Work, by Edgar James Swift. 377 pages. Price, $2.00. Published by Charles Scribner's Sons, New York.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 95, No. 3.
Whole No. 2515.

New York, January 18, 1919.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

EXPERIMENTAL EVIDENCE AS TO IMMUNITY FROM TUBERCULOUS INFECTION.

By GEORGE E. BUSHNELL,

Colonel, M. C., U. S. Army, Retired.

WASHINGTON, D. C.

Our interest as clinicians in the study of the natural history of tuberculosis does not center upon the tubercle bacilli but upon the tissues of the human body that resist them. We wish to know the laws of resistance, the conditions which favor and those which oppose the growth of the tubercle bacilli. To accomplish this we must institute our experiments in such a way as to imitate as closely as possible the conditions of natural infection; and even natural infections if primary and massive, as, for example, the infections which lead to the acute generalized miliar tuberculosis of the infant, because hopeless are of relatively small interest to us except from the standpoint of prophylaxis. We especially desire to know what can be learned from the smaller artificial inoculations with tubercle bacilli.

The greatest mistake that has been committed in animal experimentation has been to give too large infecting doses, especially as they are usually given by methods that break through the natural defensive mechanisms of the body, that is to infect in ways which can never or but rarely occur in nature. When we study the results of experiments in subcutaneous inoculation we should reflect that in the first instance the injecting needle has broken through the barrier of the skin and pierced small venules, depositing, moreover, its contents in a part, the subcutaneous tissue, which is not designed by nature for the task of defense of the organism. Furthermore, the creation of a depot or deposit of tubercle bacilli with the inevitable result of a caseation has led to the formation of what is practically an artificial tubercle. Hence the animal has what might be called the unnatural task of coping with a prematurely formed tubercle before it has had the opportunity to develop its defensive mechanisms—something that never occurs in nature—with the additional disadvantage of permitting the penetration of the invading organisms into the blood instead of confining them, as in natural conditions, to the lymphatic system at the outset. In primary infections by the intravenous method, which is essentially an artificial bacteremia, we have a method of infection which can likewise never occur under natural conditions, in which tuberculous bacteremias are always secondary to local infections. If we institute feeding or inhalation experiments we should bear in mind that animals rarely have the opportunity to ingest millions of tubercle bacilli and that if they inhale the bacilli it is not in the form of a finely divided spray propelled by a powerful pump and continued until the lungs are completely filled with the watery particles. It is a common error to apply the results of experimentation upon unprotected animals, primary inoculation, to the chronic pulmonary tuberculosis of the human adult, a process which always develops in the already infected, and, therefore, to some extent protected, organism, a secondary form of tuberculosis. Another error is to draw conclusions from the phenomena of the period which immediately follows the primary inoculation of animals, the period of sensitization, as to what is to be expected in human pulmonary tuberculosis in which there has been ample time to create a well developed and mature immunity. If we reject experiments in which these errors have been committed we shall at once dispose of a large proportion of the experimental data on record. In so far as concerns experiments that have been wisely planned and are worthy of consideration we should still in our study of them bear in mind constantly that allowances are to be made for the unnatural conditions of the experiments which arise from the necessity under which the investigator has labored of employing a dosage excessive in comparison with the probable dosage of natural infection with a view to producing infection within a reasonable time and in such a way as to exclude the probability of confusion with intercurrent natural infections. The conditions of artificial inoculation may, then, in many respects be less favorable for the development of immunity than those of the natural infection. On the other hand, however, the artificial bacteremia is more favorable than the natural bacteremia because it may be created when the animal's resistance is at its best whereas large natural bacteremias can only occur when resistance is lowered to the point of permitting softening and ulceration of glands, rapid proliferations of bacilli, etc. Hence anaphylactic death which may occur in immunized animals after large reinfections is never met with in the natural bacteremias because irruption of bacteria into the blood current or their multiplication within blood vessels does not occur when resistance is high enough to produce a rapid bacteriolysis. We must then be cautious in applying to man the results of animal experiment. Indications of the highest value are afforded by it, but, after all, the conditions are not entirely comparable with those of the naural course of tuberculosis.

In what follows it is proposed to describe briefly some of the experiments which throw the most

light upon the facts of the development of acquired resistance to tuberculosis under natural conditions.

Koch's "fundamental experiment" led to the treatment with tuberculin, and upon it as the first stone has been erected the whole structure of the theory of immunity in tuberculosis. "The inoculation wound of a healthy guinea pig which has been injected subcutaneously seems at first to heal. But in the course of ten to fourteen days a hard nodule forms which soon breaks down and remains as an ulcer until the death of the animal. But animals already tuberculous behave differently. Most suitable are guinea pigs which were inoculated four to six weeks previously. In such an animal no nodule forms at the point of injection, but the latter becomes hard and has a peculiar color. It soon appears that the skin is necrotic. It is cast off and a shallow ulceration remains which generally heals rapidly and permanently without the neighboring lymph glands becoming infected."[1] From this observation it appears that the tissues of the already infected animal including the lymph glands react differently to a reinfection. Experiments that throw light upon the nature of these changes will be considered in the following pages:

THE PRIMARY SUBCUTANEOUS INOCULATION.

The period of incubation is the time which elapses between the day of infection and the appearance of manifest pathological changes. The length of this period varies in general inversely with the size of the infecting dose. At about the same time as the swelling and reddening of the point of inoculation the regional glands begin to swell. With very small doses the swelling of the glands may appear much earlier, with large doses considerably later than the changes at the point of inoculation.

Grüner and Hamburger[2] give the average periods of incubation as follows:

After Infection With	Changes at Point of Inoculation Appear	The Gland-Swelling Appears
0.5 mg. T.B.	After 6 days	After 8 days
0.005 mg. T.B.	After 9 days	After 10 days
0.0005 mg. T.B.	After 12 days	After 9 days
0 00001 mg. T.B.	After 25 days	After 20 days

They tested the behavior of the tissues, as altered by the first injection, on reinfection with tubercle bacilli. Guinea pigs infected primarily with 0.0005 mg. human tubercle bacilli were reinfected with 0.5 mg. of the same. If reinfection occurred on the fourth day after primary infection, six days were required before the point of reinfection showed signs of inflammation. But if reinfection was done on the sixth day after primary infection, the point of reinfection showed distinct reddening and infiltration in twenty-four hours. The sensitiveness increases, for the reddening and infiltration were more marked in animals reinfected on the eighth than in those reinfected on the sixth day and still more marked in those reinfected on the tenth day. These changes at the point of reinoculation may anticipate the visible alterations at the point of the original injection. Moreover, the phenomena obtained at the point of reinoculation are not dependent upon proximity of the point of reinoculation to the point of primary infection. They are seen if the reinoculation is done in any part of the body. Hence we conclude that before even swelling and redness mark the local reaction at the place of the original introduction of the tubercle bacilli, the whole body has begun to undergo a change toward the tubercle bacilli characterized by an increased rapidity of inflammatory reaction to their presence which appears to be even more marked elsewhere than it is in the lesion inflicted by the primary injection.

The tuberculin reaction is closely analogous to the reaction to tubercle bacilli and is, of course, used much more as a proof of the existence of a tuberculous infection and as a measurement of the sensitiveness of the organism to it. It is probable that all subjects who have come in contact with the tubercle bacilli can be made to react positively to tuberculin by sufficiently large doses frequently enough repeated, but in practice a considerable percentage of mature adults do not react to tuberculin as usually administered. In young children a positive tuberculin reaction is usually evidence that the disease is present in an active, though not necessarily clinically important, form. And in general a ready response to tuberculin is to be regarded as a proof that the organism has recently been obliged to summon its forces for defense. There is, then, an ill-defined period in the life of the tuberculous individual and also in that of those vaccinated against tuberculosis by a small infection in which there is a sensitization to tuberculin.

The irregular manifestation of tuberculosis, gland tuberculosis, bone and joint tuberculosis, tuberculosis of the skin, etc., as they occur in children are ascribed by some to a sensitization to tubercle bacilli which leads to the holding fast of the bacilli wherever they may be found in the body with the result that tubercle foci are developed. These forms of tuberculosis, really ascribable to a slow and imperfect development of immunity rather than to an active process of arrest of the bacilli, is called the period of sensitization to tuberculosis, or by Ranke the period of the immediate reaction. Now sensitiveness to tuberculin is not incompatible with a high degree of immunity to tuberculosis and the forms of tuberculosis mentioned above, while they are evidence that much is lacking to the attainment of a perfect immunity, are still found in periods of the disease in which there is sufficient immunity to localize the tuberculous foci and in which, to judge from animal experiments, new infections from without would not take root.

Quite different from these kinds of so-called sensitization is the period of sensitization immediately following the primary infection, whether artificial or natural, a knowledge of which is necessary in order to understand the mode of development of immunity and to judge the results of animal experimentation. Those who first repeated Koch's fundamental experiment obtained results which seemed to contradict his findings, showing rather an impairment than an increase in resistance as the result of the first infection. Bail's experiment, for example, is almost as famous as Koch's. Bail[3] found that if an already tuberculous guinea pig is reinfected with 100 mg. of tubercle bacilli intraperitoneally, it dies within a few hours, while a normal guinea pig infected for the first time with the same dose of tubercle bacilli lives two or three weeks. Without attempting to give an account of the historical

development of the knowledge of this obscure subject, it is sufficient for us to say that further study has now made it clear that reinfections while the processes of immunization are in their infancy are prejudicial to the development of immunity and in fact hasten the development and the generalization of tuberculosis. Gilliland[4] says: The animal vaccinated against tuberculosis with human tubercle bacilli during the period of vaccination and for some weeks afterward is more liable to contract tuberculosis than a normal animal. The natural resistance of the animal is lowered during the time of vaccination. Calmette[5] says that animals isolated after a single infection of average intensity made artificially by the digestive tract almost always get well and for at least a year, perhaps longer, they are no longer susceptible to reinfection even by the ingestion of enormous quantities of virus through the oesophageal tube. On the other hand, cattle which have absorbed several times at intervals of days or weeks minimal doses of virulent bovine tubercle bacilli never get well. They acquire a severe tuberculosis with course the more rapid the more frequent the infections have been. The most common mistake in experimentation with a view to determine the presence of immunity is to reinfect at too early a date. Römer[6] on the basis of his experiments with the vaccination of cattle with bovovaccine against tuberculosis makes the rule that no reinfections should be performed in order to test the immunization until at least three months, preferably six months, have elapsed after the original inoculation. Dietl and Hamburger[7] have published work on what they call tuberculous exacerbation in which they show that while an immunity is undoubtedly acquired from the original infection that immunity does not prevent the breaking down of the skin at the point of reinfection, the swelling of lymph glands in connection with the second infection, etc. But upon study of the protocols of their experiments it appears that the primary infection was made on June 11 and the reinfection on July 17, but little more than a month later. Instead, therefore, of testing the immunity, Hamburger was really interfering with the successful production of an immunity.

THE BEHAVIOR OF THE REGIONAL LYMPHATIC GLANDS.

As has already been stated, the nearest gland of the region in which the point of inoculation is situated swells at about the same time as the first changes appear in the skin over the depot of bacilli.

The swelling of the glands is due, of course, to their invasion by tubercle bacilli from the point of inoculation. This takes place very quickly and not only the nearest gland but a series of glands and gland groups are involved, usually in a centripetal direction. Hamburger cites the experiment of Nötzel who, injecting the knee joint, found tubercle bacilli in the inguinal glands in five minutes and later in the iliac and lumbar glands. The swelling of the more distant glands is progressively less marked in each gland as the infection proceeds upward. And not only the lymph glands, the viscera are also infected at a very early time. Grüner and Hamburger were able to show that the spleen of the guinea pig contains tubercle bacilli on the ninth day after infection. The organ showed no histologically recognizable tuberculosis, but the presence of the bacilli was demonstrated by the inoculations upon normal guinea pigs. This is usually considered to denote the penetration of tubercle bacilli into the blood stream and their transportation by this route to the vicera. It is not impossible, however, that the transport was by the lymph channels. But the importance of the observation, is this, that it shows that after subcutaneous injection tubercle bacilli are very widely spread through the body in a brief space of time. While in a feebly resistant animal like the guinea pig, which has received what will prove a fatal dose, such dissemination may, and usually does, lead to the formation of so many manifest foci, in animals of higher resistance or even in the guinea pig with very small doses the smaller collections of tubercle bacilli do not go on to produce manifest tubercles. This is, of course, much more marked in the partially immune animal than in the "fresh" animal. Examples of latency of the depots of tubercle bacilli will be given further on in this paper.

PRIMARY INOCULATIONS. LARGE DOSE.

Römer.[6] Guinea pig injected Oct. 3, 1908, with 1/1000 mg. virulent bovine tubercle bacilli subcutaneously. Died, Dec. 23, 1908. Autopsy, large, cheesy infection tumor, neighboring glands caseous. Enormously extensive miliary tuberculosis of liver, spleen, and lungs.

Hamburger.[9] Guinea pig. Intraperitoneal injection 1 c.c. thick suspension human tubercle bacilli, Feb. 6. Died, April 28, with miliary tuberculosis. Tubercles in peritoneum, spleen, liver, lungs, hemorrhagic peritonitis. These are examples of the usual course of infection of the guinea pig with even small doses (as in first example) of virulent tubercle bacilli. Little is to be learned of the development of an immunity from such experiments. But even so feeble a resistance as that of the guinea pig is not altogether helpless in the presence of tuberculous infection if only the dose is sufficiently reduced, as is shown in the following examples:

Römer and Joseph.[2] Guinea pig infected with 1 mg. bovovaccin (attenuated human tubercle bacilli) subcutaneously. Killed in eleven months. Cheesy nodule at infection site. Enlarged axillary gland; otherwise no tuberculosis. Guinea pig infected with 1 mg. bovovaccine subcutaneously; infection node formed and subcutaneous glands enlarged which later diminished in size. Lived fourteen months; cause of death unknown. Knee-fold gland cheesy; other organs without change. The cheesy gland, inoculated into another guinea pig subcutaneously caused death in three months from typical inoculation tuberculosis of enormous extent. Guinea pig infected with 1 mg. bovovaccine subcutaneously; typical tuberculin sensitiveness, infection node present; subcutaneous glands enlarged. Killed moribund in twenty-two months; cheesy infection node, left axillary gland enlarged, firm; spleen slightly enlarged; lungs rather abundant gray foci; lung contracted in their vicinity.

We note in the foregoing examples that two of the guinea pigs lived respectively eleven and fourteen months, and so far as tuberculosis is concerned, might have lived a much longer time, the infection having been so weak that the animals had time to localize the disease and develop a successful resistance. How high the immunity was is shown by the

fact that the cheesy gland in the second example contained enough tubercle bacilli to cause death from acute infection in another animal. Note here that the immunity did not consist in destroying the bacilli, which, on the contrary, were living and virulent. This and other instances which will be cited further on show how small a part bacteriolysis plays in successfully resisting tuberculosis. In the third example the same dosage produced a more generalized infection. Still the animal lived a very considerable time considering the normal duration of the life of a guinea pig and the contraction of the lung about the tuberculous foci shows an effort at resistance by the development of fibrous encapsulations. Death in this case does not appear to have been produced unmistakably by tuberculosis, though the tuberculous process was undoubtedly progressive. In every series of experiments of this kind one must be prepared for individual differences of the animals in natural resistance and in the ability to acquire increased powers of resistance. These differences do not depend upon the age or weight of the animals, but upon some vital property, the nature of which is not understood. In predicting, therefore, the development of immunizing reactions we must expect that some of the individual animals will be less successful than others in their resistance to the tuberculosis.

	First Infection.	Second Infection.	Death.	Autopsy.
Principal	Jan. 6, 1908, 1/5 mg. 10 day bovovaccine subcutaneously, left shoulder.	June 4, 1908, 1/10,000 mg. swine tubercle bacilli, right shoulder.	Dec. 19, 1908.	Left shoulder, two cheesy nodules. Left axillary and knee glands caseated. Right shoulder, fibrous node. No gland changes. Spleen somewhat enlarged, two small tuberculous foci. Liver normal. Lungs, diffuse hepatization. Upper lobes adherent. Culture shows human tubercle bacilli.
Principal.	Jan. 6, 1908, 1/5 mg. 10 day bovovaccine subcutaneously, left shoulder.	June 4, 1908, 1/10,000 mg. swine tubercle bacilli, right shoulder.	Still livea (May 1, 1909)	Left shoulder, node from first infection. No recognizable result from second infection.
Control for first infection.	Jan. 6, 1908, 1/5 mg. 10 day bovovaccine subcutaneously, left shoulder.	.....	Sept. 1, 1908.	Left shoulder caseous node. Small caseous axillary and knee glands. Spleen slightly enlarged, granulated. Liver some necrotic apots. Lungs partly adhereot to chest wall, upper lobes diffuse cheesy pneumonia, lower lobes numerous small tuberculous foci.
Control for second infection.	.....	June 4, 1908, 1/10,000 mg. swine tubercle bacilli, right shoulder.	Oct. 4, 1908.	Right shoulder, cheesy node size walnut. Axillary and knee glands caseous. Spleen enormous. Liver and lungs full of gray miliary tuberculous foci.

EXPERIMENTS IN TUBERCULOUS REINFECTION.

Method—Animals are infected with a small dose of turbercle bacilli and after a suitable interval the immunity acquired as the result of the infection is tested by reinfection with a much larger dose of bacilli. Other normal animals are given the first infection only in some cases, the second infection only in other cases, so that they may serve as controls respectively for the two infections. An example from Römer using guinea pigs:

Immunity is only derived from contact with living and virulent tubercle bacilli. To prove the fact that previous treatment with dead tubercle bacilli or with tubercle bacilli avirulent for the animal produces no immunity, Römer made the following experiments:

Guinea pigs previously treated with dead tubercle bacilli, April to July, 1907:

	First Infection.	Second Infection.	Killed.	Result.
Principal.	Various preparations of dead tubercle bacilli.	June 4, 1908, 1/10,000 mg. swine tubercle bacilli, right shoulder.	Sept. 7, 1908.	Walnut sized cheesy tumor. Caseated axillary and knee fold glands. Numerous tubercles, lungs, liver, spleen.
Control.	Various preparations of dead tubercle bacilli.	.....	Sept 7, 1908.	Free of tuberculosis.

Guinea pigs previously treated with avirulent tubercle bacilli:

	First Infection.	Second Infection.	Death.	Result.
Principal.	June 6, 1907, 1/2 mg. Avian tubercle bacilli, left shoulder.	June 4, 1908, 1/10,000 mg. swine tubercle bacilli, right shoulder.	Sept. 22, 1908.	Caseous ulcer, right shoulder, caseous axillary and kneefold glands. Spleen enlarged. Lungs completey filled with cheesy foci.
Control.	June 6, 1907, 1/2 mg. Avian tubercle bacilli, left shoulder.	.....	Killed Sept. 22, 1908.	Free of tuberculosis.

Treatment with dead or with living but avirulent tubercle bacilli produced no visible signs of immunity.

In the experiment with living and virulent tubercle bacilli the bovovaccine, though given in smaller dose, appears to have been stronger than in the examples cited previously. Comparing the autopsy of the principal that died with that of the control for the first infection we find a great similarity. In both there were local evidences of the injection in caseous nodes and enlarged and caseous neighboring glands. In both the spleen is somewhat enlarged. The lungs are the seat of a fatal pneumonia, apparently more advanced in the control, the condition of the liver is better in the principal. Culture from the lungs of the principal shows tubercle bacilli of the human type. The node

of the right shoulder is, of course, due to the second infection. It is quite evident from this comparison that the condition of the principal was at least no worse than that of the control. It is to be noted that this animal lived about three and one-half months longer than the control for the first infection. This is quite common in infections of this kind, as if the second infection, instead of harming, actually benefited the tuberculous animal, perhaps by stimulating his immune processes. The second principal, still alive one year and four months after the first infection, is a much more successful case than the first. Examining now the control for the second infection, we find an enormous spleen with lungs and liver full of tubercles, death having occurred in four months after infection from acute tuberculosis from the very virulent strain of swine bacilli which was used for the second infection. There can be no question that the effect of the first slight infection was to confer a high degree of immunity, even though in one case it led to death from tuberculosis, in that it enabled the doubly infected animals to resist with ease reinfection with virulent bacilli.

It will be noted that in those of the foregoing experiments in which the primary infection was made with virulent bacilli, the point of reinfection was represented by a fibrous node or by no changes which could be detected by palpation, and the neighboring glands are stated not to have been enlarged, while as a rule at the site of the primary infection there is an ulcer or a caseous node. This agrees with the findings in Koch's fundamental experiment. The primary inoculation is attended by swelling of the adjacent lymph gland or glands. A depot infection if the infecting dose has been of some size results in a tubercle which caseates and may or may not break down into an ulcer. In infections of the pharynx, throat, and intestines, the point of entrance is usually free of macroscopic changes. From the facts of depot infection the general law has been deduced that the primary focus leads to enlarged and caseated glands and that conversely enlarged and caseated glands point to the fact that the primary focus is or has been situated in the area drained by these glands.

From this law erroneous deductions have frequently been made as to the site of the portal of entry of tubercle bacilli into the body. There is just this much truth in the law as a general law, that when the primary infection is large, as in depot infections and sometimes in infections through the pharynx or intestines, the nearest regional gland swells greatly, the lymph channels are blocked, and the inflammation tends to remain for a time localized. But in case of small infecting doses which are probably the rule in natural infection, the infection does not produce marked swelling in the nearest gland, this gland does not become blocked, and the infection travels on in diminishing amount through the series of glands to which the gland first infected belongs. In cases of this kind it may be impossible, at least during life, to determine the portal of entry. Another law of wider application is that primary infections are characterized by swelling of the gland, in secondary infections the glands do not swell. The fact that in reinfection the glands do not become enlarged at all or enlarge but slightly and for a relatively short time has attracted much attention. Weleminsky[10] goes so far as to speak of an especial immunity of the lymphatic system as an effect of the primary infection. It is believed, however, that the failure of the glands to become inflamed when secondary infections are made in their vicinity is simply a manifestation, though an especially striking one, of the fact which we have seen illustrated in the foregoing experiments that all parts of the body of a tuberculous animal become insensitive to reinfection. This law applies especially to artificial depot inoculations.

In tuberculosis of the lymphatic system there may be a chain of glands of which some of the larger glands are swollen and caseated, while the intervening glands remain small and appear normal to macroscopic inspection. That it would be erroneous always to draw conclusions as to the portal of entry from the location of the largest glands is best shown by the fact that sometimes the tracheobronchial glands alone swell in infections made at a distance from the lungs.

The objection having been made that, since spontaneous tuberculosis apparently progresses unhindered, the facts as to protection against tuberculosis from infection with cultures of tubercle bacilli would not apply to infections with "animal" tubercle bacilli (*i. e.* tubercle bacilli derived directly from the body of a tuberculous animal), Römer and Joseph[2] instituted a series of experiments to answer the questions: First, what is the result of infecting animals with tubercle bacilli adapted to live in the animal body? and, second, is the tuberculous animal especially sensitive to tubercle bacilli which have adjusted themselves to the conditions of its own body?

Method—An axillary gland is extirpated from a tuberculous animal the first infection of which has been made by subcutaneous inoculation with human tubercle bacilli into the shoulder. The gland is at once rubbed up into an emulsion in physiological salt solution and 2 c.c. of this emulsion injected into the owner of the gland and also into a normal guinea pig as the control for the second infection.

The following is an example of these experiments:[2]

	First Infection.	Second Infection.	Death.	Autopsy.
Principal.	July 29, 1909, 1 10,000,000 mg. T.B. left shoulder.	Jan. 28, 1910, 2 c.c. gland emulsion right shoulder.	Killed June 13, 1910.	Left axillary glands (two) size hazel nut. Right shoulder perfectly smooth. Bronchial glands pea-sized. Left apex, focus, size grain of rice. Spleen slightly enlarged.
Control for first infection.	July 29, 1909, 1 10,000,000 mg. T.B. left shoulder.	....	Killed June 13, 1910.	Left axillary gland size walnut, kneefold gland size pea. Lungs 5 foci size pinhead. Left apex adherent. Small cavity left apex. Bronchial glands size lentil. Spleen slightly enlarged.
Control for second infection.	....	Jan. 28, 1910, 2 c.c. gland emulsion (from principal) right shoulder.	Killed June 13, 1910.	Right shoulder several caseated infection nodes. Caseated axillary and kneefold glands, pea to bean-sized. Severe tuberculosis lungs and liver. Tuberculosis of spleen.

There can be no question that the very slight disease of the principal dated solely from the first infection, and that the second infection, which produced severe tuberculosis in an unprotected animal, had no effect whatever upon it, though this infection was performed with the use of tubercle bacilli from its own body. This experiment well shows that the immunity toward reinfection is not simply a local immunity (*i. e.* confined to the neighborhood of the point of inoculation, in this instance in the subcutaneous tissues), but that the rest of the body is also immune.

In another series of experiments[8] one guinea pig, originally infected with bovovaccine, and another which had spontaneous tuberculosis of the cervical glands, were subjected to reinfection with 1/1000 mg. swine tubercle bacilli injected subcutaneously in the right shoulder. The point of the second infection in both animals showed no visible alterations. Four months after the second infection a small bit of tissue excised from this place in both animals was inoculated by Römer into two normal guinea pigs subcutaneously, both of which died of miliary tuberculosis in about six months. In these experiments the animals had shown themselves entirely immune, so far as any evidence of an active process was concerned, to the virulent tubercle bacilli of the second infection, the immunity being as marked in the case of spontaneous tuberculosis as in the animal artificially inoculated, but the tubercle bacilli of the second infection were, nevertheless, proved to be living and virulent. Notwithstanding this extraordinary resistance, both of the doubly reinfected animals died some four months later, proof that the primary tuberculosis was the cause of death in the animal inoculated with bovovaccine being afforded by the fact that cultures from its lungs showed tubercle bacilli of the human type.

We have seen (table, p. 93) that the cheesy gland which resulted from the primary infection of a guinea pig which otherwise resisted the disease successfully for fourteen months likewise contained sufficient living tubercle bacilli to produce early death from enormously extensive tuberculosis in an unprotected animal. In both of these cases the immunity developed as a result of the primary inoculation sufficed to restrain large collections of tubercle bacilli from extending. The difference between the two cases is, of course, this, that in the animal with the cheesy gland, this infection had taken place before immunity had been acquired; the infection being slight in severity, opportunity was afforded to develop sufficient immunity to localize the disease, but that immunity was powerless to do more than to encapsulate the cheesy focus, whereas in the other animal a certain immunity having been already acquired, the more virulent bacilli of the reinfecting injection were prevented from forming a caseous focus or from giving any sign of even the slightest inflammatory reaction, and that, too, although the original tuberculosis in both cases was destined to lead to the death of the animal within a few months. Here is a paradox which may well furnish food for reflection: An animal fatally ill with tuberculosis possesses a complete immunity to lethal doses of tubercle bacilli of a strain much more virulent than that of its original infection. The only explanation for this can be that the general immunity acquired in even an unsuccessful attempt at resistance to tuberculous infection is strong enough to resist absolutely second infections with tubercle bacilli, though it may not be strong enough to prevent the spread of tubercle bacilli plus a collection of their poisonous products. This experiment illustrates from another point of view the fact derived from daily observation that the consumptive is able to localize his disease for many years, though it may ultimately cause his death. If we put the facts in this way he is not subject to extensions, so long as his immunity is maintained, from bacilli that escape into the blood from his lesions—we shall make clearer the analogy that exists here, and we may add that if the tuberculous individual is able to resist thus his own bacilli he is much more able to resist those that may come to him from without, irrespective of the relative virulence of the tubercle bacilli thus acquired.

Römer[11] reports very numerous experiments in tuberculous reinfection of the guinea pig, not only by subcutaneous injection, but also by inhalation and ingestion of tubercle bacilli and by contact with animals with open tuberculous ulcers, all of which point with more or less distinctness to an immunity against all subsequent infections derived from a previous infection. While the guinea pig is the cheapest and most easily handled of all the animals of experiment, so that the use of guinea pigs is practically unavoidable in extensive experimentation, the resort to this animal has the objection that when once tuberculous, however slight the infection, he goes on, as a rule, to develop a progressive and fatal tuberculosis. To decide whether there is evidence of the existence of an immunity it is necessary in such cases to compare with care the lesions of the principals with those of the controls, to determine in some cases the strain of tubercle bacilli which can be cultivated from the lesions, to consider the comparative length of life of the various animals, etc. In short, the results, while very significant, require careful analysis. They are not so conspicuously successful as to command immediate acceptance.

In a later series of experiments, Römer,[9 11] therefore resorted to the sheep, an animal which, he says, has about the same resistance to tuberculosis as man. The success of these experiments is much more marked.

Bits of lungs of Sheep Nos. 47 and 51 were inoculated into guinea pigs which when killed in three months were found free of tuberculosis.

LATER HISTORY OF SOME OF THE SHEEP.[11]

Sheep No. 83, killed June 25, 1911. Was in good health and at its best weight. At point of first injection there was a wulnut-sized focus containing crumbly cheese, partly calcified. The shoulder gland was enlarged and firm and contained crumbly cheese, surrounded by a firm connective tissue capsule. Otherwise, no tuberculosis. Two years after the last infection, this sheep was, therefore, shown to have been fully immune not only to the second subcutaneous injection, but also to the third severe intravenous injection which killed the control in eight months.

Sheep No. 58 was given another reinfection intravenously with 2/10 mg. TB per 10 kilos, on July 7,

1911; suffered from high fever and intense dyspnea and died July 9, 1911, of anaphylaxis. Autopsy: No evidence of the first infection subcutaneously. In the lungs, small isolated gray-yellow tubercles. Marked edema.

	First Infection.	Second Infection.	Result.	Remarks.
Principals Nos. 83, 58, 59.	Aug. 6, 1908, 1/10 mg. per 10 kilos subcutaneously.	June 25, 1909, 2/10 mg. per 10 kilos intravenously.	Still alive, clinically healthy	Sheep 83 had in addition 2/10 mg. per 10 kilos Oct. 27, 1908. (Weight of sheep between 20 and 30 kilos.)
Nos. 47, 51.	Oct. 27, 1908, 2/10 mg. per 10 kilos subcut.	June 25, 1909, 2/10 mg. per 10 kilos intravenously.	Killed April 29, 1910 (47). May 5, 1910 (51).	Subcutaneous infection node size walnut (inj. Oct. 27, 1908). Otherwise free of tuberculosis.
Controls first infection No. 80.	Aug. 6, 1908, 1/10 mg. per 10 kilos subcut.	.....	Killed Feb. 18, 1908.	Infection node size walnut, otherwise free of tuberculosis.
No. 49	Oct. 27, 1908, 2/10 mg. per 10 kilos subcut.	.....	Killed April 29, 1910.	Infection node aize walnut, otherwise free of tuberculosis.
Control second infection No. 99.	.....	June 25, 1909, 2/10 mg. per 10 kilos intravenously.	Aug. 25, 1909, died of tuberculosis.	Lungs completely filled with equal-sized and equally distributed miliary tubercles, bronchial glands much swollen, contain tubercles. Abdominal organs without (macroscopic) changes.

Sheep No. 59 had the same infections as Sheep No. 58. Last injection was followed by high fever and dyspnea as in Sheep No. 58, but these symptoms abated quickly. It died, however, on Aug. 12, 1911. Autopsy showed distomiasis of the liver. There was a node on the left shoulder containing crumbly cheese. Sparse pea-sized tuberculous foci in the lungs.

Sheep No. 33. After violent fever reaction from infection of Nov. 22, 1909, it lived in the best of health until the end of June, 1911. Then it became sickly and died on Aug. 11, 1911, of severe distomiasis of the liver. A bean-sized node of firm connective tissue was present at the point of injection containing quite dry cheese. The neighboring shoulder gland was in a similar condition. In the lungs there were sparse and in part completely calcified foci. No caseation anywhere. Abdominal organs normal. This animal had three injections: On Sept. 20, 1906, 1/100 mg. per 10 kilos subcutaneously; on Aug. 6, 1908, 1/10 mg. per 10 kilos subcutaneously; on Nov. 22, 1909, 1 mg. per 10 kilos intravenously. Control died in four weeks. The dose of Nov. 22, 1909, was 5 mg., equaling 200 millions TB. The second infection, Aug. 6, 1908, was equal to 16 millions TB. There was no sign of these infections, the only evidence of tuberculosis dating from the first infection of only 1.6 millions TB.

were completely filled with gray miliary tubercles, confluent in places. Bronchial and mediastinal glands were much swollen, but presented no distinct foci.

The foregoing tables are reproduced (with some modifications as to form) from Römer's work on account of their importance as evidence of the height which immunity from tuberculous infection may reach in the naturally resistant animal. They should be carefully studied by all who desire to understand the immunity of man to tuberculosis. Attention is called to the fact that Sheep Nos. 47 and 51 acquired a durable immunity from the same dose subcutaneously, that given intravenously killed Sheep No. 99 in two months with miliary tuberculosis, showing the great value to the infected animal of any measures calculated to localize the infection. It will be noted that some of the sheep, notably Sheep No. 92, did not acquire a sufficient immunity to restrain entirely the development of a tuberculosis of lungs and glands. Römer leaves it an open question whether the lung tuberculosis of Sheep No. 92 dates from the first or second infection. However that may be, there is no doubt that the first infections (estimated at 1.6 millions of tubercle bacilli) were large infections, quite beyond what might be expected under natural conditions. That any of the sheep were able to overcome completely so large a primary infection is truly remarkable. We have already noted the fact that under natural conditions a severe bacteriemia does not occur in the resistant animal. Death with lung edema from anaphylaxis as seen in Sheep Nos.

	First Infection.	Second Infection.	Result.	Remarks.
Principals No. 71.	June 6, 1908, 1/10 mg. per 10 kilos, subcut.	Nov. 22, 1909, 1 mg. per 10 kilos intravenously.	Nov. 24, death from anaphylaxis.	Infection node pear-sized. Tuberculosis of shoulder glands and of mediastinal glands. No trace second infection. Acute edema of lungs, which are free of tubercle. Cheesy foci in udder.
	Jan. 4, 1909, 2/10 mg. per 10 kilos subcut.	.....	.....	Sheep No. 71 received also a subcutaneous injection of 2/10 mg. per 10 kilos body weight on Jan. 4, 1909, six months after the first infection.
No. 92.	Jan. 4, 1909, 2/10 mg. per 10 kilos subcut.	Nov. 22, 1909, 1 mg. per 10 kilos intravenously.	April 28, 1910, killed.	Infection node size hazel nut. Tuberculosis of shoulder gland, of liver, of tracheal, bronchial and mediastinal glands. Extensive lung tuberculosis.
No. 33.	Aug. 6, 1908, 1/10 mg. per 10 kilos subcut.	Nov. 22, 1909, 1 mg. per 10 kilos intravenously.	Still lives, healthy.	Had also injection of 1/100 mg. per 10 kilos body weight subcutaneously Sept. 20, 1906.
Control first infection No. 93.	Jan. 4, 1909, 2/10 mg. per 10 kilos subcut.	.....	Killed April, 1909.	Tuberculosis of subcutaneous glands of liver, of tracheal, bronchial and mediastinal glands. Moderate lung tuberculosis.
Control second infection No. 111.	.....	Nov. 22, 1909, 1 mg. per 10 kilos intravenously.	Dec. 20, 1909, died.	Both lungs thickly studded with tubercles. Shoulder gland and bronchial glands swollen. Other organs macroscopically normal.

Sheep No. 151, the control for the second infection, received the same dose of tubercle bacilli as Sheep Nos. 58 and 59 on July 7, 1911, and died on Aug. 25, 1911, of acute disseminated tuberculosis of the lungs seven weeks after the injection. Both lungs

71 and 58, illustrates the possible dangers of a too complete bacteriolysis. These animals were absolutely immune to reinfection with the large dose employed, but died, nevertheless, from the acuteness of their reaction to the tuberculous poison. That

this is the correct explanation is shown by the fact that the sheep that survived the severe illness with high fever which followed the large reinfection quickly regained their former health and when finally killed showed but slight tuberculous changes in the lungs. These were undoubtedly to be ascribed to the primary infection (note the calcified foci in the lungs of Sheep No. 33).

The demonstration appears to be complete that the more resistant animals of experiment are capable of acquiring an immunity as the result of the primary infection with tubercle bacilli, and that, too, when the first infecting dose is much greater than would be probable in natural infections, to enormous reinfections given intravenously. They were more than abundantly immune to any possible infection that could be received from without under natural conditions of infection. Römer could not detect any material difference in the reaction of his naturally infected guinea pigs to reinfectien as compared with those artificially infected. Still, there is a difference in natural infections which should in fairness be stated. It is this—when the naturally infected organism has come to contain many tubercle bacilli the fault is in part its own. There would not have been so large a number of its foes if it had been capable of acquiring more rapidly a strong resistance. The question then that we have to consider is, does feeble resistance within mean also feeble resistance to what of infection may come from without or, notwithstanding the too feeble resistance to growth of the already acquired lesions, has that organism nevertheless, developed a resistance sufficient to prevent outside infection so that it is on an equal footing in that respect with the animal like some of Römer's sheep which have been given their first infection dose when in perfect health? As we see from the history of Sheep No. 92, the condition of the animal must make a difference in its resistance to infection, possibly also to reinfection, and it is altogether probable that the naturally infected guinea pig would not be able to develop the phenomenal resistance of Sheep No. 33, for example. It is another question, however, whether the naturally infected animal or man does not develop sufficient immunity to become safe from natural infections from without. So far as the guinea pig is concerned, the question would appear to be answered by the resistance of the naturally infected animal to severe reinfection from the caseous matter from its own tuberculous gland as well as to large doses of tubercle bacilli derived from cultures; but we are especially interested in the tuberculosis of man and must, therefore, consider carefully the facts of human tuberculosis which may throw light upon this question. We inquire, then, does the human subject manifest the same resistance to tubercle bacilli, whether introduced from without or circulating in the blood from his own lesions as the animal of experiment? The answer to this question must be reserved for a subsequent paper.

REFERENCES.

1. *Deutsch. med. Wochenschr.*, 3, 1901.
2. *Beitr. z. Klinik d. Tub.*, Vol. XVII.
3. *Wien. klin. Wochenschr.*, 30, 1904; 9, 1905.
4. S. H. Gilliland: Circ. No. 32, State Livestock Board of Pa.
5. Bull. Inst. Pasteur, Vol. V. 1907.
6. Hdbch. d. Technik u. Methodik d. Immunitätsforsch., 1st Supp. Vol.
7. *Beitr. z. Klinik d. Tub.*, Vol. XXIV.
8. *Idem*, Vol. XIII.
9. *Idem*, Vol. XII.
10. *Berl. klin. Wochenschr.*, 31, 1905.
11. *Beitr. z. Klinik d. Tub.*, Vol. XXII.

THE SPLENIC REFLEXES OF ABRAMS IN THE TREATMENT OF SYPHILIS.

By ALBERT ABRAMS, A.M., M.D., LL.D.,

SAN FRANCISCO, CAL.

"Once syphilis, always syphilis," and "Syphilis sleeps, it never dies," have achieved the importance of truisms to the phraseologist. My observations do not justify this prognostic pessimism; on the contrary, it is now possible in most instances to eradicate syphilis from the organism, if one may accept the electronic reaction' as a criterion of such eradication. In all sciences, the exposition of phenomena is incomplete, and practical and scientific theories are mandatory. The practical physician is entitled to ignore the writer's conceptions, but he can at least execute the simple therapeutic method and formulate his conclusions based on the therapeutic results.

Syphilis is one of the greatest human problems, destined to be accentuated by war conditions. For the present, at least, it is not suggested in the presence of acute luetic symptoms to substitute the writer's method for the conventional treatment, but to employ it in latent syphilis, and *always* as an adjuvant in association with the accepted therapeutic methods. By his method, unaided by medication, he has observed the return of lost reflexes which had persisted despite intensive treatment.

Conventional Medication.—This, it must be conceded, is often efficient in subduing acute luetic symptoms, but it is manifestly inefficient in totally eradicating the disease. The obituary of conventional syphilotherapy will be indited when nature's methods of cure are recognized and executed. The writer sincerely believes that the spleen as an organ of defense has not received due consideration by the clinician or bacteriologist. A clinical study of this organ suggests its basic importance in the *vis medicatrix naturæ*, not only in syphilis but in other diseases. The syphilographer questions the spontaneous curability of syphilis, but does not doubt complete recovery from medication. Respecting the former, there is some reason for contention; respecting the latter, there is none. The electronic reactions show that despite the duration of the disease, and however intense and prolonged the treatment, a reaction can always be elicited. Despite the most energetic specific treatment, one is often unable to convert a positive into a negative Wassermann. Reinfection cannot be accepted as an evidence of cure, for immunology shows that immunity produced by an infection is relative and not absolute, since it may be overcome by a more virulent form of the same infection. We know practically nothing about syphilis immunity, and are equally ignorant concerning the systemic reactions incident to infection with the *Spirocheta pallida*. "In syphilis, resistance to reinoculation, although high, is not absolute. The relative infrequency of true reinfection is due to the relative scarcity of completely

cured cases" (Zinsser). Zinsser admits that it is impossible to gather data showing the spontaneous cure of syphilis (without medical aid), and immunity to reinfection is an evidence of persistence of the disease in a latent form.

Gottheil, in a measure, summarizes his therapeutic nihilism concerning syphilotherapy as follows: "With mercury alone we apparently could cure syphilis; with mercury plus salvarsan we can do it better. We cannot do it with salvarsan alone."

Bacteria are complex proteins, and infection by them is practically a mixed infection. The accepted specifics do subdue one component of the infection, but no consideration is accorded to the components constituting the strains. Hence the relative insufficiency of treatment in syphilis. My reactions show that the only mercurial preparation subduing all the strains in syphilis is mercuric biniodide. This drug may be used by intragluteal injections without any harmful effects.

It has been demonstrated empirically that certain salts of mercury are more efficacious than others. This is quite understandable. Thus, in congenital syphilis, three reactions are evocable by the electronic reaction. The general reaction peculiar to the acquired and congenital forms is subdued by mercury and arsenic, but the congenital reaction is only dissipated by iodine, or a salt of mercury containing it.

Electronic Reactions.—These furnish the following information: (1) Whether syphilis is present or absent; (2) if present, whether it is congenital or acquired; (3) what tissues are or will become invaded; (4) demonstration with mathematical precision respecting the intensity of the disease; (5) whether the disease is quiescent (by measurement) or active; (6) whether a definite symptom-complex in a syphilitic is or is not dependent on syphilis.*

The electronic reactions have repeatedly been confirmed by competent observers.[3] Thus, Jarvis[3] asseverates: "The test of Abrams (electronic test) is positive in nearly 100 per cent. of syphilitic infections, whether hereditary or acquired."

The Wassermannic Menace.—The Wassermann test is the fetishistic *ignis fatuus* of syphilodiagnosis. It tells you that it is not syphilis when it is, and that it is syphilis when it is not. This is tantamount to saying it isn't when it is and is when it's not. The literature teems with unreliable reports respecting the Wassermann reaction. In any event, the reaction is not pathognomonic but monosymptomatic, and, whether positive or negative, its interpretation must be associated with laboratory tests, clinical signs, and therapeutic results.

This serological method is discountenanced, as is evident from the following: "A positive Wassermann unsupported by clinical evidence is not sufficient evidence of the presence of syphilis" (Keyes).

"Errors in the diagnosis of specific diseases of the nervous system were no greater in the pre-Wassermann days than at the present time" (Weisenburg).

There is only one chance in five that a specimen of blood submitted to ten serologists will result in an agreement. Collins estimates that 15 per cent. of cerebrospinal syphilitics fail to give a positive Wassermann in the spinal fluid.

One of the most serious and almost tragic arraignments suffered by the Wassermann emanates from the recent report of Symmers, Darlington, and Bittmann.[4] The report is based on nearly 100,000 reactions made by the most competent serologists procurable. Their conclusions are briefly as follows: (1) The reaction executed in the living patient at the Bellevue Hospital gives a negative result in from 31 to 56 per cent. of cases in which the characteristic anatomic signs of syphilis are demonstrable at necropsy. (2) The reaction in the living patient is positive in at least 30 per cent. of cases in which it is not possible to demonstrate any of the anatomical lesions of syphilis at necropsy. There is a vast difference between a culture tube and a patient and between the laboratory and the bedside. The aim of all medical service is the healing of the sick, hence the prestige of the therapeutic test, which recalls the aphorism, "*Naturam morborum curationes ostendunt.*"

"Who shall decide when doctors disagree, and soundest casuists doubt, like you and me?" In despair, we must hearken to the practical clinician. In a contribution on "Syphilitic Bone and Joint Lesions," Fisher emphasizes the frequency of negative Wassermann reactions in undoubted cases of bone syphilis, and in desperation maintains that the most reliable test of syphilis is the therapeutic test, thus reverting to the preserological period, when the nature of a disease was revealed by the effected cures. The disputants[5] of the paper are somewhat skeptical, to say the least, concerning the value of the Wassermann, and express themselves as follows:

"The diagnosis (syphilis) has to be made by instinct in many cases, instead of positive clinical facts." (Ridlon.)

"The only reliable test is the therapeutic one. One has to go back to the dictum of the pre-Wassermann clinicians, and say with them: 'When in doubt treat for syphilis.'" (Watkins.)

"There is no reliable test for joint syphilis. The Wassermann test, the Roentgen ray, the clinical course, the history, must all be considered, and we are not certain about our diagnosis." (Ely.)

"The negative results with the Wassermann are fully 50 per cent.; so we do not, as a rule, rely on this test, but look for other essential points." (Horwitz.)

Ubiquity of Syphilis.—"Know syphilis," observes Osler, "in all its manifestations and relations, and all other things clinical will be added unto you." The ubiquity of syphilis emphasizes the dictum of Fournier, that general pathology should be made a mere annex to syphilography.

The German diagnostician avers: "Was man nicht diagnostieren kann, Sieht man als n' syphilis an." Without a literal translation, the latter may be expressed as follows: "When your diagnosis goes amiss, always think of syphilis. It was said of Ricord, who was a confirmed skeptic as to the morality of the race, that he would have submitted Diana to treatment with his mineral specifics and prescribed a course of blue pills for the vestal virgins.

It is in the recognition of congenital syphilis

*The writer has just completed an apparatus enabling him to visualize the results. Heretofore, the reactions were dependent on human and animal reflexes.

that the greatest diagnostic acumen is demanded. We may not be civilized, but we certainly are syphilized. When the voltage of the radioactive energy of the blood of any individual is augmented about 1300 per cent. by an induction coil, the reaction of congenital syphilis can always be elicited by the electronic reactions. Such cases are usually without manifestations of any kind, but under certain conditions, as we shall learn later, when the virus is expressed from the spleen into the circulation, periodic symptoms develop, known under a variety of names—hemicrania, attacks of hysteria, epilepsy, nervousness, asthma, etc. It is a common belief that all diseases with a definite periodicity are malarial, but there are a host of diseases in which malaria can be excluded. When the blood is tested in the usual way by the electronic tests, without augmentation of energy, the ubiquity of congenital syphilis is, nevertheless, appalling. An analysis of 1,000 specimens of blood forwarded to my laboratory demonstrated the reaction of congenital syphilis in 45 per cent. of the specimens, in contrast with only 18 per cent. of the acquired form of the disease. My tests show that there is a synchronism of congenital and acquired syphilis.

Kaskell (quoted by Jarvis[5]) observes that while a positive Wassermann reaction can be elicited in about 40 per cent. of the wives of paretics and tabetics, yet only a small percentage of their children yield a positive reaction to that test. Stoll observes that in "late" hereditary syphilis the patient may present no sign, but a single obscure symptom may result in complete invalidism. Fournier observed that 98 per cent. of the children of syphilitic parents are syphilitic.

In Hochsinger's observations, embracing 208 children of syphilitic parents, 43 per cent. had some affection of the nervous system. Syphilogenic diseases do not yield such clear clinical entities as paresis and tabes, and "clinical pictures of a disease are largely literary efforts, and the product mainly of the descriptive art."

Cure of Syphilis.—The conventional medication for spirochetal poisons will be disregarded. An understanding of the writer's method predicates some knowledge of immunity, splenic functions, and splenic reflexes.

Immunity.—Drugs are mere incidents in the treatment of the sick. Neither the internist nor the surgeon can arrogate to himself the cure of disease, for recovery or death ensues despite medication. In pneumonia, the cures are effected by nature, and if 75 per cent. of the patients recover and 25 per cent die nature is 25 per cent. inefficient in the cure of pneumonia. To remedy this inefficiency on the part of nature necessitates a more thorough comprehension of immunology. Pathogenic organisms may be present on or in the organism without concomitant disease. When the organism is invaded by microorganisms a struggle for supremacy exists between the host and the parasites, and in this interaction the aggressive (parasites) contend with the defensive forces (host). At one time it was supposed that the phagocytes constituted the main defensive armament, but later the neutralizing substances in the body fluids were regarded as equally important. Still later a reconciliation was effected of the cellular and humoral doctrines.

The defensive mechanism of the organism consists essentially of the formation of a neutralizing antibody (antitoxin). The exact localization of the antibody-forming cells and tissues is not clear, although the preponderance of evidence suggests their origin in the lymphatic organs, bone, marrow and spleen. Zinsser[3] observes: "Splenectomized guinea pigs show no difference from normal animals in their susceptibility to tuberculosis. These and similar experiments have no great significance, since our knowledge concerning the true function of the spleen is very incomplete, and it is not impossible that on removal of this organ other elements of the lymphatic system may take over its function in part or as a whole." We shall learn later that a study of clinical physiology and pathology yields abundant evidence in favor of the spleen as the essential defensive viscus. The chemical composition of the spleen shows the presence of many albuminous bodies. It has been shown in the therapy of infectious diseases that not all the effects of injections of bacterial proteins were essentially specific. In other words, proteins and protein derivatives of many sources were as efficient as the specific antigen. It is also well to recall the action of serum and leucocyctic enzymes in the spleen as factors in immunization.

Splenic Functions.—No definite results concerning this enigmatical organ of the physiologist, despite experiments, have been evolved. Its removal from animals is not associated with any appreciable effects on normal metabolism. To deduce from this that its function is not very important would be equivalent to saying that the removal of one kidney is likewise not attended with appreciable effects. After removal of the spleen, compensatory functions are assumed by enlargement of lymph glands and augmented activity of the red marrow of the bones. Theories lacking confirmation have been proposed, but from this confusion two functions are associated with this organ, viz.: production of leucocytes and destruction of useless red corpuscles. It contracts and expands synchronously with the digestive periods. In its contractions it loses 18 per cent. of its volume. The volume changes are akin to the peristalsis of the gastrointestinal tract, and are caused by rhythmic contractions of the smooth muscle tissue in the capsule and trabeculæ. The diminution in volume (systole) and volume increase (diastole) occupy together about one minute. In addition to these rhythmic variations it increases in volume for a period of 5 hours after digestion. It is the popular belief that the spleen is influenced by the nervous system, and Botkin asserts that depressing emotions increase and exhilarating ideas diminish its volume.

Experimentally, the physiologist can by stimulation reflexly contract or dilate the organ. The writer has shown[7] that reflexes may be elicited and demonstrated with the same certainty in the living human subject as is done by the vivisectional experimentalist. This phase of medicine has been called "Clinical Physiology" by the writer, and suggests that human and not animal physiology should be the basis of clinical pathology. Clinical physiology enables one to elicit many data concerning

the spleen which are beyond the ken of the physiologist.

Splenic Reflexes.—The visceromotor centers in the cord may be stimulated so that one may at random either contract or dilate the spleen. These reflexes* are known respectively as the splenic reflex of contraction and dilatation. In the norm, the reflexes are of short duration (not in excess of 2 minutes), and in their objective demonstration by radiodiagnosis† and percussion one must expedite the latter maneuver. It has been determined empirically that the elicitation of the reflex of contraction is effected by concussion of the second lumbar spine and the counter splenic reflex of dilatation by concussion of the eleventh dorsal spine. A plexímeter is placed on either spinous process and then struck a series of moderately vigorous blows with a plexor.

Reflexodiagnosis and Reflexotherapy.—The reflex of contraction is employed in the treatment of splenomegaly. In latent malaria, one may precipitate a typical paroxysm by discharging the splenic reflex of contraction (concussion of the second lumbar spine). It is assumed that the paroxysm is provoked by the mechanical extrusion into the circulation of the plasmodia which have lodged in the organ.

In suspected malaria one may find plasmodia in the blood after evoking the reflex of contraction, even though absent before this maneuver is executed. Hematological investigations by the writer show the following: (1) Average increase of erythrocytes after concussion of the eleventh dorsal spine (which increases the splenic volume) 300,000, and an average increase of hemoglobin of 5 per cent.; (2) average leucocyte increase after concussion of second lumbar spine (decreases splenic volume), 2.800; (3) average increase of red cells after alternate concussion of second lumbar and eleventh dorsal spines, 650,000 with an average hemoglobin increase of 10 per cent.

The employment of this reflex in a symptomatic and therapeutic direction is of great value. My experience with the reflex of contraction permits me to conclude that if in a suspected case of malaria typical or atypical symptoms of the disease do not supervene after elicitation of the reflex in question the disease is not malaria. Similarly, suspected symptoms of syphilis are often accentuated after the same maneuver. Take a typical case of acquired syphilis and measure the syphilitic energy from the spine, liver, and spleen, and we have the following figures: spine, 6/25; liver, 23/25 of an ohm; and spleen, 1 ohm and 10/25 of an ohm. Immediately after concussion to elicit the reflex (the patient is undergoing mercurial treatment), the reactions are as follows: spine, 1 2/25; liver, 12/25; and spleen, 18/25. Thirty minutes after evoking the reflex: spine, 1/25; spleen, 22/25.

The elicitation of this reflex of contraction causes a hyperleucocytosis. It has been shown experimentally that intravenous injection of splenic extract evokes a like condition. Wells has shown that the splenic pulp contains the greatest number of leucocytes (in one instance 180,000 per c.mm.). This concentration is evidently the result of the fixation in the spleen of the presence of the products of disease which exert a positive chemotactic influence toward the leucocytes. Evocation of the splenic reflex of contraction is, in my opinion, one of the most valuable adjuncts in the treatment of infections. This applies not only to syphilis, reference to which has already been made, but to streptococcic and gonococcic infections. Although the organisms of these diseases may be absent in the blood, their presence in the latter may be shown after elicitation of the splenic reflex.

The localization in the spleen of the toxins of different infections makes practically a "dead corner," and resists drug action, demanding daily elicitation of the splenic reflex. The maneuver which excites this reflex also elicits the liver reflex. The liver is an important organ of defense, and detoxicates toxins conveyed to it by the portal circulation. It is interesting to observe that Dr. William J. Mayo, in his Carpenter lecture at the New York Academy of Medicine (October 18, 1917), sustains my theory as follows: "Hibernation of spirochetes in the spleen permits luetic reinfection of the body."

The use of intraspinal and even intracranial injections of specifics based on the supposition that the permeability of the meninges and choroid plexus are impaired is wrong. Salvarsan and mercury, even though not given parenterally, may be demonstrated electronically from the spine in a few minutes.

Elicitation of the splenic reflex of contraction is an important aid in evoking the Noguchi reaction when absent, and accentuating it if present. These findings have been confirmed by Frauchiger.

From an investigation of a comparatively large number of cases of syphilis, coupled with observations bearing on the results of treatment, we deduce the following:

1. The usual depositories for the luetic virus are the spleen and liver, notably the former.

2. When the splenic and liver reflexes of contraction are evoked by concussion of the second lumbar spine there is an immediate extrusion of the virus into the circulation.

3. The spleen is not a quiescent viscus, but undergoes periodic changes in volume.

4. Emotions, digestive disturbances, and other factors may precipitate extraordinary volume changes in the spleen, thus eliminating the products of the disease into the circulation, causing an exacerbation of symptoms present or producing them if absent.

5. In parasyphilitic diseases the parasites are found in the "dead corners" of the organism, and

*More fully described in Abrams' "Spondylotherapy," 6th edition, pages 251 *et seq.* and in the "Reference Handbook of the Medical Sciences," Vol. VIII, third edition.

†Careful fluoroscopic examination of the splenic reflexes show that (1) concussion of the eleventh dorsal spine augments the splenic volume; (2) concussion of the second lumbar spine diminishes the size of the spleen; (3) after the ingestion of bismuth, concussion of the eleventh dorsal spine increases the splenic shadow and that concussion of the second lumbar spine diminishes the density of the shadow. The increased shadow effect is probably due to the bismuth aspirated into the spleen and not to increased density of the organ, as there is less density in an enlarged than in a contracted spleen. The latter view is sustained by a few experiments by the writer on animals. After an injection of methyl blue, more dye is found in the spleens of animals when the splenic reflex of dilatation is executed than in control animals.

resist the action of drugs. Similarly, virus lodged in the spleen is equally resistant. Elicitation of the splenic reflex is therefore a valuable adjunct in syphilotherapy. The same fact applies in all cogency to other infections and in a number of diseases, notably "fatigue neurasthenia."

Splenic Reflex of Dilatation.—Chief consideration has heretofore been accorded to the counter reflex of contraction, and while elicitation of the latter has given the writer material aid in rapidly reducing (in conjunction with medication) syphilis from an active to a quiescent state, it has never effaced a positive electronic reaction of the disease. It was not until *both* reflexes were employed that one could positively eliminate the reaction, and this was attained without synchronous treponemicidal medication.

Contraction of the spleen mobilizes the luetic virus by eliminating it from the spleen. The reflex of dilatation is a process of scavengerism, centralizing the toxins in the spleen from every cranny of the organism.

Thus the electronic reaction from the spleen in a syphilitic shows a luetic reaction of 5 ohms and 4/25 of an ohm. After concussion of the second lumbar spine (splenic reflex of contraction) it measures 5 25 of an ohm, and after concussion of the eleventh dorsal spine it measures 15 ohms and 4/25 of an ohm. Mensuration from the spine shows an increase in the potentiality of the reaction after concussion of the second lumbar spine and an absolute annihilation of the reaction after concussion of the eleventh dorsal spine. This annihilation is only temporary, but after a persistence of the method it becomes permanent. When the reflex of dilatation is elicited one is practically executing a vacuum therapy, and when the counter reflex is excited an elimination therapy. This process is not unlike the action of a suction and force pump. The physiological mechanism of suction is expressed in sucking, and in suction of the thoracic cavity and heart. "Self-massage of the heart," as Brunton[m] puts it, is an analogous condition whereby nutrition of the heart is largely dependent on its own activity. The pericardium is like a bell jar. When the ventricle contracts, a vacuum is produced in the pericardium, thus sucking blood into the auricles and ventricles and from the blood and lymph vessels. The therapeutic action of digitalis is largely dependent on the fact that it aids or augments the natural suction power of the heart.

Quinine* yields, by virtue of its radioactive energy, a specific area of abdominal dullness. When ingested and a reaction is taken from the spleen after a lapse of time, no reaction of quinine from the spleen can be evoked. Elicitation of the splenic reflex of dilatation, however, will, after the lapse of a minute, enable one to elicit the reaction from the spleen. The splenic reflexes may be demonstrated by percussion and in suitable cases by the *x*-rays. Expert percussion enables one to determine contraction of the spleen every 3 or 4 seconds, but there is no volume increase.

When any of the drugs used in syphilis are presented to the splenic region, percussion shows a slight alternate increase and decrease in the volume of the organ at regular intervals. This change in volume, however, is infinitesimal compared to the volume change evoked by concussion.* The foregoing permits one to conclude that spirochetal drugs may act by provoking volume changes in the spleen.

Hematophagia.—This term suggests itself in referring to a therapeutic procedure known as "autohemic therapy," developed by Dr. L. B. Rogers of Chicago. It consists of giving the patient a solution made by attenuating, hemolyzing, thermolyzing, diluting, and potentizing a few drops of the patient's blood and administering it according to a definite technique. Empirically, this method finds justification by the results achieved by many enthusiastic devotees of the method who are less concerned with its scientific than its therapeutic value. Insomuch as this method is related to the immunologic methods of the writer, brief reference to it will be accorded.

Dilution, as the writer has shown, augments the dynamic action of drugs and antibodies. The writer found that if a neurasthenic will ingest a few drops of his own diluted blood it will temporarily dissipate his electronic reaction of neurasthenia, but the same blood given to another neurasthenic is without influence on the reaction. A similar observation has been noted with syphilitics. The radioactive energy of the normal spleen dissipates the reactions of the streptococcus and staphylococcus, colon bacillus, tubercle bacillus, and typhoid bacillus, but is without effect on the carcinomatous reaction. The latter is dissipated by the radioactive hepatic energy. To secure more permanent action, it is suggested by the writer to evoke primarily the spleen reflex before removing the blood. It is likewise suggested to observe results per os without recourse to parenteral methods.

The writer often demonstrates to his classes an electric phenomenon incident to the elicitation of the spinal reflexes. A proof plane held in contact with the skin adjacent to a concussed spinous process will show a negative electric charge when transferred to the knob of an electroscope.

In an editorial in a recent number of the *American Journal of Electrotherapeutics and Radiology* (July, 1918), reference is made to the fact that spinal stimulation to evoke the visceral reflexes will effect cures where drug medication utterly fails.

Splenotherapy.—The execution of the writer's method for the treatment of syphilis is as follows: Locate the 11th dorsal and 2nd lumbar spines and mark with a pencil of silver nitrate or skin ink.† Provide the patient with either to reapply, should the marks become effaced. A strip of plaster may also be used but it is usually removed in bathing. Methods for counting the vertebral spines in obese subjects must be employed. When there is any doubt respecting localization, note that if one concusses the 2nd lumbar spine, percussion (executed immediately) shows a reduction of the splenic volume, and conversely an augmentation is found after

*Bioclinical reactions in toxicology are discussed in "New Concepts in Diagnosis and Treatment," p. 288.

*The action of grosser methods of stimulation of the spleen is noted on p. 354 in "Spondylotherapy."

†A relatively efficient ink is as follows: Acid pyrogallic, 1 gm.; acetone, 10 c.c.; liq. ferri perchlor. fortior., 2 c.c.; spirit. vini meth. ad. 20 c.c. Brownish at first, it becomes black after several hours. Application should be preceded by removal of fat from the back by ether.

concussion of the 11th dorsal spine. Some relative or friend may be entrusted to execute concussion twice daily. A tack hammer and a cork suffice for this object. The concussion is first executed at the 2nd lumbar spine and then at the 11th dorsal spine. The cork is firmly fixed over the spines and light blows are executed. The entire duration of treatment is 6 minutes; 3 minutes devoted to each spinous process. The 3 minutes' treatment is discontinuous, being made up of concussion for one-half minute with intervals of rest for the same duration of time to avoid exhaustion of the reflexes. *When this treatment is conscientiously pursued for about 2 weeks, one can no longer, as a rule, elicit an electronic reaction of syphilis and this result is achieved exclusively by the reflexes without coincident medication.*

Concussion of the 2nd lumbar spine also elicits the liver reflex of contraction, and it may be noted that examination of the urine before and after concussion shows increased indican excretion after concussion as well as ethereal sulphates and urea.* An immediate effect of the treatment is the improved color of the patients owing to the hematogenic action of the splenic reflexes. Another conspicuous effect in neurasthenics is the betterment of the sexual vigor and other symptoms. The beneficial effects may be attributed to the reflexes which centralize the fatigue toxins in the spleen and then excrete them. After elicitation of the splenic reflex of dilatation, the electronic tests of neurasthenia evanesce.

In conclusion and parenthetically, without any concession to the value of the Wassermann reaction, it was noted in 5 cases, where this reaction had persisted despite intensive treatment, that it became negative subsequent to the execution of the writer's method of treatment.

BIBLIOGRAPHY.

1. Abrams: New Concepts in Diagnosis and Treatment, 1916: International clinics, Vol. I, 27th series; MEDICAL RECORD, Feb. 16, 1918.
2. Zinsser: Infection and Resistance, 1918.
3. Caesar: *Medical Review of Reviews*, June, 1918 and *Physico-Clinical Medicine*, June, 1918.
Jarvis: *Pacific Dental Gazette*, Feb., 1917.
4. Symmers *Et al.: Jour. of the A. M. A.*, Feb. 2, 1918.
5. Fisher: *Jour. of the A. M. A.*, Feb. 10, 1917.
6. Stoll: *Jour A. M. A.*, Dec. 23, 1916.
7. Abrams: Spondylotherapy, 6th Edition.
8. Frauchiger: *Physico-Clinical Medicine*, Dec., 1917.
9. Abrams: *Physico-Clin. Medicine*, June, 1917.
10. Brunton: Therapeutics of the Circulation, p. 96.
11. Abrams: MEDICAL RECORD, Oct. 6, 1917.

BREATHING GYMNASTICS FOR THE MARCHING SOLDIER.

BY N. J. POOCK VAN BAGGEN.

THE HAGUE, HOLLAND.

UNTIL quite recently breathing gymnastics were only and specially used by vocalists and by sufferers of different affections of the chest, as asthma, bronchitis, emphysema, etc.; but also in respect to this the war has brought a change.

The training of the physical force of the soldier attracted of course our full attention, and it seemed to us that breathing gymnastics could be of great value to them. The development of the chest, the strengthening of the muscles of the thorax, and the fortifying action of the breathing exercises on the pulsation of the heart are evidently of great advantage for those who are obliged to exert their physical capacities to the utmost.

Experience showed us, moreover, that the control over the breath, which means the regulation of inspiration and expiration, is most valuable while walking, marching, running, and in general while performing any bodily exercise.

Our opinion as to this matter found agreement with the commander-in-chief, charged with the physical development of the soldiers and, for a first experiment, fifty men were put at our disposal. The object we had in view was to know if the results paid for the effort and the time expended.

We began with an exact investigation of the breathing power of each man separately. This investigation comprehended the examination of the form of breathing (clavicular, costal, or diaphragmatic), the power of expansion of the chest (shown by the difference in circumference of the chest after a full inspiration and an entire expiration), and the length of the period of exhalation.

As to the form of breathing we found that in all the fifty cases, without one exception, the breathing was clavicular. Now in the case of clavicular breathing we expand in inspiration the upper part of the chest. For executing this movement we must raise the collar bones and with them the arms, the shoulder blades, and the upper ribs; the latter are attached in the back to the spine, and in front to the sternum, thus all inflexible unyielding parts. It is clear that this demands a great effort, the result of which is that the amount of breath we inhale in this way of breathing can be but small, because the apices of the lungs, that is the narrowest part of them, only will be able to dilate to their full extent, while the expansion of the larger and stronger part of the lungs is reduced to the minimum. By this mode of breathing it is also impossible properly to control expiration. After having raised with great effort those inflexible parts of the chest, a much greater effort must be expended out to keep the thorax a moment in this attitude and then contract it slowly as is required for a properly managed expiration. Thus we must condemn in every respect the clavicular breathing and we must do this particularly in the case of the soldier, especially as this form of breathing is further hindered by the straps of his kit and the gun on his shoulder. By teaching him another mode of breathing, whereby the shoulders and the upper part of the chest remain almost without movement, he will be greatly relieved and his burden will be carried with much more ease.

The lower part of the chest is formed by the floating ribs, and the base by the diaphragma, all flexible and easily yielding parts, the contraction and relaxation of which will be effected without much effort and for a great length of time without causing much fatigue. The lungs being largest at their base, the amount of air we inhale by expanding the lower part of the chest will be greater than when the upper part of the lungs is chiefly inflated.

The advantages of the low breathing are evident and what is more the so-called low breathing is

*Spondylotherapy, 6th ed., p. 336.

the natural way of breathing. The newborn baby moves, while breathing, the lower part of the chest, and generally the very young child breathes low. We have not yet been able to state what are the real causes of clavicular breathing being so frequent. By most of our grown-up pupils in breathing gymnastics the breathing is clavicular. However, the low breathing being the natural mode of respiration, but little difficulty is experienced in teaching them this method and in making them adopt it. Generally it takes two or three lessons to place (as we call it) the breath. We begin by teaching a purely diaphragmatic breathing and when this offers no more difficulties to the pupil, we develop this method in another which is a combination of clavicular, costal, and diaphragmatic breathing, on the understanding, however, that the diaphragmatic and the costal breathing predominate and that there is but a very slight movement of the upper part of the chest. This combination of the three methods allows the chest to enlarge to its full capacity. We then apply a series of exercises to strengthen the muscles of the thorax and to make them supple, aiming also at a large expansion of the chest during inspiration and a greater contraction during expiration.

At the first examination of those fifty men we found that on an average the expansion of the chest amounted to from 3 to 3½ inches. After four weeks' exercising the average expansion had risen to from 5 to 6 inches. We found also that the exercises had an excellent influence on the correct erect bearing of the men.

After a fortnight's exercising we began to teach the control over expiration and inspiration; first while standing still, then marching, and finally marching at double-quick time. Also the control over the breath while performing other gymnastic exercises, as jumping, throwing, etc., was made part of the teaching. We continued teaching the exercises during a month. Twice a week we led the course personally, the other days the men exercised under supervision of assistants. At the end of the course we also gave the men instructions how they best could fight the disastrous results of poison gas and how they could help each other in these cases by appropriate breathing exercises.

The results of the practice were most satisfying. The men not only liked the exercises and did them with pleasure, but they also became conscious of the advantages of the new method of breathing. Especially during long marches the regulation of expiration and inspiration proved to be most efficient.

Several of the men told me that they used some of the exercises after trying marches by way of a refreshment. A long and deep breathing exerts in fact a revivifying influence. After strenuous exertions the great consumption of vital energy demands nourishment not only of effectual food but of oxygen to clean the blood of the exhausted elements.

After this first experiment we tried a second with a hundred men which met with a still better success, so that the commander-in-chief ordered the breathing gymnastics to make part henceforward of the exercises prescribed for the general physical development of the soldier.

PLAATS 10

PNEUMONIA, ACUTE EMPYEMA, ACUTE APPENDICITIS, PNEUMOCOCCIC PERITONITIS, THEIR DIFFERENTIAL DIAGNOSIS.*

BY MOSES BEHREND, M.D.,

PHILADELPHIA.

THE seasonal occurrence of pneumonia and empyema is at hand. While all may occur at any time during the course of the year it is important that one be alert especially on account of the recent epidemic of influenza with its accompanying high rate of mortality among the flower of the country. During this epidemic while the infection was a general one the respiratory tract suffered most. A reminder at this time of the distinguishing features of the chest versus abdominal conditions would seem to be profitable to many of us.

Let it be understood at the beginning that there are many cases where it is impossible to make an absolute diagnosis between the two. The citation of cases later will illustrate this point. It requires very close observation of the young patient although adults often present the same difficulty in diagnosis. The cooperation of the physician and surgeon and often the radiologist is necessary to arrive at an ultimate diagnosis. Notwithstanding all the fine accessories which now enable us to make more accurate diagnosis, still mistakes will occur, pneumonia being operated upon for appendicitis and often cases of appendicitis being treated for pneumonia and acute empyema, the latter circumstance being fraught with more danger than the former. Acute purulent pleuritis has been placed in this discussion although the writer has not encountered this disease as a primary one. All the cases of empyema that have come under my notice have been secondary to pneumonia. Osler speaks of it as occurring in 32 per cent. out of a total of 252 cases. The disease is a rare one but may at times be mistaken for an acute appendix.

It might seem superfluous to give before this body of general practitioners the symptoms of these diseases, yet a review may be of service in discussing the cases that will be presented to illustrate this paper.

It has been stated that the mistakes usually occur when children are the sufferers. Pneumonia may occur at any age of infancy or childhood and the younger the individual the more difficult will it be to make a proper differential diagnosis. Probably the one distinguishing point on inspection between pneumonia and appendicitis in childhood is the rapid breathing and the playing of the alæ of the nose. The temperature may be higher in both diseases but it is usually higher in pneumonia. Appendicitis is rather rare in infants but the youngest demonstrable case that the writer has operated on was in a baby nine months old.

Physical signs in the chest must assist in the diagnosis, but we lay considerably more stress on inspection than on any other physical sign in the differential determination of the disease.

*Read at a meeting of the Alumni Association of Mt. Sinai Hospital.

There is only one exception to this observation when rapid breathing will lead one astray, namely, in that rare condition known as pneumococcic peritonitis.

As the child grows older and is able to give more detailed expression to his symptoms one will find that in pneumonia pain is often referred to the right side of the abdomen. Rigidity along the rectus muscle is often marked. Here again inspection is an important physical sign. The child with pneumonia is restless with a bright flush on his cheeks. The temperature is high at the beginning. In appendicits there may not be a rise of temperature. The signs on auscultation and percussion are of little assistance because in these early stages the disease has not progressed sufficiently to elicit signs. The *x*-ray will not be helpful at this stage of the disease.

The leucocyte count will be high in both diseases but it is usually higher in pneumonia. It is not unusual however to have a leucocytosis of 20,000 or over in appendicitis. It would be wise in the differential diagnosis of these conditions to disregard the blood count altogether. I do not wish to be understood that the blood count should not be taken; routinely it ought to be done, but too much stress must not be put upon determining the nature of the diseases from the degree of the leucocytosis.

Although the difficulty in differentiating chest from abdominal conditions preponderates in children, the same applies in a measure to adults. A colored man was admitted to the service of Dr. Shmookler with symptoms simulating appendicitis on account of intense rigidity of the right rectus muscle. This was, however, his sole abdominal symptom. Upon close observation we noticed that he was breathing rapidly, the alæ of the nose were distended. We ruled out appendicitis and later observation and examination showed he had pneumonia. Several weeks later I operated on him for empyema and abscess of the lung. He died from toxemia some months later.

The writer does not remember ever having seen a case of primary or acute empyema although, as noted before, Osler has had 32 per cent out of 252 cases, still it must be considered a very rare condition. In a child when a case difficult of diagnosis presents itself it seems to me that we ought to think of the most common condition rather than of those rare and unusual affections primarily. It has always helped in cases of doubt between appendicitis and chest conditions to operate and remove the appendix. Before doing this, however, if one is not certain an aspiration of the chest will assist in making the final diagnosis as to whether fluid is present. Aspiration is practically harmless under aseptic conditions. In my opinion the aspirating needle is not used frequently enough because of some timidity on the part of the general practitioner. This fear is groundless because after the use of the needle innumerable times no harm has ever resulted from its employment. A Luer syringe is not the best diagnostic method; the aspirating set being far superior and more positive in its results. In those cases in which I was mistaken the removal of the appendix had no effect on the pneumonia, the crisis occurring as usual without further complications. In cases of doubt nitrous oxide gas and oxygen is the best anesthetic.

Pneumococcic peritonitis was given close consideration by Parker Syms. This is the one instance in which, to my mind, it is absolutely impossible to make a diagnosis between pneumonia and appendicitis and the condition under discussion. The reason is that one gets all the symptoms of pneumonia in pneumococcic peritonitis. The rapid respirations with anxious expression, the one sign on which we place most stress, is prominent in this disease. The abdomen is excessively rigid all over with the signs of general peritonitis. This disease is in the true sense of the word an abdominal pneumonia.

An interesting fact in this connection is the admonition of most writers on the subject not to operate immediately on these cases. The object is to wait until the pus becomes localized and then evacuate it. This contingency causes more difficulties in the diagnosis which one could readily understand if the peritonitis were due to an appendicitis. The history and primary physical signs would be of some assistance. By this I mean there would be in a pneumonic peritonitis general rigidity and tenderness, while in appendicitis one would get the initial pain and tenderness in the right side. Girls are most frequently affected, the avenue of infection being the vagina.

It seems superfluous to call your attention to the symptoms of acute appendicitis, but in the consideration of these related diseases a brief review may not be amiss. In appendicitis the symptoms usually come on suddenly; general abdominal pain being followed by vomiting is the most prominent symptom and the first to appear. General abdominal tenderness and then localized pain and rigidity are noted in the right iliac fossa. Unless the pain is very severe there is usually no interference with the respiratory rate.

A case of exceptional interest to illustrate the difficulty in the diagnosis of pneumonia and appendicitis is the following:

> A child, twelve years old, had a typical attack of pneumonia two years ago. The diagnosis was not a difficult one, the patient having signs of pneumonitis on inspection at the very inception of the disease. Last year the child was taken suddenly with pain in the abdomen, located especially in the right upper and lower abdomen. No symptoms referable to the chest were present and physical signs could not reveal any pathology. The respirations were rapid, but we were so impressed with the intense rigidity and tenderness of the abdomen that operation was advised. Nitrous oxide gas and oxygen were given because I could not eradicate from my mind the one symptom of rapid respiration, which indicated to me that a possible pneumonia existed. While the convalescence was uneventful, the child passed through a typical course of pneumonia with the crisis on the ninth day.

To impress on you further the differential diagnosis between pneumonia and appendicitis I would cite the case of an unusually intelligent child admitted to Mt. Sinai Hospital with the diagnosis of appendicitis. The internist thought there was a possibility of pneumonia or acute empyema. In this diagnosis I could not concur because the child was breathing quietly, having observed him while asleep. He became irritable only while be-

ing examined on account of the pain induced. He had a high leucocyte count which influenced the internist not a little in believing that a chest condition existed. It seems this warning about putting your dependence on the leucocytic count must be frequently sounded by the surgeon. When there is a positive leucocytosis it is of some value but the degree of leucocytosis cannot be weighed for or against a lesion in certain parts of the body. A positive leucocytosis is of value in determining the presence or absence of pus, but its absence or even a leucopenia does not mean that there may not be an inflammatory lesion present.

Another instance in which a pediatrist, internist, and surgeon figured will further show that the physician must be careful to differentiate chest from abdominal conditions:

A child, seven years old, was admitted to the Lebanon Hospital, complaining of pain in the right iliac fossa. The internist and pediatrist could not agree as to the diagnosis. I was asked to decide the question. Careful inspection of the patient exeluded a chest condition. Palpation of the abdomen revealed rigidity of the right rectus muscle and tenderness. Operation was performed and a pus appendix removed, the appendix being surrounded with plastic lymph.

This recital of cases could be continued indefinitely but these illustrate the main points discussed.

In conclusion I would like to impress on you the fact that inspection is the most important physical sign in differentiating thoracic from abdominal conditions; that in cases of doubt the aspirating set should be used more frequently and always in preference to the Luer syringe; that when a mistake has been made operation has not interfered with the course of the pneumonia provided the proper anesthetic has been used.

1427 North Broad Street.

CHLORINE, DICHLORAMINE-T, AND CATGUT.

By R. F. OFRIAS, Phg.,

NEW YORK

PHARMACIST, KNICKERBOCKER HOSPITAL.

When Doctor Stewart asked me to make an independent experiment to determine the effects of the so-called dichloramine-T solution in contact with catgut there arose in my mind at once the very natural question of what is the use of wasting any time in making the necessary tests or in bothering about such a matter at all. For one must be a very tyro in or smatterer in his knowledge of chemistry if he is not well aware, in advance of any practical trial whatever, that of two contradictory factors one must be true. He should at the very least be able to draw one of two easy inferences, and should at once conclude that dichloramine-T either will or will not attack catgut. If it contain free chlorine it will attack, or if it does not so attack then it does not contain much free chlorine. The whole matter in question works out into a case of certain and assured destruction of the catgut, or else it is a case of misbranding of the goods contained in a bottle that was supposedly packed in good faith. To my way of thinking, it was all so simple, apparently, that it was but a question of correctness or incorrectness of the statements spread upon a label by printer's ink. If those statements were accurate, then, of course, the catgut would be destroyed if exposed to the solution described upon that label, for small practical experience in every-day chemistry would enable one to draw such a conclusion with certainty. Every washerwoman knows that Javelle water will attack her hands, and every fuller (linen-treader) knows that solutions of bleaching powder will attack his feet. But should any one desire to make the discovery for himself, he can obtain an object lesson from the very unpleasant character of chlorine dermatitis—a trouble which may be found following the wearing of new well-bleached, though unsoaked, undergarments that come into close contact with his own skin.

In view of the plain features of the outlook as just set forth, it is impossible for a chemist to understand or to comprehend why there should be any differences of opinion, or where there is left any room for discussion or for argument whatever upon a question as to whether or not chlorine will attack ligature material. Chlorine is one of the most active chemical agents, so much so that it combines readily with almost anything in its neighborhood; therefore, it is not found in nature in an uncombined or free state. Why should we not admit a truth that is based upon the experience of all students of chemistry, and acknowledge without cavil that if the presence of hydrogen be granted then chlorine will readily displace it, will then form hydrochloric acid or some similar destructive product, and its destructive activity will be exerted upon the animal, vegetable, or mineral kingdoms? Is it necessary now, at this late day, to quote the provision of the acid law or anti-acid law, or is it really necessary to repeat the bald archaic statement that the country round about an alkali factory, for miles and miles was once little better than a desert, where even the rain brought down its quota of HCl to attack and destroy albuminoids? The whole picture was once so dreadful that mandatory law was invoked to stop the conditions that obtained. In the face of all this consider that a catgut that does not contain hydrogen cannot be catgut, and a chlorine that will not replace hydrogen cannot be chlorine, and then let us plan some argument or set forth some reason, if we can, why catgut should not be attacked by dichloramine-T. Why not consider the positive statement a settled affair?

Rather to my surprise, Dr. Stewart took quite another view by voicing his idea that far from being a settled affair it was, in his opinion, of the most supreme importance not to the medical profession alone, but to the whole human race. Because, if catgut could be placed in a chlorinated solution, could at the end of ten days be converted into the usual amorphous state, and could be found at the end of three weeks to be in its original unchanged condition, then that experiment would be the pioneer laboratory proof of the physical resurrection of the dead. Because if any one tissue could be proved to have survived the diffusion of its elements then it might be quite easy to start from that point and to prove that all tissues could so survive. Whether this view be tenable or not need not detain us, nor need further time be wasted in discussing the tenability of the fact that chlorine

will attack tissue, living or dead. The sole question here set forth is how much destructive effect has a solution named dichloramine-T (or "Tea," in common hospital parlance) upon catgut that is submerged in that solution.

The first experimental fact that became apparent was that it was impossible to get regular and invariable results because there was such a wide variation in the resistance of different pieces of catgut, both when taken from different portions of the same roll, or skein, and when the products of different manufacturers were compared. Submerged in the usual aqueous chlorine solution, the daily loss of tensile strength of catgut was two pounds as a maximum and one pound as a minimum, with an average of one and a quarter pounds. It followed that the action of this solution upon dead tissue, both within wounds and outside of them, varied in a proportion that might be expected from the aforesaid. The solution was the same, but its age or the unknown resistance of the tissue made any exact calculation difficult. The specimens of catgut which were submerged in dichloramine-T showed a loss in tensile strength that varied from one pound per day to one pound per week, and against dead tissue within and without wounds it seemed no way comparable to the 2 per cent. aqueous solution.

Perhaps it may be well to state that chlorine in oils and in paraffin was tried out long ago without producing the least effect upon the standing chemical rule that chlorine shows its most marked effects with water. If one wishes the effect of this halogen he must use water, or if he wishes to blur those characteristic effects then he may use oil or paraffin. All the preparations of chlorine will destroy catgut, or if they fail in this the chlorine is not in an active state, or is in a valueless or spoiled environment that hampers chemical activity. To a chemist the deliberate employment of an inferior product is something that defies analysis, yet he who prefers to substitute dichloramine-T for the aqueous solution would appear to be doing that very thing.

The summary is that dichloramine-T will attack catgut, but in that and in every other sphere of chlorine activity it is inferior to an aqueous solution.

Medicolegal Notes.

Workmen's Compensation—Accidental Death by Arsenical Poisoning.—In a proceeding under the Illinois Workmen's Compensation Act for death alleged to have resulted from an accidental injury received in a zinc smelting plant the decision depended upon substantially the following facts: The deceased had worked at the plant for thirty-eight years, for fifteen years as a foreman at the furnaces. Each day he was required twice during his eight-hour period to work for about forty-five minutes in drawing the scum and dross, or oxide as it is called, from the surface of the molten zinc or spelter. For this purpose he used an iron rod about 15 feet long with a scraper on the end. He threw sal ammoniac on top of the molten spelter, and inserting the rod in the furnace, drew the scraper over the top of the molten metal, drawing from the surface the scum or dross, which fell on a platform in front of the furnace, giving off hot, burning gases, vapors and fumes until it cooled. There was a hood over the furnace, but it did not extend over the place where the oxide fell and did not take away the gas generated by it. In that work he was part of the time within four or five feet of the furnace door, and when the oxide was cold he shoveled it up and it was taken away. The ore smelted contained 99 per cent. of zinc, a fraction less than two-tenths of 1 per cent. of lead, and a trace of arsenic. The plant had been operated for nearly fifty years, and no case of lead, zinc, or arsenical poisoning had ever appeared there. The deceased during all his years of service had been in good health, with the exception of two accidents, which had no relation to his death. Two other men who worked with him had never been injuriously affected. On October 6, 1914, Tuesday morning, he began work at 6 o'clock, after being idle Sunday and Monday. On leaving home for work he said he did not feel like going to work. He worked until 2 o'clock in the afternoon, when he went home sick and had dysentery. This was first attributed to coffee he had drunk, but the attending physician found there was nothing the matter with it, and other members of the family who had drunk it were not affected. About 8 in the evening the deceased was seized with cramps through his arms, legs, chest, stomach, and bowels, and from that time he grew steadily worse. His discharges were black and loose. His teeth became black and loose, there was a dark line around his gums, his toe nails and finger nails became black, his eyes had a glassy, staring look, his wrists dropped, and his mind wandered. He was treated at home until October 12, when he was taken to a hospital, where he died on October 14.

The petition based the claim for compensation on the ground that he had absorbed such a quantity of lead that he was poisoned. Two doctors gave opinions as to the cause of death. One of them testified that the symptoms indicated lead and arsenical poisoning; that lead poisoning was commonly the result of a long course of absorption, and his conclusion was that the death was from arsenical poisoning alone. The other doctor gave an opinion that the death was due to arsenical poisoning, and said that usually such poisoning was not acute, but that arsenic is a cumulative poison, which accumulates in the system until it gets to a point where the poison springs into life and there is an explosion which is of an acute nature. He thought that probably the deceased's system became surcharged with arsenic which finally became acute arsenical poisoning, causing his death. The finding of the industrial board was that the death was due to acute arsenical poisoning not of a chronic nature, or a culmination of a gradual development of a long course of poisoning.

The defenses were that there was no evidence that any accident happened to the deceased; and that the death was caused by an occupational disease, which is not accidental within the meaning of the Illinois act.

The Illinois Supreme Court holds that there was evidence from which the industrial board was warranted in finding that on October 6, 1914, in the course of the deceased's employment, he contracted arsenical poisoning which resulted in his death. It was true he had been exposed to practically the same conditions for many years without injury, but it would not be unreasonable to conclude that his immunity was because of the state of his health and his ability to resist the deleterious effect of the gases and fumes over which he worked; but this time his physical condition was such as to make him susceptible to arsenical poisoning in such a degree as to bring on his fatal illness and death. As to the second defense the court said that for nearly fifty years in the active operation of the plant a case of lead or arsenical poisoning had never been known, and the employer would have had a perfect defense in an action for the death on the ground of its failure to obey the statute relating to occupational diseases; but there was no evidence tending in any degree to prove that the arsenical poisoning of the deceased was a disease incident to the occupation. The award was therefore upheld.—Matthiessen & Hegeler Zinc Co. v. Industrial Board, (Ill.) 120 N. E. 249.

Privileged Communications.—The Utah Supreme Court holds that a plaintiff in an action for personal injuries, who testified as to a physician's treatment of and statements to him as to the nature of his injuries waived the physician's privilege under the Utah statute. The erroneous exclusion of the testimony of the attending physician (his privilege having been waived), offered by the defendant as to his treatment of and statements to the plaintiff, was held prejudicial error.—Dahlquist v. Denver & Rio Grande R. Co., Utah Supreme Court, 174 Pac., 833.

Military Medicine.

Flavine and B. I. P. P. in War Surgery.—There has been a good deal of discussion with regard to the antiseptic and healing merits of proflavine, acriflavine and brilliant green as demonstrated in the treatment of wounds incurred in war. Some have eulogized them highly while others have stated that they have shown themselves of little or no use. It is beyond the scope of these remarks to deal with the controversial points which have arisen with respect to flavine in particular. It will suffice to say that in the hands of Professor Browning of the Bland Sutton Institute, London, the use of flavine has met with conspicuous success, and that many surgeons in the base hospitals in France, England and the East have testified to value of flavine in the treatment of wounds.

Captain N. Reader of the Dehra Duu Hospital, India, for Indian troops, writes in the *Indian Medical Gazette*, November, 1918, on war surgery among Indian soldiers. The hospital is intended entirely for Gurkha patients, but occasionally a Mohammedan is admitted for special treatment. During the past two years, most of the cases have come from Mesopotamia, but France, Gallipoli, Waziristan and Palestine have all contributed a share. The Dehra Duu Indian War Hospital is the last medical unit in the line of evacuation for Gurkhas. As a result of this, the cases that arrive for treatment are generally of a very chronic nature, and not such as respond easily to treatment. The highly infected, grossly suppurating wounds that fill the wards of the more advanced base hospitals are relatively few. In their place are found chronic sinuses, malunited fractures, ankylozed joints, deep seated foreign bodies, old nerve injuries, and the like. With reference to flavine Reader says that in his experience and in that of his colleagues flavine has proved of great clinical value, and they consider that it occupies a high place in the armamentarium of the surgeon. Its greatest field of usefulness is in severely septic wounds. They have found that the temperature becomes quickly reduced, signs of inflammation around the wound rapidly subside and the patient feels much improved in general well being. After a few days, a thick yellow, fibrinous membrane begins to form, and the continuation of flavine after this point probably does more harm than good. The membrane is readily dissolved away by lysol, leaving underneath a healthy granulating surface. The simplicity of technique in the application of flavine is a great point in its favor. For chronic wounds Reader and his colleagues are of the opinion that flavine is of no value. Reader is enthusiastic with regard to B. I. P. P., but is insistent that the paste must be composed according to Morison's original formula: iodoform 16 parts, bismuth sulphide 8 parts, and liquid paraffin 8 parts. The iodoform and bismuth should be thoroughly mixed in a mortar and the paraffin added gradually. When the paste has assumed the required consistency, it should be taken bit by bit and rubbed down on a slab with a spatula. It is most essential that no grittiness should be present and the whole paste should be perfectly homogeneous. Failure to prepare the paste properly will cause disappointment in results. Exact attention to detail is the key of success.

At Dehra Duu it was found that bismuth paste was by far the most useful substance in the treatment of the majority of wound cases, both in the operation theater and in the ward. For injecting the paste into sinuses a urethral syringe serves the purpose admirably. The plunger is withdrawn, and the syringe partially filled with the paste at the wide end. On returning the plunger the paste may be expressed as a fine ribbon from the nozzle. The nozzle of the syringe is boiled after each injection. It is not wise to boil the whole syringe, as the paste goes black. The black paste in the nozzle should be expressed before the next injection.

The American Army Hospital in France.—The Army Medical Corps, when confronted with the problem of choosing a hospital center in France, selected Beaume, in the Côte-d'Or region, where in the course of a few months one of the largest hospitals in all France has sprung up. This institution covers a square mile of territory, has 600 buildings of a permanent type, with accommodations for 25,000 patients. It is more than fifteen times the size of Bellevue Hospital, the largest hospital in New York. The American Hospital is of such extent and magnitude that it is divided into 10 units, each capable of caring for more than 2,000 patients. Each staff consists of 30 officers of the Army Medical Corps, 96 nurses, and 200 enlisted men. The entire hospital is under the direction of Col. Clarence J. Manly of the Army Medical Corps, who has been in the service for more than twenty years. In addition to its own work the hospital staff during the month of December served the wooden barracks convalescent hospital near Beaume where about 17,000 patients were being cared for.

Germans Loot Ambulance Train.—According to a report from London, on January 10, an ambulance train belonging to the municipality of Frankfort, derailed just outside the Michaelstadt station, was stormed by practically the whole population of the town, which is about 5,000, and everything was cleared out of it, glasses, linen, tablecloths, sofas, couches, chairs, tables, and everything except structural fixtures, the train being left perfectly empty.

West Point Needs Hospital.—Hospital facilities at West Point were described as "pitifully inadequate" by Colonel W. H. Haskins, at a hearing by the House Military Committee on the Military Academy appropriation. Colonel Haskins recommended that $465,000 be appropriated for a new hospital.

Refuses to Release Physicians.—The request made recently of the War Department by the Springfield, Mass., Board of Health for the release of several local physicians from service in the Medical Corps of the Army to aid in the local influenza situation has been refused. The information is given that the release of medical men from army service is under general orders of the War Department, and therefore out of control of the Surgeon-General. With the exception of a limited number of cases there will be no discharges save at places where the men have been serving.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, January 18, 1919.

A STUDY OF AMEBIC DYSENTERY.

THE war, so far as medicine is concerned, has had two conspicuous results. It has afforded unique opportunities for the close study of various diseases, of some of which the etiology is obscure, and treatment both preventive and remedial more or less empirical. Undoubtedly, these opportunities have been and will be seized so that many diseases, especially those occurring chiefly in the tropics, will in the future be largely prevented and methods of treating the same will be considerably improved. On the other hand, it has had the effect of conveying diseases practically all over the world. Maladies indigenous to certain climates or localities have been imported into places in which they were almost unknown before, owing to the extensive movement of troops. Tropical diseases which have been restricted to certain parts of the tropics have been thus conveyed to other portions of the tropical zone and have even been brought into temperate climates.

Lieutenant-Colonel John M. Cowan and Captain Hugh Miller, R. A. M. C., writing on dysentery in the *Journal of the Royal Army Medical Corps* for September, 1918, draws attention to these facts, and quotes Colonel Sandwith as saying that it had been anticipated that the dysentery in Alexandria in the autumn would be chiefly protozoal, whereas it had been mainly bacterial. Captain Lumb is quoted as stating that while the dysentery in East Africa prior to the war was wholly amebic, the bacillary affection had been frequently seen there since the arrival of the Indian troops in the autumn of 1914. On the other hand, cases of amebic dysentery have occurred in England in men who had never been away from home.

The authors, therefore, lay particular stress on the point that accurate diagnosis of the cause of dysentery in each individual is essential in order to ensure successful treatment. As is pointed out, the diagnosis of amebic dysentery is beset with many difficulties, and a really accurate diagnosis can be made only by microscopic examination of the stools. A single negative examination is of little value. In the author's cases the parasite was found only at the first examination in 60 per cent. The stools must be fresh and clean, for cold and prolonged exposure to the atmosphere rapidly destroy the amebas, a result which also follows the admixture of stools and urine, and treatment by emetine. A laxative should be administered in every case and the mucus, exudate, and sloughs of the mucous membrane examined. In cases where microscopic examination is impossible, and in fact in every case, due attention should be paid to the other data. The probable source of the infection and the nature of the dysentery prevalent are especially important. Moreover, recurring attacks of dysentery, chronic dysentery, dysentery which fails to react to general treatment, and dysentery associated with enlargement of the liver, hepatitis, and perihepatitis, are most generally amebic in origin.

Cowan and Miller state that the treatment of amebiasis of the intestines consists in the administration of ipecacuanha or emetine in sufficient doses over a sufficient length of time, and owing to the discomforts attending the administration of large doses of ipecac by the mouth emetine is almost always given hypodermically. It is still necessary to emphasize the fact that a short course of treatment will not cure amebic dysentery; a prolonged course is required, and should be continued even after dysenteric symptoms have completely disappeared. Regarding the administration of ipecac, the authors have found that it rarely occasions sickness if given with thirty grains of bismuth carbonate and five grains of sodium bicarbonate about 9 o'clock at night and three hours after the last meal. It should be mentioned that in certain cases in which the dysenteric symptoms persist after emetine has been injected for some time it is the custom of the authors to follow up the hypodermic course by a course of ipecac given by the mouth in five or ten-grain doses for two weeks.

The main point to be borne in mind in order to derive good results from the treatment of dysentery is first and foremost to make sure by careful diagnosis the form of dysentery. When it has been established to be amebic, a cure will not be obtained unless the treatment is prolonged.

MALIGNANT DISEASE ARISING IN THE SEBACEOUS GLANDS OF THE PENIS.

CANCER of the sebaceous glands of the penis offers special characteristics which always indicate its starting point, which is on the glans or mucosa of the prepuce. All causes favoring stagnation of sebum eliminated by the glands in the balanopreputial sulcus greatly aid in its development. The lesion begins as a verruca with a scaly surface and oval contours and rapidly increases in size so that within a year or even less the neoplasm offers formidable proportions. As soon as the indurated nucleus develops between the glans and prepuce, the latter is infiltrated throughout and assumes the consistancy of pasteboard. Even when a congenital phimosis does not exist, shortly after the evolution of the epithelioma has got under way, a cancerous

phimosis will develop, the result of the inflammation which invariably accompanies warty growths and which also hastens the evolution of the malignant process as a result of the accumulation of sebaceous products.

If the patient has a congenital phimosis a direct examination of the lesion may be impossible, but almost from its very beginning it gives rise to the symptoms of a balanoposthitis with a sanious discharge, and soon the penis increases in size, offering the characteristic, one might almost say pathognomonic, shape of a club or a clapper. When the neoplasm appears outside the foreskin, having overcome the resistance offered by the phimosis, it at first assumes the form of a reddish, ulcerated verrucous mass. Soon afterwards, bosses develop over it and in turn become eroded, giving vent to a foul-smelling discharge. These bosses continue to enlarge, their surface continues to erode, and soon they are transformed into true vegetations with a broad base which extends in depth and surface. The surrounding skin is tumefied, red, and thicker than normal, and also presents irregular projections which become purple in color as they are nearer the ulcer.

Although the growth may finally almost surround the penis like a ring, the glans is always respected. When the neoplasm has attained an enormous size and the entire organ is involved in the process, a compression of the urethra of a purely mechanical nature takes place, causing difficult micturition. There is no invasion of the urethral mucosa, although this may occur after the corpora cavernosa have become infiltrated by the neoplasm, but this occurs only at a very late date in the process.

The inguinal lymph-nodes are usually invaded by the tumor cells, but this is a slow process and takes place only late in the evolution of the growth, although in some instances offering a more malignant character they may be involved earlier. These malignant cases are those where the perturbation of the cell elements more closely resembles the embryonal state and where the sebum, being younger, is consequently more nefarious. These cases are less common and are prone to recurrence in the lymph-nodes after a radical operation has been done.

A rather distinctive character of sebaceous epithelioma of the penis is its usually slow evolution. An ordinary cancer undergoes its evolution more quickly and presents a truly malignant aspect, soon ending in cachexia. In the sebaceous type the general health remains good and it is only after the lapse of a number of months that there is a decline in the health. The organism seems to accommodate itself much better in the cases under consideration because the morbid process is in fact a sebaceous degeneration and the keratinised products are far less toxic. Nevertheless, there are cases running a very malignant course, and this eventuality must never be lost sight of in making the prognosis.

ARTIFICIAL ABORTION IN ANTIQUITY.

THIS subject has recently been considered *in extenso* in a Paris graduation thesis. It seems that up to a certain period of antiquity this act was not interdicted. The code of Hammurabi, the Mosaic Law, did not condemn it. In the later Judaic law the fetus was not regarded as an independent existence but merely as part of the mother. In Egyptian lore one seeks in vain for prohibition of abortion. But in the Vedas, Avesta, and the laws of Manu abortion is condemned in or out of wedlock. The crime was against the Deity but not against society.

In Greece, from early times, abortion was common, and the thinkers of the time justified it. Birth control was deemed an inherent right. Infanticide was legal in Sparta. In Athens, with its culture, there was a critical pose. If a father wanted children and the mother defeated this desire by committing abortion on herself a question was indeed raised, but no prohibition and no penalties are in evidence. The act of abortion was done by the midwife of the period, who was the obstetrician and gynecologist *ex officio* of the day. Medicines by the mouth and pessaries were the usual resources for artificial abortion. The grave prognosis of abortion was known to Hippocrates.

Under the Cæsars the Roman satirists deplored the frequency of artificial abortion, and Juvenal observed that wealthy women no longer bore children. The Romans of the day held to the old belief that the fetus had no rights—was only part of its mother. The leading motives for abortion were to conceal illicit relations and to preserve female beauty—for "women aged quickly in Rome." In their dilemma the Roman women turned to all kinds of "wise women" besides midwives—fortune-tellers, sorceresses, perfumers, and what not. The enfranchised Greek ex-slave was especially in demand. There is evidence that septic abortion of fatal termination was common. The first evidence of penalty was the exile of the guilty mother for a time in the view that her status was that of an alien and not a citizen. Abortionists were punished only when the mother died. The doom of abortion came with the ascendancy of the Christian Church, which urged the doctrine of the rights of the unborn child as a separate creature.

FUTURE OF ARMY LABORATORIES.

IN the bulletin of *Le Progrès Médical* for December 5, Helme discusses this subject in as far as it affects France. The war created a great demand for scientific men and the latter had to requisition a great deal of apparatus and material. Laboratories were established wherever there were troops. It is doubtful whether Claude Bernard or Pasteur himself had such an installation. The war made abundant opportunities for experimentation. Instruments of precision to aid the deceptive senses have multiplied. Perhaps France will be a Mecca after the war for students from other lands. The French have originated, but the German, their enemy, has profited materially. To select one ex-

ample out of a thousand, the French showed the feasibility of utilizing the nitrogen of the air, but the Germans turned this knowledge to advantage, and especially in offsetting the effects of the blockade. In France it was Tellier who, poor and alone and without apparatus, but highly ingenious, extracted nitrogen from the air and made from it ammonia long before the Germans had learned the trick. Had Father Tellier had governmental or other support he would have made enough ammonia for home consumption and would have enriched France through the supply of fertilizer. If these laboratories are not to perish they must be endowed and made centers not only of practice but of teaching. In the same connection the author raises the query as to what is to be the fate of *x*-ray plants and surgical apparatus. The answer is not difficult, for many civilian laboratories are wretchedly in need, especially physiological laboratories. Other apparatus released is concerned with fumigation and sterilization. Much apparatus can be used for the teaching of physics—chronographs, oscillographs, etc. The proper disposition and utilization of these properties will no doubt have a very considerable bearing on the scientific future of France.

Figueira's Syndrome.

At a recent session of the Medical Society of the Bahia Hospitals it was proposed to give the name of a new syndrome to its discoverer, who is a well known Brazilian pediatrist (*Brazil-Medico*, July 6). This syndrome is believed to be an attenuated, sporadic type of acute poliomyelitis. The affection is evidently of rare occurrence, which makes it difficult to study, and moreover is benign, so that its clinical significance is not great. There appears to be only a temporary hyperemia in place of organic lesion of the nerve centers. A case cited in a child of 20 months presented as chief symptoms weakness of the neck musculature, so that the head could not be held erect. There was also slight spasticity of the muscles of the lower extremities and exaggeration of the tendon reflexes. There was a lively Babinski reflex. The infant had been born at term but there were evidences of retarded cerebral development, and the case was judged not to be one of Figueira's syndrome. In another case regarded as a true example of the latter the diagnosis might well have been postdiphtheritic paralysis because the patient had recently suffered an attack of diphtheritic angina. But the only muscles to suffer were those of the neck, paralysis being absolute and of the flaccid type. There were no other symptoms of any kind, and the paralysis had disappeared completely in 15 days. This affection does not agree with any known case of diphtheritic paralysis and is typical of the syndrome already placed on record by Figueira. In the discussion which followed the reading of the paper one member expressed the opinion that the case narrated was one of diphtheritic paralysis, but if it was it was certainly unusual, for the symptoms presented differed greatly from those of a typical case of this condition. Fernandes Figueira is director of the Policlinic for Children in Rio de Janeiro.

News of the Week.

New Health Insurance Measure.—A Health Insurance Bill was introduced into the Lower House of the New York State Senate on January 8 by Assemblyman Joseph Steinberg. The purpose of the bill, which aims to supplement the inadequacies of the Workmen's Compensation law, is "To conserve human resources of the State by establishing for employees and dependent members of their families a system of mutual health insurance funds under the supervision of the Industrial Commission." The bill provides that beginning with the fourth day of disability on account of illness or accident a weekly cash benefit, equal to two-thirds of the insured person's earnings, provided that the cash benefit shall not be more than $8 a week, or less than $5 a week, except that if the insured person's earnings are less than $5 a week cash illness shall equal his full weekly earnings. The bill provides a cash illness benefit to dependents. Medical, surgical, dental, and nursing attendance and hospital treatment, as well as funeral expenses, are provided for. The costs of the insurance is to be borne one-half by the employer and one-half by the employee. Where the weekly earnings of the employee are less than $9 but more than $5 contributions are to be borne three-quarters by the employer and one-quarter by the employee. Where the weekly wage of the employee is less than $5 the contribution is to be borne entirely by the employer. The bill also carries a maternity insurance and provides for instruction in disease prevention, appropriation for this purpose to be made with the consent of the Industrial Commission.

Bill to Block Health Insurance.—The first bill for 1919 to be introduced into the New York State Senate was a bill calling for the reorganization of the Department of Health and including an appropriation of $2,250,000. This measure was introduced by Senator Ross Graves of Buffalo at the request of the Associated Manufacturers and Merchants of the State. The bill had its inception in an investigation of compulsory health insurance. The sponsors of the bill say it is designed as a sickness prevention bill. They expect that the bill will meet with considerable opposition, but regard it as a start in the right direction.

Politics Charged in New York Health Department.—Mayor Hylan is again accused of renewing his attempts to throw the New York Health Department into politics. The Central Federated Union, at a meeting on January 9, adopted resolutions protesting against what it termed the "secret and surreptitious" removal by Health Commissioner Copeland of Louis I. Harris, who has been director of the Division of Industrial Hygiene, from that position and placing the division in his own office. The Central Federated Union in these resolutions complains against the disturbance of the work of the Division of Industrial Hygiene, as constituting a danger, not only to workers in industry, but to the community as a whole, and asks that a committee of five be appointed to take such action as may be necessary, jointly with other central bodies, to exert every effort to prevent this unfortunate interference

with an official who has won the confidence and respect of all those interested in health protection of the public. In replying to this charge Dr. Copeland declares that no powers will be taken from Dr. Harris, but that he felt that the work of the Division of Industrial Hygiene was so important that he desired to have it directly under his supervision. Commissioner Copeland further states that Mayor Hylan has had nothing to do with the change and did not know of the existence of the Division of Industrial Hygiene.

Program of the Rockefeller Foundation.—The Rockefeller Foundation has just announced its plans for extensive work in public health and medical education for the year 1919. The estimated income of the fund for 1919 is $6,750,000, and against this the budget provides for $2,264,130 for public health and $3,662,504 for medical education. The other items of the budget are $103,000 for miscellaneous payments on long term appropriations and $146,662 for administration. The amount still available for appropriations is $465,110. The public health activities to be carried out during the year will consist chiefly of efforts against yellow fever, tuberculosis in France, malaria and the hookworm disease. The Yellow Fever Commission, headed by General William C. Gorgas, is starting a war on the disease which it is hoped will result in its complete elimination. The Commission on Tuberculosis in France, which during the war has been co-operating with the American Red Cross, will continue its work on an enlarged budget at the request of the French authorities. Demonstrations in the control of malaria will be carried on in two southern states. The campaign against the hookworm disease will be waged during the present year in twelve states of America and twenty-one foreign states and countries. In addition to this public health work to be carried out by the Foundation's International Health Board, appropriations have been made for special studies and demonstrations in mental hygiene by the National Committee for Mental Hygiene, for the creation and maintenance of a School of Hygiene and Public Health at Johns Hopkins University, and for the development of public health nursing. The chief work of the Foundation in medical education will be in connection with the development of modern scientific medicine in China through the Foundation's China Medical Board. Other expenditures for medical education are for special work of the Rockefeller Institute for Medical Research and toward a contribution for the development of the medical school of the University of Chicago. The following will be its war work activities: Continued maintenance, at the request of the War Department, of the War Demonstration Hospital. Work of Medical Division of National Research Council, which was appointed by the President to coordinate the scientific resources of the nation. Assistance in care and treatment of soldiers mentally and nervously disabled. Payments on pledges made in 1918 to United War Work Fund and to work under the direction of the Commissions on Training Camp Activities.

Typhus Spreads in Russia.—According to advices received at the State Department in Washington, on January 4, typhus fever is spreading in Russia, there being 260 cases reported from Ekaterinburg, 700 at Chilbinsk, and 200 deaths from the disease at Tomsk during December. Irkutsk reports 450 cases. The disease is prevalent among the civilian as well as the military population and is also prevalent in the Bolshevik prison camps and to some extent in Austro-German camps. A Miss McBride, an American Red Cross nurse, is reported to have died from the disease in Tumen recently.

Want and Disease Reduce Population of Poland. In making an appeal for medicines, food, and fuel, Dr. Chodzko, Minister of Public Health of Poland, says that there were at Lodz, in 1913, 12,000 births and 17,000 deaths. At the present time the annual rate is 2,000 births and 8,000 deaths. Tuberculosis he finds is four times as menacing as other diseases, since the Germans refused to give patients medicines, and confiscated the food and fuel resources. The country is in great need of quinine, morphine, camphor, vaseline, oils, cotton, wool, and gauzes.

Increase in 1918 Death Rate Due to Influenza.—The Census Bureau at Washington reports that the recent epidemic of influenza caused 111,588 deaths in the forty-six largest cities of the United States and increased the combined death rate of those communities, in 1918, to 19.6 per thousand, the highest rate recorded since 1880, when the death rate was 19.8 per thousand. All told the deaths for the year in these forty-six cities numbered 442,374. The death rate in some of these cities is as follows: Baltimore, 26.8; Nashville, 26.4; Pittsburgh, 26.4; Philadelphia, 24.2; Washington, 23.6; Boston, 22.0; Buffalo, 21.2; Cincinnati, 20.6; San Francisco, 20.5; Newark, 19.5; New York, 18.8; St. Louis, 17.6; Chicago, 17.1; Los Angeles, 16.4; Cleveland, 16.0; Milwaukee, 14.4; Grand Rapids, 14.0; St. Paul, 13.9. New York's mortality rate is the highest it has had in fourteen years and is in marked contrast to that of 1917, when it was 15.2.

Supreme Court to Define Drug Law.—The Department of Justice has filed briefs in the Supreme Court in two cases under the Harrison antinarcotic law in which the constitutionality of the license and punitive taxing powers of Congress were assailed. The particular provisions attacked are those prohibiting the sale of the drugs except on official order forms or on physicians' prescriptions given in good faith to patients. It is the Government's contention that the right of Congress to pass excise on punitive taxes is clearly established by the tariff acts and other similar laws.

Brookline Doctors Raise Fees.—The Brookline Medical Club has voted to increase the fees of its members for house and office visits at least one dollar above the previous charge. The fee for a visit between 10 P. M. and 8 A. M. is increased to from $5 to $15. For a visit between 7 P. M. and 10 P. M. the fee is now $4 to $6. A visit in consultation is from $10 to $25 instead of $10 to $20. Instead of a "suitable charge" for advice by telephone the fee for such service is definitely from $1 to $2. For advice by letter a fee of from $2 to $15 may be charged.

Essex County, N. J., Tuberculosis Hospitals.—Essex County, which now maintains two hospitals for the care of tuberculous patients, one at Soho with about 200 beds and one at Verona with 85, is constructing a new hospital which will afford accommodations for 100 or 150 more patients. The tuberculosis agencies of Essex County find that the care of discharged soldiers is giving them additional work. Dr. H. B. Dunham, for the past ten years assistant superintendent of the New Jersey State Sanatorium for Tuberculous Diseases at Glen Gardner, has been selected superintendent of these hospitals.

New Brooklyn Hospital Opened.—The Carson Memorial Hospital, at Crown Street and Albany Avenue, Brooklyn, which was donated to the city by the family of Carson C. Peck, was formerly opened on January 10. The Rev. S. Parkes Cadman accepted the gift in behalf of the city.

Beth Israel Hospital Acquires Property.—Beth Israel Hospital has completed the assembling of the site for its new building in Stuyvesant Square through the purchase of two dwellings at the northeast corner of Livingston Place and Sixteenth Street. The combined plot now under the ownership of the hospital consists of 189.7 feet in Livingston Place and 129 feet in both Sixteenth and Seventeenth streets. A sixteen-story main hospital building has been planned for the site to which will be added the seven-story Stuyvesant apartment house which has been remodeled as a part of the hospital at a cost of $85,000.

Course in Occupational Therapy.—A course in occupational therapy for women who wish to train themselves for aid in the re-education of wounded soldiers is offered by the Central Branch of the Young Women's Christian Association, 610 Lexington Ave., New York City. A course is also being offered for women who wish to be trained to relieve nurses' aids in hospital work.

Theater for War Hospital.—Debarkation Hospital No. 5 in the Grand Central Palace, New York is to have a theater of its own, built, equipped and maintained by the Stage Women's War Relief. A considerable sum of money for this purpose is already in hand.

Gifts and Bequests.—Bequests of $10,000 each to Mount Sinai Hospital and the Mount Sinai Training School for Nurses, New York, are provided for in the will of Kalman Haas.

A gift of $10,000 for a children's ward in the Holyoke City Hospital has been made recently by John P. Bagg.

The United Hospital Fund of the New York non-municipal hospitals has received thus far this year $32,080.

Through an anonymous donor the Long Island College Hospital has had placed at its disposal a farm for keeping animals used in research. Experimental work has already been begun on fowl influenza, diphtheria and chickenpox.

Lieut.-Col. George H. Burr has been appointed American Red Cross Commissioner for France, to succeed Harvey D. Gibson, who will remain in France as chairman of the Red Cross European commission.

Dr. Royal S. Copeland, Health Commissioner of New York City, has resigned from the new Milk Commission appointed by Governor Smith. He gives as his reason the possibility of facing embarrassment if called upon to exercise police control over his fellow members of the Milk Commission.

Medical Society Elections.—THE SOUTHERN SURGICAL ASSOCIATION, at its thirty-first annual meeting held in Baltimore, Dec. 18-20, 1918, the following officers were elected for the ensuing year: *President*, Dr. J. E. Thompson, Galveston, Texas; *Vice-Presidents*, Dr. Charles R. Robins, Richmond, Va., and Dr. George A. Hendon, Louisville, Ky.; *Secretary*, Dr. Hubert A. Royster, Raleigh, N. C. (reelected); *Treasurer*, Dr. Guy L. Hunner, Baltimore (reelected). New Orleans was selected as the next place of meeting.

THE AMERICAN CONGRESS OF INTERNAL MEDICINE, held in New York City, Dec. 30, 1918, elected the following officers for the ensuing year: *President*, Dr. Glentworth R. Butler, Brooklyn; *First Vice-President*, Dr. Frederick Fice, Chicago; *Second Vice-President*, Dr. Clement R. Jones, Pittsburgh; *Secretary-General*, Dr. Frank Smithies Chicago; *Associate-Secretary*, Dr. Joseph H. Byrne, New York City; *Treasurer*, Dr. Augustus Caillé, New York City.

THE PORTLAND (ME.) CITY AND COUNTY MEDICAL SOCIETY, at its annual meeting held in Portland, Dec. 18, 1918, the following officers were elected for the ensuing year: *President*, Dr. C. J. Smith; *Vice-President*, Dr. C. C. Moore; *Secretary*, Dr. A. J. Browning; *Treasurer*, Dr. Katherine Manion.

THE CLARK COUNTY MEDICAL SOCIETY, at its annual meeting held in Springfield, Ohio, Dec. 23, 1918, the following officers were elected for the ensuing year: *President*, Dr. D. W. Hogue; *First Vice-President*, Dr. Read L. Bell; *Second Vice-President*, Dr. Clarence H. Kay; *Secretary*, Dr. W. B. Quinn; *Treasurer*, Dr. Frank P. Anzinger; *Councillors*, Dr. C. C. Augustus and Dr. C. L. Minor.

THE BOSTON CHAPTER OF THE MASSACHUSETTS HOMEOPATHIC SOCIETY, at its annual meeting on Jan. 2, 1919, elected the following officers for the ensuing year: *President*, Dr. Wilson T. Phillips; *Vice-President*, Dr. Ernest M. Jordan; *Second Vice-President*, Dr. Albert W. Horr; *Secretary*, Dr. Clifford D. Harvey; *Treasurer*, Dr. Thomas M. Strong.

THE WEST VIRGINIA HOSPITAL ASSOCIATION, at its annual meeting held in Charleston, W. Va., Dec. 30, 1918, to Jan. 1, 1919, elected the following officers for the ensuing year: *President*, Dr. J. A. Guthrie, Guthrie Hospital, Huntington; *First Vice-President*, Dr. Charles F. Hicks, Emergency Hospital No. 1 Welch; *Second Vice-President*, Dr. S. B. Lawson, Logan; *Third Vice-President*, Miss Noel, Princeton; *Treasurer*, Miss Knight, Huntington; *Executive Committee*, Dr. J. A. Guthrie, Huntington; Dr. W. A. McMillan, Charleston; Dr. C. A. Wingerter, Wheeling; Dr. P. O. Clark, Wheeling.

THE YORK COUNTY (ME.) MEDICAL SOCIETY, at its ninety-fifth annual meeting held in Biddeford, Jan. 2, 1919, the following officers were elected for the ensuing year: *President*, Dr. A. S. Davis, Springvale; *Vice-President*, Dr. F. W. Smith, York Village; *Secretary*, Dr. A. L. Jones, Old Orchard; *Treasurer*, Dr. Charles F. Traynor, Biddeford.

THE NORWALK MEDICAL ASSOCIATION, at its an-

nual meeting, Jan. 2, 1919, elected the following officers for the ensuing year: *President*, Dr. A. H. Baldwin; *Vice-President*, Dr. H. C. Sherer; *Secretary-Treasurer*, Dr. James A. Meek.

The Talbot County (Md.) Medical Society, at its annual meeting, Dec. 31, 1918, elected the following officers for the ensuing year: *President*, Dr. Edward R. Trippe, Easton; *Vice-President*, Dr. James R. Merrit, Easton; *Secretary-Treasurer*, Dr. Joseph Ross, Trappe.

The Daughters of Hygeia, Auxiliary to the York County Medical Society, at its annual meeting in Biddeford, Me., Jan. 2, 1919, elected the following officers for the ensuing year: *President*, Mrs. C. F. Kendall, Biddeford; *Vice-President*, Mrs. F. W. Smith, York; *Treasurer*, Mrs. W. W. Smith; *Secretary*, Mrs. C. E. Thompson, Saco.

Obituary Notes.—Dr. Frank W. Jackson, a graduate of the College of Physicians and Surgeons, New York, in 1879, died at his home in New York City on January 8. He was a member of the New York Academy of Medicine and the New York Pathological Society, an alumnus of Bellevue and Roosevelt Hospitals, consulting physician to Bellevue Hospital and visiting physician to the Roosevelt Hospital.

Dr. Horace Melville Simmons of Baltimore and New York, a graduate of the University School of Medicine, in 1881, died suddenly at Mountain Lakes, N. J., on January 5, aged 65 years.

Dr. William B. Van Lennep, dean of the Hahnemann Medical College of Philadelphia, died on January 9 after an illness of two months. He was 65 years old and was a graduate of the Hahnemann Medical College of Pennsylvania in the class of 1880.

Dr. Chauncy M. Marstin, a graduate of the Rutland, Vt., Medical College, died suddenly at his home in Braintree, Mass., on January 6, aged 74 years. He served in the Civil War in the 142nd New York Infantry, and was present at Appomattox when General Lee surrendered. Dr. Marstin assisted in organizing the Braintree Board of Health, and was a member of it for many years.

Dr. Alvin Myers Struse, formerly of Philadelphia, died at Guatemala of influenza complicated by pneumonia on December 19, at the age of 29 years. He was graduated from Jefferson Medical College in the class of 1914 and he served as intern at the Episcopal Hospital of Philadelphia and the Abington Memorial Hospital.

Dr. Edward Humphrys died at Philadelphia on December 25 at the age of 61 years. He was graduated from Hahnemann and Medical College Hospital of Pennsylvania in the class of 1881.

Dr. Nathaniel H. Saxman died at Philadelphia on January 9 at the age of 53 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1890.

An Italian Camp University.—At the camp university of S. Giorgio there is given a course in pathological anatomy. In the first three months 200 autopsies were performed. Of interest is the frequency of sclerosis of the aorta in young subjects. Again in subjects dead of acute infectious diseases, persistent thymus is not uncommon. Another unexpected association was cerebrospinal meningitis with the anatomical lesions of tuberculosis.—*Pathologia.*

Correspondence.

CANCER DEATH RATE IN NEW YORK CITY DURING 1918.

To the Editor of the Medical Record:

Sir:—Mortality statistics are an interesting and instructive study in their relation to therapeusis, as all recognize. For if a new remedy or course of treatment for any disease were introduced and year by year the death rate from that disease was shown to rise, eager search would be made for other remedies or measures to check the same. Years ago tuberculosis was called the great white plague, increasing in mortality so greatly that fear was excited that it would sweep off nations; but we know now that with well directed medical care its death rate has diminished 30 per cent. since 1900 in the United States. Syphilis, the great black plague, swept through Europe and elsewhere in the sixteenth and seventeenth centuries, whole towns and communities being infected, often quite innocently, until the proper use of mercury with the recent introduction of salvarsan has largely rid the world of the fear of this foul disease. Leprosy was once alarming, but under wise management and the knowledge of its non-contagiousness it has lost much of its terrors. Yellow fever and cholera no longer threaten regions where scientific medical activity controls. But our recent experience with poliomyelitis and the Spanish grip shows that there is yet much for the medical profession to investigate and conquer.

Cancer, the great red plague, still holds its own as a menace to civilization, for the United States Mortality Tables show that since 1900 its death rate has risen nearly 30 per cent., almost as much as that of tuberculosis has fallen; and it is commonly asserted that 90 per cent. of those once affected die from the disease, under the prevailing treatment. It is certainly time to consider well what should be done to check this fearful mortality.

But the death rate from cancer in New York City, during the past year, 1918, seems to show that wiser counsels are beginning to prevail, as appears from the weekly reports of the New York Department of Health. During 1916, as previously reported, there were 4,635 deaths from cancer, malignant tumor (an average of 12.68 persons daily), while during 1917 there were 4,859 deaths, 2,143 males and 2,716 females (an average of 13.31 persons daily), an excess of 224, that is, an increase of almost 5 per cent.; whereas the increase in deaths from all causes was only 519, or less than 1 per cent.

During 1918 there were 4,895 deaths from cancer, 2,150 males and 2,745 females (an average of 13.39 persons daily), or an increase of only 36 deaths over last year; that is, less than 1 per cent., as against the 5 per cent. increase of 224 deaths for last year, 1917, over the preceding year.

If figures teach anything, they seem to show that in New York City the profession is beginning to learn that the heretofore rash attempt to cure cancer with the knife is giving way to wiser procedures.

L. Duncan Bulkley, M.D.

531 Madison Avenue, N. Y.

OUR LONDON LETTER.

(From Our Own Correspondent.)

KING EDWARD'S HOSPITAL FUND FOR LONDON—MEDICAL MEN IN PARLIAMENT—RECRUITING FOR AVIATION—NEW PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

London, December 26, 1918.

A RECORD distribution of £200,000 has been made among the hospitals, consumption sanatoriums, and convalescent homes in the metropolitan area by King Edwards' Hospital Fund for London, the hospitals receiving no less a sum in annual grants for 1918 than £190,000 the balance of £10,000 being allocated to the other institutions. Several points are worth noting in this connection. The first and obvious one is that the public has appreciated the services of the hospitals during the fourth year of the war, as well as the difficulties entailed upon them by high prices and shortage of employees from honorary staff down to lift-boy. The addition to the subscriptions, contributed it should be pointed out by a public who was suffering as much as the hospitals from the price of living, is a testimony to the fact that the double rôle of the voluntary hospitals was recognized, namely that of ministering to the needs of the civil population, and that also of providing a large number of beds for wounded and sick sailors and soldiers, thus relieving the purely naval and military institutions. The second point to be noted is that the total of £200,000 given in one year is exactly double the total which was regarded, when the fund was started, as the ideal toward which the work should be directed, showing that day by day the charitable public is thinking in larger figures. The third point, which is a corollary of the second, is that while £160,000 of the total was applied in the form of grants to maintenance of hospitals, £30,000 was given as capital grants for reduction of liabilities, and in the main for schemes of improvement. This is a practical proof that those who manage the fund look forward to progression, and will forward anything bringing about this progression by reform of the existing pattern of metropolitan hospitals. One direction which this reform can take is obvious. A spot map of London shows at once that from the geographical as well as from the population point of view the sites of the institutions are capricious. The removal of Kings College Hospital to a place five miles southeast of its old home in the center of London has already taken place; the removal of Westminster Hospital is contemplated. This hospital at present facing the Abbey is separated by considerably less than a mile from Charing Cross Hospital and from St. Thomas' Hospital, while its activities also prevail over districts which can be catered for by St. George's Hospital, also distant barely a mile. This hospital, it is understood, is about to be removed also south of the river. Such great schemes of uprooting do not in their entirety, of course, fall into the hands of King Edward's Fund; they must be financed as a whole by the institutions concerned, possessing as they do funds, landed property, and valuable good-will. But all removals are expensive, and such domestic upheavals are considered by the Fund in the allocation of grants. But when a similar movement takes place among smaller, and usually special, hospitals, the assistance of the Fund will be valuable. It is obviously the policy of the Fund to promote schemes by which little special hospitals overlapping in object and sometimes situated in juxtaposition should be combined and even attached to big general hospitals as a special department of those hospitals. There is an immense saving in time of the staff and working of the administrators by any such judicious combination. To keep this sort of reform of hospital administration King Edward's Hospital Fund for London can be depended upon, and it is clearly going to be a policy of the future.

The results of the general election will not be largely determined until the last days of the year, but the counting has already taken place in several of the University Constituencies. Already two distinguished doctors can place M.P. after their names, Sir Robert Woods, who becomes a member for the University of Dublin, and Sir William Whittla, who will sit for the Queen's University of Belfast. At the election for the University of London Sir Wilmot Herringham was unable by the medical vote to detach the constituency from an old allegiance to Sir Philip Magnus, who was also the official candidate of this retiring government. Sir Wilmot Herringham was undoubtedly handicapped in his appeal to the electors by the fact that he is a graduate of Oxford and not of London, but as a physician on the staff of St. Bartholomew's Hospital, he is a recognized member of the University of London, within whose fold there are now included all the twelve great London schools of medicine. Moreover Sir Wilmot Herringham has been vice-chancellor of the University of London, the highest official post that is not purely honorary, so that those who abstained from voting for him because he got his degree on the shores of the Isis instead of on those of the Thames, were completely illogical.

Recruiting for aviation is a subject which has several times been discussed in these letters, because it is so keenly debated on this side. It is now accepted on all hands that a proper selection of men fit to fly can only be made by a properly selected body of medical men fit to test intending aviators. The day has gone by when it was assumed that athletic competency and a brave and lively heart turned any one between 18 and 28 into an accomplished aviator; but such wonderful achievements have been performed by a corps selected on no more scientific basis, that it must be assumed that the basis remains sound. It is the truth that competent physique and adventurous morale are essential characteristics of the successful aviator, but while it is the truth it is not the whole truth, and the lives of many of these heroic young men have been sacrificed while we were finding our way to some method of recruiting which went much further and far deeper. There can be no doubt that in the near future there will be organized by all progressive nations air services of public utility, the aerial post being the first one that will arrive. At once we see the

different kind of strain to which the civilian aviator will be subjected or compared with all flyers for touring or amusement purposes. To some extent he must abide by a time chart. In war the bomber could not wait entirely upon the weather. He was buoyed up by military duty to defy the atmosphere as well as the enemy's fire, and ascended in accordance with the needs of the fighting force; but war is a great emprise conducted on desperate planes, and no one could conceive subjecting the civilian employee to the appalling risks which the soldier must take. Civilization can go on if posts arrive a few hours late, but in the near past civilization was absolutely threatened unless certain men did certain appallingly dangerous things in accordance with a Colonel's stop watch. Still, the essence of the postal service is that it should be regular, and the civilian aviator in State employ will have to fly to some extent in defiance of meteorology, and he will require much delicate and intimate medical inspection before he is recruited. Let it be granted that a careful recruiting board would estimate general physique, the acuity of special senses, and the cardiac and pulmonary conditions in all candidates. There remains the fact that standards of aerial fitness will have to be arrived at which cannot be arrived at in ordinary recruiting methods. Capt. Ronald Carter, late a member of the Aviation Candidates Medical Board has published a test of the cardiorespiratory centers in the medulla which is a very good example of the kind of work that will have to be done in the medical examination of the aviation candidates of the future. He writes thus in the columns of *The Lancet*.

> The candidate is directed to expire so as to empty the chest and then to take a deep inspiration and blow through a tube so as to raise a column of mercury to the height of 40 mm. and keep it there for 40 or 50 seconds. The experiment may produce considerable embarassment, with marked flushing of the face, and when asked to describe his sensations the candidate will often say that he felt a "bursting in the head" or that he "felt giddy." This may be termed an abnormal answer. On the other hand, a youth who has good nervous control and a good cardiovascular system will hold his breath against 40 mm. Hg. pressure, with little or no discomfort for the same period, and his answer will be that he "wanted to breathe" or he "wanted more air." During the holding of the breath the pulse-rate in the two cases varies: in the normal boy the rate will increase from 20-30 beats per minute and stay there until the end of the experiment, while in the abnormal case the rate will increase to 60 or more beats per minute, and before the end of the experiment it will drop to a rate lower than at the commencement. I have watched the manometer test in a great variety of cases, and I feel sure that it has its value and should form part of our examination, because it affords evidence of the stability of the nerve centers which cannot be elicited in any other way; but, of course, it should never take the place of a thorough physical examination.

Some statistics on this subject have already been published, but Captain Carter admits that more work will be required before the test can be generally accepted. Every one, however, will agree with his proposition that at this early stage in the problems of flight we must have open minds with regard to the tests for flying men. And we must remember also that the test of to-day will not necessarily be the test of to-morrow, because the whole science and art of aviation is still in its babyhood. It used to be thought wonderful for an aeroplane to travel a mile in a minute. To-day this is often not more than half the speed. An altitude of 10,000 feet may be as much as will ever be required for practical purposes, but if that altitude is reached, at these terrific speeds the aid of the highest kind of physiology is postulated to help in the decision how the body can be best prepared for such sudden changes in pressure and temperature.

Sir Robert William Philip has been elected president of the Royal College of Physicians of Edinburgh, at the expiration of the term of office of Dr. William Russell. Sir Robert Philip, who is lecturer and examiner in chemical medicine to the University of Edinburgh, as well as Senior Physician to the Royal Infirmary in that city has pursued very extensively the measure for the prevention of tuberculosis, and to some extent has been a pioneer in this branch of therapeutics. He founded in 1887 the first tuberculosis dispensary and was largely responsible for the foundation of the Victoria Hospital for Consumption, near Edinburgh, with its associated farm colony. Much of the national system for the prevention, control, or cure of tuberculosis has followed lines indicated in Sir Robert Philip's teaching.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

NO ABATEMENT IN THE PREVAILING EPIDEMIC—THE 1,500TH Y. M. C. A. HUT—HELPING THE WAR ORPHAN FUND—AMERICAN SOLDIERS AT THE FRONT STILL FIGHTING—QUARTERS FOR THE AMERICAN PEACE MISSION.

PARIS, December 9, 1918.

VITAL statistics published by the Paris municipal authorities for the forty-third week of the year, show a considerable increase in the number of deaths that occurred in the capital during that period as a result of the epidemic of grippe that is now raging. The deaths total 2,566 as against 1,944 during the previous week, while the average for the season as shown by medical records is 721.

In the city of Paris the total number of deaths recorded last week was the largest received since the beginning of the epidemic, although the number of cases entering the various hospitals remained more or less stationary. On the other hand, figures for the beginning of this week show a decline. M. Autrand, the Prefect of the Seine, yesterday sent to the fiftieth commission of the Municipal Council information which tends to show that the epidemic has abated during the last forty-eight hours. Reports on the condition of the epidemic outside of Paris and the various departments of the country vary, some showing an increase and others a decrease in the number of cases. In Toulon Vice-Admiral Lacaze has ordained that in all churches, chapels, temples, etc., a thorough disinfection be made. Hotel proprietors, restaurant keepers and bar owners are instructed to clean thoroughly their establishments with antiseptic substances. As a result of the large number of deaths recorded in Grenoble by reason of the grippe epidemic, and

the apparent lack of necessary precautions against the same, the Departmental Council of Hygiene has decided to hold an inquest. The closing of all public halls, theaters and places of amusement has been ordered until further notice. The mayor of Toulouse has suspended all funeral processions and ordered that the bodies be transported directly to the cemeteries, where friends and relatives of the deceased may meet for the burial services. Although the epidemic at Annecy has shown a tendency to decrease, nevertheless the severity of the precautionary measures, ordering a daily disinfection of all public places, has not slackened to any degree.

Grippe is by no means a new disease. Dr. Gaullieur L'Hardy calls attention in the *Liberté* to an article by Professor Robert Odier in the *Journal de Genève* recalling the terrible epidemic of 1795, which affected more than 50,000 people in the city of Liverpool alone. It did not disappear until after the application by Louis Odier of the principle discovered by the learned French chemist, Guyon de Morvan—the exposure to nitrous acid fumes. Thereafter the discovery was used with astonishing success in hospitals, prisons and on board ships. The inventor of this method of disinfection, in order to obtain the salutary vapors, simply poured sulphuric acid on sea salt. Dr. Odier goes on to say that, "in laboratories and factories, where the workers are constantly exposed to vapors of nitric, nitrous and hydrochloric acids, there was not a single case of grippe." He states that, following numerous observations and tests, rooms and halls could be fumigated without any inconvenience whatsoever to the inhabitants, and, furthermore, that it left the air, garments and surroundings in a perfect state of cleanliness, and that one might approach the patients without the slightest risk of infection.

Mr. Henry P. Davison, chairman of the War Council of the American Red Cross, was received yesterday afternoon at the Hotel de Ville by the Paris Municipal Council. Most of the American members of the American Red Cross organization in Paris were present at the ceremony. Marshal Joffre was among the guests. The French Government was represented by Mr. Mourier, Under-Secretary of State. Speeches expressing the gratitude of France for the splendid work done by the Red Cross in France were made by M. Chassaigne-Guyon, M. Autrand, Prefect of the Seine, and by the Prefect of Police. Mr. Davison replied by outlining the work accomplished by the American Red Cross.

The American Committee for Devastated France, which has been closely affiliated with the French Government and the French military authorities, yesterday established a canteen near Laon to take care of French prisoners returning from Germany. This was done at the request of French headquarters. The call came on Monday, and immediately the American Committee rushed off supplies from Paris in its camions. This is the third time that the American Committee has gone to the relief of the French soldier. In March and June its workers fed many thousands of soldiers, when the Allied armies were falling back, giving hot meals, from rolling kitchens, to soldiers who were exhausted from fighting and lack of food. The American Committee's chief work has been with the French civilian population in the districts from which the Germans were forced to withdraw. After the French and Americans pushed forward from Chateau-Thierry, and the civilians had returned to the villages of that district, which were almost entirely destroyed, the American Committee took up the task of supplying and distributing food to the people, who were practically destitute. The American Committee has been carrying on its relief work in France since 1916. The French Government assigned as the territory for its rehabilitation work the cantons of Coucy-le-Chateau, Vic sur Aisne and Soissons, without the city itself.

The American Fund for the French Wounded is continuing its work as if the armistice had never been heard of. There has been no let-up in the hospital work—in fact, the winter program will show a constant increase in the help given in all directions. The Christmas bags are arriving and every wounded soldier in the hospitals supplied by the A. F. F. W. will receive his bag and other gifts. The motor service of the American Fund for French Service has become a French military section under the Service des Automobiles aux Armées. This means that the autos are now run with French military numbers and enjoy greater liberty of movement than heretofore. The central garage of the A. F. F. W. is in Paris, but a group of automobiles is also stationed in Lorraine. The rest of the service throughout France depends upon the General Headquarters of the regions in which it functions. The A. F. F. W. is sending out automobiles where needed. One was recently sent to Epinal to help the Baltimore and Minneapolis dispensaries. The fund is calling for muslin, flannel and gauze bands. Absorbent cotton and gauze are also in great demand.

146, Avenue des Champs Elysées.

Progress of Medical Science.

New York Medical Journal.

January 4, 1919.

1. The Surgical Treatment of Intestinal Ptosis. J Riddle Goffe.
2. Good Posture. James Frederick Rogers.
3. Tonsillectomy versus Helioelectric Methods. Thomas M Stewart.
4. Varying Manifestations at Different Stages of the Influenza Epidemic. Clifford C. Leck.
5. Fads and Fancies about Pulmonary Tuberculosis A Criticism of Dr. Gluck's Article. H. Schwatt.
6. The Surgeon and the Internist in the Treatment of Exophthalmic Goiter. Israel Bram.

6. The Surgeon and the Internist in the Treatment of Exophthalmic Goiter.—Israel Bram makes a plea for greater patience in the use of nonsurgical measures in the treatment of exophthalmic goiter, and suggests that in difficult cases the general practitioner, instead of turning the patient over to the surgeon, should consult with an internist experienced in thyroid therapy. He points out that: (1) Surgical indications in Graves' disease are: a. Marked pressure symptoms where dysphagia and dyspnea are distressing; dangerous pressure symptoms in exophthalmic goiter are rare and usually respond promptly to carefully administered nonsurgical measures. b. Malignant changes in the thyroid gland. c. Instances where a subject of nontoxic goiter suddenly finds herself afflicted with the

Basedowian syndrome. If it is concluded that the change is not due to the thyroid gland itself, but to the pressure of the tumor upon the cervical sympathetic, the removal of the latter or an operation upon the goiter to relieve the pressure may cure the patient. In this case, though the patient is suffering from what appears to be exophthalmic goiter, the case is not one of genuine Graves' disease, since there is no surcharging of the blood with thyroid substance. (2) All routes of research seem to lead to the conclusion that the modus operandi of the clinical picture of Graves' disease indicates a disturbance of many or all of the glandular tissues of the body; in such a status, operation upon the thyroid gland as a curative measure seems futile. (3) Some cases end in spontaneous recovery; it is such cases as these, where operation is performed, which are claimed as surgical successes. (4) The immediate and remote deleterious consequences of surgical interference, *e.g.* the accidental removal of the parathyroids resulting in tetany; the possibility of postoperative myxedema; injury to the recurrent laryngeal nerve directly through the operation or subsequently by pressure of scar tissue to paralysis of the vocal cords, all these "must give us pause." (5) Operation is further capable of harm by the devitalization of the patient through anesthesia and shock and the various other dangers because of the existence of glycosuria in many cases. (6) Surgical procedures dangerously postpone the utilization of successful nonsurgical procedures. (7) Proper nonsurgical measures, persisted in with patience and enthusiasm, will cure every early and moderately advanced case and more than seventy-five per cent. of advanced cases of Graves' disease. (8) All good surgeons seem to admit by word and pen that their success depends upon the careful nonsurgical postoperative treatment which they employ as the basis for permanent cure. (9) As the art and science of healing become less homogeneous and more heterogeneous in character, and concomitant with this change we find a comparative reduction in the number of general practitioners and an increase in the number of specialists; and since the innumerable number of men engaged in scientific research have added so much to our knowledge of the rôle of ductless glands in medicine, it seems fitting that men adopt the thyroid as their field of study and practice. In so doing, the thyroid specialist will not only find a broad and fascinating field of study, but he will also render humanity an inestimable service in helping to eradicate this disease which is becoming more and more a prominent factor, with the increasing strenuosity of modern life.

Journal of the American Medical Association.

January 4, 1919.

1. Sodium Citrate Transfusions: A Study of One Hundred Cases. A. L. Garbat.
2. Origin of So-called Autointoxication Symptoms. Walter C. Alvarez.
3. Comparative Results Obtained in the Treatment of Pulmonary Tuberculosis. Hugh M. Kinghorn.
4. Twenty-six Cases of Hypertrophic Stenosis of the Pylorus in Private Practice with Operation by the Rammstedt Method. C. G. Kerley.
5. Chronic Pericholecystitis with Marked Gastric Symptoms. John W. Churchman.
6. Gaucher Type of Splenomegaly: Report of a Case. J. G. Carr and L. D. Moorhead.
7. Treatment of Influenzal Pneumonia with Plasma of Convalescent Patients. J. J. O'Malley and F. W. Hartman.
8. Operative Treatment of Gunshot Wounds of the Spine with Grave Paralyses. Harold Neuhof.
9. Role of the Blood and the Bone Marrow in Certain Forms of Gas Poisoning: I. Peripheral Blood Changes and their Significance. E. B. Krumbhaar.

2. Origin of So-called Autointoxication Symptoms.—Walter C. Alvarez points out the fact that a diagnosis of autointoxication is frequently made when a physical examination would show other more definite causes for the symptoms, *e.g.* aortic regurgitation, chronic nephritis, myxedema, high blood pressure, tuberculosis, etc. The author believes that there is little evidence in favor of the views held by observers who find in intestinal stasis the cause of a long list of disease conditions, and that many of the assumptions on which they rest their case have been shown to be wrong. It is not sufficient to show that toxic substances can be formed during the bacterial destruction of nitrogenous matter; it must be demonstrated that these toxins are formed in the intestine, that they can pass through the mucous membrane, that they can escape destruction by the liver and reach the general circulation in amounts sufficient to produce symptoms, and that the symptoms produced by the repeated injection of small doses of these substances into animals are similar to those observed in constipated man. Moreover, the greatest care should be exercised in drawing conclusions from results of experiments *in vitro*, as it seems clear that in the bowel antibacterial forces are at work. It should also be remembered that nearly all the bacteria found in feces are dead, that organisms cannot multiply in constipated feces on account of the dryness and lack of nitrogenous food, and that the great number of intestinal bacteria produce no soluble toxins. Furthermore, absorption cannot take place unless the feces are liquid and churned actively to and fro, whereas the roentgen ray has shown that the feces begin to harden in the ascending colon and thereafter undergo no churning movements. The fact that the usual symptoms of the constipated disappear so promptly after a bowel movement proves that they cannot be due to absorbed toxins, and they must therefore be produced by distension and irritation of the colon. Such symptoms occur in nervous people, in whom the brain is profoundly influenced by afferent impulses from a distended, overactive and wrongly acting bowel. The author is of opinion that many symptoms of constipation are due simply to plugging of the lower end of the canal, which slows or stops the downward current and produces ripples of reverse peristalsis, which run up the bowel and break into deeper waves in the upper part of the stomach and esophagus. In this way, more than the usual amount of bile is carried back into the stomach and up into the mouth, leading to biliousness, lack of appetite, feeling of fullness after eating a few mouthfuls, coated tongue, etc. The relief experienced after taking calomel is due to restoration of the normal downward currents. Overwork, worry and lack of sleep may also give rise to symptoms attributed to autointoxication, and finally to constipation. In short, nervousness is generally the cause and not the result of constipation. The author points out that the old ideas of insidious poisoning led to the formation of hypochondriacs and he believes that the new explanation will help to cure many of them.

The Lancet.

December 14, 1918.

1. Observations on the Medical Examination of Aviation Candidates. G. A. Sutherland.
2. Trench Fever Cachexia. Colonel R. D. Rudolf.
3. A Note on the Value of Germinated Beans in the Treatment of Scurvy, and Some Points in Prophylaxis. Major H. W. Wiltshire, D. S. O.
4. Beer and Scurvy. Some Notes from History. Alice Henderson Smith.

1. Observations on the Medical Examination of Aviation Candidates.—G. A. Sutherland indicates the necessity of adequate knowledge on the part of the medical examiner of the physical and mental qualities of the successful aviator. Attempts have been made to standardize "tests," but the fallaciousness of such methods in the past must be remembered and tests considered in the light of finger posts but not impassable barriers. As a result of his experience, the author suggests certain broad principles which may be taken as guiding standards in the examination of prospective aviators. From the medical standpoint, the following qualifications are necessary to meet the special dangers and duties of the air service—a good physique, a sound cardiovascular system, and a strong and stable nervous system. It should be remembered that it is the functional disabilities that swell the numbers of the "permanently unfit for further flying." It is essentially the physical fitness of the candidate that must be determined by the medical examiner, not the "flying temperament"; the mentality of the candidate must also be considered but this will be tested in the subsequent examinations that must be passed and unless there is actual mental defect or deficiency rejection is not indicated. The chief problem to be settled by the medical examiner is the determination of the functional and reserve powers of the vital organs of the candidate. A careful investigation into

the previous health and illnesses of the candidate is of paramount importance and particular inquiry should be made in regard to asthma, malaria, syphilis, rheumatic fever and chorea, digestive disturbances, migraine, petit mal, epilepsy, nervous debility, neurasthenia, shell shock, concussion with unconsciousness, chronic joint disease (especially of the knee), and diseases of active foreign service. Several of these form an absolute bar to service. A special examination should also be made of the eyes, nose, ear, and throat. It is to be hoped that the standard of normal binocular vision will soon be established. Mr. Arthur Cheatle has introduced various testing exercises which are useful not only as bearing on labyrinthine efficiency but as indications as to the nervous tone and stability generally. The internal organs must be examined to exclude organic disease and to test their functional activity, and particular attention must be paid to the cardiovascular and nervous systems. In considering the cardiovascular system, two separate abnormalities are recognized: organic disease and cardiovascular debility. As in the other services, the definitely disqualifying lesions are mitral stenosis and aortic regurgitation, the first being weighed according to the effect it has on the musculature and efficiency of the heart. A youthful type of cardiac irregularity which is not of any significance, is a quickening of the cardiac beat during inspiration and a slowing during expiration. The "missed beat" in itself is of no importance either, but if the candidate is conscious of it he is probably a potential neurasthenic. Any form of paroxysmal tachycardia, on the other hand, is a cause for rejection. If there is marked dilatation of the heart with persistently rapid rate, there is probably nervous myocardial disease or infection and the candidate should be rejected. Variations in the size of the heart are common and of no special importance; cardiac hypertrophy, however, usually associated with dilatation, is always pathological. Candidates exhibiting arterial thickening associated with renal disease, retinal or cardiac changes, or definite symptoms, should be rejected. A high systolic blood pressure is not a cause for rejection in the absence of organic disease. Cardiovascular debility may be said to have established itself as a clinical entity owing to the war. As yet there is no agreement as to the underlying causes of this condition, but from the clinical point of view the phenomena exhibited in civilian practice are: tendency to breathlessness, precordial pain and faintness, rapid thumping action of the heart, chronic tiredness, and defective circulation. In flying men who have broken down under instruction, the symptoms are: exhaustion, faintness, giddiness, blurring of vision, headache, palpitation, precordial pain, breathlessness, etc.; these probably are not so much the result of a flying career as the effect of strain on an individual already possessed of C. V. D. (cf. the condition known as D. A. H.). One of the difficulties met with in the examination of young candidates is to determine whether a rapid cardiac action is due to temporary excitement or is a permanent condition denoting nervous instability. The effect of calming words, rest, and exercise may settle this point, or the pulse may supply valuable assistance. As a rule, a slow pulse is a good sign. In some candidates the pulse volume may be good but the tension is badly sustained and in extreme cases of C. V. D., when the arm is elevated the pulse becomes almost imperceptible. In fact, the C. V. D. type seems to possess a circulation that is constantly "off duty" and unable to respond to any sudden change of conditions. Other signs are cold and cyanotic extremities, "white fingers," tendency to venous plethora which is probably associated with lack of tone of the abdominal muscles. The author describes certain tests which may be of value in the examination of such candidates. As a rule, however, the symptoms and physical signs of C. V. D. are accompanied by signs of debility in other tissues and organs, a common cause of rejection being a combination of cardiovascular and nervous debility. In considering the nervous system, it should be borne in mind that the candidate will be subjected to considerable strain in the flying service; and the matter of importance is not whether the individual is excitable or phlegmatic, but the amount of control he is possessed of. Exaggeration of the knee and elbow jerks and persistent dilatation of the pupils may be regarded as signs of nervous instability. The results of the balancing test are also of value. To sum up, therefore, a certain number of candidates are eliminated because of some definite medical or surgical disease, or of their previous medical history, or of other clearly disqualifying condition. Another group fall out, not from actual disease, but because the physique or cardiovascular system or nervous system is so much below par as to show clearly that failure in the flying service would certainly follow. While these two classes may not present great difficulty, the decision in the borderline cases is not so easy. Experience has shown, however, that a consideration of the physique, the cardiovascular system, and the nervous system will show that if one of these systems is functionally weak other signs of debility will also be found. Appropriate treatment, of course, should be ordered in case of remedial defects being noted. In other cases, development may not be complete on account of the age of the candidate and a final decision should then be reserved for six to twelve months. Decision as to the special branch of the flying service for which a candidate is best fitted should be reserved until training has been completed, and does not come within the province of the medical examiner.

British Medical Journal.

December 14, 1918.

1. A Filtrable Virus as the Cause of the Early Stage of the Present Epidemic of Influenza. (A Preliminary Note.) Majors H. Graeme Gibson and F. B. Bowman and Captain J. J. Connor.
2. Medical Reports on Soldiers Discharged from the Army for the Conditions known as "D. A. H." and "V. D. H." Thomas Lewis.
3. The Common Factor in Disordered Action of Heart. Major L. M. Murray.
4. Intravenous Injections of Antimonium Tartaratum in Bilharziosis. J. B. Christopherson.
5. Fibroma of the Trachea. James B. Horgan.

3. The Common Factor in Disordered Action of the Heart.—Major L. M. Murray points out that the condition known as D. A. H. is always secondary. It may be the result of an hereditary taint, but usually the primary factor will be found to be some infection, accident or injury, or repeated mental shocks. Whereas such cases are usually accompanied by rapid pulse because the exciting factor has an affinity for and enhances the action of the cardiac sympathetic, the author cites the case of a patient with a comparatively slow pulse who had suffered from disordered action of the heart since boyhood. Major Murray suggests that the common factor of this condition is to be found in the body fluids. The role of the autonomic nervous system is that of the small child who starts the motor car and is unable to pull the levers of control. By means of its more or less continuous stimulation, a vicious circle begins: (1) stimulated autonomic system; (2) altered body fluids; (3) altered function—in which all systems, including the autonomic take a part. Similar changes take place in the acute infections and other diseases, and are followed by similar symptoms; their importance in the history of D. A. H. being that once the vicious circle has been created, it is entered upon again more readily. The relation of single or repeated mental shocks depends on the degree of shock and the stability of the autonomic nervous system. Breathlessness, especially on exertion, is the most common symptom of the condition and the author points out that under normal conditions the response of the respiratory center and muscles would be such that any potential alkalinity of the blood would be corrected. The alkaline balance of the circulating blood is disturbed quite apart from the respiratory system, and a further disturbance of this balance occurs as a result of deficient lung ventilation. The respiratory system in these cases cannot be judged by ordinary standards. The center bathed by abnormal fluids, with function either inefficient or exaggerated, is on a different plane. The respiratory muscles have every evidence of exhaustion. Since with increased hydrogen-ion concentration the avidity with which the blood gives up its oxygen is increased, clinically it would appear that both the center and the blood require to be further activitated by carbon dioxide in order to obtain the necessary response for ordinary effort. The author states that this explanation does not pretend to be more than an attempt to correlate the clinical appearance of respiratory action with certain changes in

the blood, and that it is brought forward with considerable trepidation but with the certain feeling that an analogy does not exist between the experimental injection of lactic or other acids and the autogenous disturbance of circulating fluids such as are present in these cases. Precordial pain, Major Murray believes, is merely the distress signal of an organ compelled to work in spite of a food supply, at least altered chemically. Starling has shown that the reserve power of the heart is enormous and is dependent almost entirely upon its nutrition. Palpitation, exhaustion, the vasomotor and other symptoms are explained by the changed character of the body fluids interfering with function. The author adds that this contribution must not be considered as more than clinical, based on observation and on deductions which he hopes are within reason. It should direct attention to the importance of all debilitating factors in the life history of the individual, which though disappearing, have created a vicious circle which readily recurs under stress, altering every function of the body, mental and physical.

4. Intravenous Injections of Antimonium Tartaratum in Bilharziosis.—J. B. Christopherson records the results of the treatment of bilharziosis by intravenous injections of antimony tartrate, as seen at the Khartoum Civil Hospital. With the exception of antimony, no drug has yet been found which has the slightest direct effect on the *Schistosomum haematobium* in the portal circulation; antimony tartrate, given intravenously, has a profound effect, however, and as far as subjective or objective signs are concerned, it may be said that a cure is effected in this disease. Whether this cure is permanent or not cannot yet be said, but it certainly lasts for weeks and months. The author states that in the only post mortem examination he knows of in a case which died during treatment, no worms were found in the portal circulation a very few hours after death. In using such a powerful remedy as antimony tartrate, the greatest care must be exercised; it must be remembered that it is a poison and that 2 grains have been known to cause death in an adult. For the present 30 grains should be considered the maximum dose for an adult's course of treatment; if more be required, a second course of injections may be given after some weeks or months.

Berliner klinische Wochenschrift.

November 4, 1918.

Substitution of the Thumb by Means of the Great Toe.—R. Mühsam gives the evolution, successive radiographs, and happy functional result of a case in which Nicoladoni's operation was done. The left hand was bound to the right foot, the transplant of the great toe was accomplished in several stages, complete separation being realized on the twenty-fourth day. Two days later the new thumb was warm and sensibility was complete. Ten days later dry gangrene of a portion of the grafted digit arose, involving the ungual phalanx. After elimination of the sequestrum a cure was obtained with functional use of the restored hand. The patient could close the fingers with considerable force, could shave himself (the right arm was amputated). The sensibility, which had disappeared in the necrosed area, had returned completely in the grafted digit at the time of publication.

The Formation of a Prehensile Hand Deprived of Fingers.—C. Ritter refers to Krukenburg's operation, consisting in the separation of the anterior portion of the forearm into two flaps, the radius and ulna being each covered by cutaneous flaps. Prehension is obtained between the two bones, which are separately mobile. Ritter believes that this procedure can be extended to cases where the metacarpus has been preserved. The separation is accomplished between the thenar and hypothenar, and carried up between the two bones of the forearm. Thus two long levers are formed which will be eminently useful in the prehension of various objects.

A New Radiological Symptom of Gastric Ulcer.—J. Schütze considers the presence of denticulations on the left side of the radioscopic shadow of the stomach when filled with an opaque mush as a sign of a single or multiple ulcers. These denticulations, which were formerly regarded as small waves of contraction, are to be looked upon as a regional spasm which has as effect the folding of the gastric mucosa over a certain area. The opaque content in the stomach naturally reveals these folds. This symptom is likewise encountered in certain cases of cholecystitis, but only infrequently. Therefore, this fact does not detract from its value in the diagnosis of gastric ulcer.

Münchener medizinische Wochenschrift.

October 29, 1918.

Homogentisic Acid as a Chromogenous Product.—G. Katsch has observed a child with advanced rickets whose urine turned to a brownish-black color after being exposed to the air. The writer relates his experiments of oxidation of this urine, and according to the intensity of the oxidizing process a brownish-black, red, reddish-yellow, or yellow color could be obtained. An intensive oxidation discolorized a solution of homogentisic acid and caused this product to disappear by dissolving it. This process gives off a volatile iodophile substance which is not acetone. The writer supposes that the homogentisic acid is dissociated in the body by a process of fermentation due to tyrosinases. This reasoning tends to explain the genesis of melanine. The writer next examines the theoretical reasons for the accumulation of the brown color (ochromose) in the cartilaginous and connective tissues.

The Advantages of Combined Serum Treatment in Diphtheria.—F. von Dellbrück delivers an energetic plea in favor of the combined treatment of diphtheria, that is to say, the simultaneous use of the endovenous and intramuscular injections of the specific serum. By the intravenous route the therapeutic effects are more rapid. As a foundation of his argument for this method of treatment, the writer publishes a statistical table of cases treated by this method and those treated in the usual way. Some of the temperature charts illustrate the antipyretic effect of the procedure. While serum given by intramuscular injections will not prevent suffocation from taking place during the first three or four days, the intravenous route will do away with the danger of this complication after the lapse of forty-eight hours. After two days all danger in this respect can be excluded. Katsch, in his enthusiasm for intravenous treatment, does not hesitate to regard intramuscular injections in cases of septic diphtheria, to the exclusion of the endovenous route, as a very grave therapeutic mistake.

Deutsche medizinische Wochenschrift.

October 31, 1918.

Experimental Studies on the Salvarsan Treatment of Spirochetal Diseases.—W. Kolle, in this article continued from the previous issue, takes up the clinical application of the principles exposed in the first part of the paper. The salvarsan-silver product is particularly remarkable in its action which is especially manifest by the very rapid disappearance of the Wassermann reaction. For that matter, the silver ion itself, even when not combined with salvarsan, has a very powerful effect on experimental syphilis in the rabbit. Salvarsan-silver changes the qualities and brings about a return to the normal of the syphilitic cerebrospinal fluid in all stages of the disease, including general paralysis. From the viewpoint of its secondary effects, this product has up to date shown itself completely innocuous. The product called 1495, of which he absurdly fails to give the formula, is more active in action on the spirillum of recurrent fever than the salvarsan products. As this product does not undergo any change in the state of solution it may render great service in armies. It possesses the advantage of not decomposing when exposed to the air with the same rapidity as neosalvarsan, for example. Turning to the question of complications resulting from the use of certain salvarsan products, Kolle divides them into three groups: (a) the effects of shock; (b) the effects due to hypersensibility, either primary or acquired, in respect to the toxins or oxidation; (c) effects due to too large doses or to the use of too toxic preparations. Certain symptoms of the post-salvarsan accidents are to be classed

among accidents arising from anaphylaxis, while, irrespective of the dose, the interval of time elapsing between the injections must enter into consideration. As to posology, Kolle proposes twenty-five centigrams as a maximum dose of salvarsan-silver and forty centigrams for Ehrlichs salvarsan.

Salvarsan-Silver-Sodium and the Sulphoxylated Product (No. 1495) in the Treatment of Paralysis.—R. Weichbrodt does not come to any fixed conclusions. The products lauded by Kolle did not result in bringing about any permanent improvement, in spite of the fact that a remission in the clinical manifestations did occur.

Treatment of Syphilis with Salvarsan-Silver.—O. Fabry gives unlimited praise to Kolle's product. The spirochetae disappear after a few injections at the dose of twenty to thirty centigrams. There is a rapid disappearance of the clinical manifestations of the disease in all three periods. No accidents from the product have been observed.

Revue médicale de la Suisse romande.

November 20, 1918.

Clinical Observations on the Grippe.—Betchov discusses various aspects of the disease, as plurality of virus, incubation, rachialgia, and bradycardia. In regard to the various bacteria seriously accused as pathogenic, the author includes the Koch-Weeks bacillus. Concerning the filtrable virus the author claims that the latest experiments do not seem to prove its full pathogenicity. The claim had been made that inhalation of this virus could provoke the full disease, but this has not been made good. In the face of so much confusion and contradiction the bacteriologist must for the present be sidetracked for the clinician. The disease, as conceded, has a distinct physiognomy which renders it unmistakable in the absence of bacteriological proofs. The fact has developed in Switzerland that high altitude sanatoria furnish exceptional opportunities for this kind of study. We know that the per cent. of atypical cases is extremely small and that in general cases run true to sample. Of methods of identification the fever curve is important. There is a so-called double thermic invasion, each member of which is accompanied by its own set of symptoms, and this behavior can be explained only on the supposition of two viruses. The first appears to be in operation at the outset and is accompanied by reactions of the upper mucosae and the various aches and pains. This phase is followed by a spurious convalescence which in turn is succeeded invariably by a bronchial localization. This remission of fever causes a V-shaped gap in the temperature curve. It is not unlikely that the first of the viruses which causes the initial rise and other coincidental phenomena is the filtrable virus, the existence of which is beyond doubt. The virus which causes the reappearance of the disease as bronchitis may be one of a large number. Is this bronchitis a complication or sequela or an integral part of the disease? Without doubt the latter, since it is best on account of its great frequency to regard the case without it as abortive. We are familiar with the double virus action in measles and scarlatina, to say nothing of other maladies. Extremely rapid propagation also suggests this origin. Of secondary virus, while Pfeiffer's bacillus plays a rôle, the pneumococcus is believed to surpass it in causing morbidity. In the author's sanatorium the incubation period was repeatedly shown to be 48 hours. Rachialgia is a marked symptom of onset as bradycardia is of convalescence.

Remarks on Epidemic Grippe.—Jeanneret-Minkine first defines grippe as we knew it from the pandemic of 1889 as an acute infectious malady which is due to Pfeiffer's bacillus and which spread from Russia over Europe and the world. It tends to persist in the endemic state. Its ravages are most severe in the old. So far from conferring immunity the victim is if anything more predisposed to second attacks. This, of course, may all be quite true, but it does not apply to our epidemic of to-day in any particular. In Switzerland at least the aged have enjoyed immunity despite their tendency to bronchial affections. It was moreover a common spectacle to see a mother of mature years escape infection while caring for a whole flock of infected children. In the present epidemic Pfeiffer's germ was found by the author in but 7 out of 32 cases and in 3 of the 7 the lungs had been attacked secondarily. Nevertheless, we can read the older epidemic in such manner that it can be plausibly regarded as a mild type of the present one. If there was no plague of pneumonia it is at least true that the pulmonary bases were commonly congested. This phenomenon supervened about the fourth day. Before that the incubation period, fever and participation of the upper mucosae suggested the same filtrable virus. On the other hand these epidemics have nothing in common with endemic pseudogrippe. This is not an integer but a congeries of various affections artificially grouped to constitute one disease. This bastard disease may attack a subject who has gone through true influenza but the last named does not attack a man twice, at least in the same epidemic. Endemic grip should be termed "febrile tracheobronchitis" to distinguish it from influenza. Naturally it is extremely difficult to distinguish between mild influenza in an epidemic and febrile tracheobronchitis, our only resource being absence of contagion in the latter. The author saw no case of influenza that could not be traced directly to another case. Pfeiffer's bacillus is known to superinfect in both whooping cough and tuberculosis. In regard to epidemiology there is no evidence of spontaneously augmented virulence. Influenza may creep about insidiously until it finds a special soil in which it luxuriates. Passing rapidly from man to man, of course, makes it more virulent. The pandemic of 1889 was more severe than that of 1848, perhaps because facilities for rapid communication were less developed. By the same token the next pandemic of the remote future may be more deadly than the one from which the world is suffering at the present time. Finally the author is able to prove that an attack of epidemic influenza causes true immunity, perhaps permanent.

Correspondenz-Blatt für Schweizer Aerzte.

November 30, 1918.

Large Doses of Camphor, Especially in Influenza.—Professor Feer of Zurich gives full credit to Seibert of New York for originating the camphor treatment of pneumonia in 1909. His recommendation was by no means ignored, for various clinicians in different parts of the world have since used the same remedy for that disease. Cases are cited in which huge doses were given without accident—for example, a man of 60 took 74 grams in 11 days. Ever since Seibert's first announcement the author has treated cases of severe pneumonia in children with the method in question. It was certain that the remedy was well tolerated and that in certain cases it antagonized the disease. He later receded from this plan but only because the mild character of the disease in childhood hardly requires such treatment unless there is a demand for the stimulant action of the drug in cardiac and vasomotor weakness. Only when the severity of the present pandemic became apparent did the author, in search for a remedy for bronchopneumonia recur to camphor. But while in the severest type of case the destruction of the lung showed that no treatment could have prevailed the other cases would perhaps have recovered in the absence of camphor. In addition to the latter caffeine and digitalis were given. In a few cases of bilateral pneumonia camphor alone was used and the results were satisfactory. Here there seemed to be a special tolerance for the drug so that massive doses could be given. Since bronchopneumonia is really an affection of adults in this grip epidemic, the author would test camphor in these cases, fully realizing that its reputation is based on results in croupous pneumonia. On that account too much should not be expected of it. In the individual case the author has seen the cyanosis recede at once after an injection. Evidently camphor is only a symptomatic and not a curative remedy, for its effects are chiefly those of a temporary roborant. It appears that the usual dose of this drug can be increased many fold so that no other heart stimulant is required.

Book Reviews.

RATIONAL HYDROTHERAPY. A MANUAL OF THE PHYSIOLOGICAL AND THERAPEUTIC EFFECTS OF HYDRIATIC PROCEDURES AND THE TECHNIQUE OF THEIR APPLICATION IN THE TREATMENT OF DISEASE. By J. H. KELLOGG, M.D., L.L.D., F.A.C.S., F.R.S.M., etc., etc. Sixteenth Thousand. Battle Creek, Mich. Modern Medicine Pub Co., 1918.

THIS volume is the fourth edition of the work with same title published in 1901. The amount of space and number of illustrations are slightly increased, because of the addition of a chapter on recent advances in hydrotherapy. The remainder of the work seems practically unchanged, which is no more than would be expected of a subject like hydrotherapy which can hardly be called a rapidly advancing or evolving branch of therapeutics. Among recent advances are enumerated the Murphy drip and our knowledge regarding the relations of hydrotherapy to blood pressure and arteriosclerosis.

STATISTICAL MANUAL FOR THE USE OF INSTITUTIONS FOR THE INSANE. Prepared by the Committee on Statistics of the American Medico-Psychological Association in Collaboration with the Bureau of Statistics of the National Committee for Mental Hygiene. New York City, New York, 1918.

THIS little pamphlet has a most praiseworthy aim, namely, the promotion of a standard nomenclature for mental disorder. The system it recommends is a result of the combined activities of the American Medico-Psychological Association and the National Committee for Mental Hygiene, and is a very good one. Its universal adoption would bring about a state of affairs infinitely superior to the present one, although many of us would disagree with some features of it. Valuable suggestions are also included for the use of state hospitals in preparing their statistics.

NEUROPSYCHIATRY AND THE WAR. A Bibliography with Abstracts. Prepared by MABEL WEBSTER BROWN, Librarian, the National Committee for Mental Hygiene. Edited by FRANKWOOD E. WILLIAMS, M.D., Associate Medical Director, the National Committee for Mental Hygiene. New York: War Work Committee of the National Committee for Mental Hygiene, 1918.

THIS book is the sort of thing the need for which is often felt but seldom supplied. The literature of America, England, and her colonies, France, Germany, Italy, Holland, and Russia, has been carefully combed for articles and books dealing with psychiatric or neurological aspects of the Great War and these have been abstracted and collected here. The result is of the utmost value and the collectors of it are to be congratulated. The abstracts have been prepared with painstaking care so that in many instances they contain all the information of the original article, but in a more easily accessible form.

INFORMATION FOR THE TUBERCULOUS. By F. W. WITTICH, A.M., M.D. Price, $1. St. Louis: C. V. Mosby Company, 1918.

THIS is a little book intended for the layman who fears to become tuberculous or is already afflicted with the disease. Dr. L. G. Rowntree, Professor and Chief of the Department of Medicine, University of Minnesota, honors the book with a preface in which he makes the statement that "The best treatment, generally speaking, can be obtained from the tuberculosis specialist." This is a beautiful tribute to the specialist, but we question whether it is entirely just to the general practitioner. We grant that a specialist can and ought to be able to make a diagnosis in a difficult case where the general practitioner may have failed, but believe that the average up-to-date practitioner can carry out the "sanatorium treatment at home," if the home of the patient is suitable and the patient and those living with him are willing to do what is necessary.

There are 23 chapters in the book, devoted to the anatomy and physiology of the lungs; bacteriology; symptomatology; therapeutics, including sanatorium régime; climatology; tuberculin treatment; and artificial pneumothorax. The first criticism which the reviewer would wish to make is that in a book entitled "Information for the Tuberculous" to devote 12 pages to the technical description of culture products and then say that not any of them nor any drug "has a selective affinity for the tubercle bacillus and will destroy it in the body without doing harm to the tissues" is to say the least quite useless. All the information needed by the layman concerning such a subject could be imparted in less than one page. Utterly out of place in a popular book on tuberculosis, and even dangerous, is chapter 23, wherein 10 pages are devoted to the definition of the terms "incipient," "moderately advanced," "far advanced," and their subdivisions. Any one familiar with the psychology of the tuberculous will at once say this is the chapter which the tuberculous invalid, or the one who is afraid to become one, will read and reread to the detriment of his peace of mind and subsequent physical welfare. If the author will accept this criticism and omit the chapters on culture products and on definition of clinical terms in future editions, the book will be indeed a valuable one to be placed in the hands of all those seeking or in need of the information it contains.

THE EFFECT OF DIET ON ENDURANCE. By IRVING FISHER, Professor of Political Economy in Yale University, Chairman of the Hygiene Reference Board of the Life Extension Institute. Price, 60 cents net. New Haven: Yale University Press, 1918.

NUTRITIONAL problems have become recently of paramount importance, owing to the Great War and, if we may believe economic experts, will engage the world for many years. America has long been known as a land of ill-regulated diet and food waste. This little volume contains an account of experiments of an eating club of Yale students, under the direction of Professor Fisher. The results obtained may be summarized: The highest efficiency on a reduced diet.

THE NEWER KNOWLEDGE OF NUTRITION. The Use of Food for the Preservation of Vitality and Health. By E. V. MCCOLLUM, School of Hygiene and Public Health, The Johns Hopkins University. Price, $1.50 net. New York: The MacMillan Co., 1918.

WHETHER or not the word "Hooverize" becomes a legitimate part of our language, the understanding of dietetics has been augmented by the Great War. Man has learned to eat, not what he wants, but what will be cheap, compact, and nourishing. In this little book McCollum gives much valuable information about foodstuffs and their dietetic values. Some interesting charts are appended, showing graphically the results of various feeding experiments. Vegetarian diets are discussed and their difficulties and dangers indicated. The book should be read by every one who is in anyway responsible for the choice of diet of other persons.

NEUROLOGICAL CLINICS. Exercises in the Diagnosis of Diseases of the Nervous System. Given at the Neurological Institute, New York, by the Staff of the First Division. Edited by JOSEPH COLLINS, M.D. Price, $3 net. New York: Paul B. Hoeber, 1918.

IT is extremely difficult, perhaps impossible, to become proficient in neurology from didactic lectures or textbook exposition; nothing can take the place of the patients themselves, demonstrated by a competent clinician. Next best is a book such as this which attempts to do for neurology what Kraepelin's book does for psychiatry. The brilliant editor of these studies has written sixteen of them himself and his adroit touch is evident in many of the twenty-five others. The cases studied vary greatly in interest as well as in the skill with which they are presented, as must inevitably be the case in a compilation from a dozen different clinicians. A strict interpretation of the title would exclude Nos. 14, 21, 22, 23, and 24, especially those dealing with dementia precox where the lack of space is most keenly felt. The three patients described in the chapter on obsessions, too, are rather sketchily presented and psychoanalytic interpretations are assumed as true without giving the evidence, a fault much too frequent in the works of that school. The purely neurological chapters are excellent, however, and the general practitioner will find the book as a whole very valuable. The neurologist will add it to his library after one glance at it.

Society Reports.

AMERICAN PUBLIC HEALTH ASSOCIATION.

Forty-sixth Annual Meeting, Held in Chicago, December 8, 9, 10 and 11, 1918.

THE PRESIDENT, DR. CHARLES J. HASTINGS OF TORONTO, ONTARIO, IN THE CHAIR.

(*Concluded from page 84.*)

The Program of the United States Public Health Service.—Surgeon-General RUPERT BLUE, U. S. Public Health Service, Washington, D. C., pointed out the need of special vigilance on the part of health authorities in order to prevent the introduction and spread of dangerous epidemic diseases by our returning soldiers. Furthermore, he urged wider interest and a greater participation on the part of the people in public health work. The work of the medical departments of the British, French, and American Armies had shown what could be accomplished by well-planned, thorough-going health measures. When the history of the present war was written, not the least significant part would be that which recorded the achievements in the field of preventive medicine. Anyone familiar with the history of other wars would realize that hundreds of thousands of lives had been saved as a result of the excellent work in sanitation and preventive medicine carried on by the British, French, and American military forces. What could be done among soldiers in the unfavorable environment of war could and should be done among the civilian population in the more favorable environment of peace, and this could be accomplished by intensive health work carried on by the U. S. Public Health Service in cooperation with State and local authorities. Special emphasis was laid on matters dealing with industrial hygiene, on improved rural sanitation, the prevention of diseases of infancy and childhood, and on popular health education. In connection with the last named, the Public Health Service contemplated constituting itself a national center and clearing house for information, advice, and educational assistance on all matters relating to public health and hygiene. The general adoption of the program proposed would not only result in the saving of hundreds of thousands of lives, but would so improve and strengthen the coming generation that the nation would successfully maintain itself in the strenuous competition of the near future.

The National Welfare.—Colonel VICTOR C. VAUGHAN, M. C., U. S. A., stated that the theses proposed in his paper mgiht be condensed as follows: (1) The Federal Government should assume control of certain functions of the educational system of the country. (2) The youth of the country, on reaching a certain age, to be determined after mature deliberation, should be drafted into the service. (3) The only exemptions from this service should be the mentally incompetent. (4) Those suffering with physical defects should be classified, their defects repaired as far as possible, and the training adapted to their individual needs. (5) The period of training should cover a period of two years; it might be continuous or broken into terms. (6) This training should be disciplinary, and to this extent military, but the primary and principal purpose should not be the preparation of men for the fighting line, but for good citizenship. (7) In the writer's opinion, this service would be best administered under the War Department. (8) The training should include the physical, mental, and moral man. (9) Physical development and the practice of personal and community hygiene should be one of the fundamentals. (10) Instruction in the prevention and eradication of infectious diseases should be given by practical demonstration as well as by textbooks and lectures. Personal hygiene must be practised in daily life; it was largely a matter of habit. (11) The English language must be taught, and its correct use demanded of all at all times. (12) The history of our nation, its growth and development, its relation to other nations in time of peace and in time of war, its material resources, and its ideals, should hold an important position in the curriculum. (13) The obligations and duties of citizenship should be impressed upon all. (14) To those lacking in training in the following subjects, proper instruction should be given: (*a*) Mathematics, (*b*) physics, (*c*) chemistry, (*d*) biology; the last mentioned should include the influence of heredity and environment upon the physical, mental, and moral man. (15) Every individual should be given a substantial start in some industrial trade or profession. He should know how to take care of his own body, make a decent living, be a clean and intelligent citizen, and be ready at all times and under all conditions to render effective service to his country. (16) These training schools should be without expense to the individual; he should be housed, clothed, fed, and instructed by the Government, and his family should be moderately compensated for his time; in fact, he should have the status of an enlisted man in the Army. (17) When he completed the courses at the training school he should pass into a reserve corps and should carry a qualification card showing his grades in physical, mental, and moral fitness. (18) In the reserve corps he should be examined at intervals of two years until he reached forty-five years of age; at these examinations his qualification card should be reviewed. (19) From the time of entering the training school through his continuance in the reserve corps, he should at all times carry on his person an identification card, which he should present at the request of a civil or military officer. (20) In addition to the service provided for above, the Federal Government should improve the efficiency and extend the functions of its Health Service. (21) The registered area should be extended so as to embrace the whole country. (22) Morbidity statistics should be collected on uniform cards. (23) The hygienic laboratory of the Public Health Service should be developed and opportunity should be given for the multiplication of research investigations. (24) Both preventive and curative medicine should be placed at the service of all citizens; it should be socialized. (25) Every community should have a health commissioner and such personnel as might be necessary, with hospital and laboratory adjuncts. (26) In previous documents which were written by those who founded our government, many wise provisions were found, two of which he quoted: (*a*) "All men are born free and equal." (*b*) "Religion, morality, and knowledge being necessary to good government and the happiness of mankind, schools and the means of education shall forever be encouraged." These principles should be added and our descendants urged to strive to realize them: "(*a*) Equal opportunity for self development shall be provided for all. (*b*) No ill which human skill can relieve should be permitted to continue among our people."

Venereal Disease Control.—Dr. JOHN DILL ROBERTSON of Chicago stated that the city of Chicago secured an ordinance requiring the reporting of venereal diseases on June 29, 1917, the ordinance being practically in the form of the Australian law. It required that: (1) The physician must report all cases of gonorrhea, syphilis, and chancroid. (2) The physician must give the patient an educational circular. (3) In case the patient changed physicians, report must be made to the previous physician. (4) Failure to continue treatment must be reported to Health Department in ten days. In the first ten months of 1918, 5,258 cases of venereal disease were reported to the department. Known prostitutes were arrested by the police and brought to the Iroquois Memorial Hospital for the purpose of securing specimens for examination. When brought into court the women obviously guilty of crime were sentenced to the House of Correction; others found infected were turned over to the Health Department and sent to the Lawndale Hospital. Of 480 males admitted to the House of Correction in November, 1918, 6.25 per cent. were suffering with venereal diseases and 11.6 per cent. of the females. Of 300 women admitted to the workhouse in Cleveland, 65 per cent. had venereal diseases, and of the males examined at the same time, 35 per cent. had venereal diseases. He thought it safe to say that not more than 1.5 per cent. of the population of Chicago was suffering with infectious venereal diseases. A municipal venereal disease clinic was absolutely essential for the enforcement of a venereal disease ordinance. At the Chicago clinic 630 men and 91 women were treated from January 1 to November 1, 1918. A municipal venereal disease hospital was another essential. During the first ten months of 1918,

Chicago treated 325 women between the ages of 15 and 53 in such a hospital. These women were kept occupied at such work as they were capable of doing. Statistics were obtained as to mental condition, educational status, and occupations claimed by them. Morphine users among them were given treatment. Complete medical statistics were obtained from the hospital record card, which was especially evolved for the use of this hospital by the Chicago Health Department. Thirty-nine per cent. of the women under consideration had hooded clitoris, which suggested a possible first predisposing cause for delinquency. Laboratory findings on specimens from patients showed 159 with syphilis positive, 127 gonorrhea positive, 12 with mixed infection, 27 nonvenereal. Education and the "big stick" were both necessary to the enforcement of a venereal disease ordinance. Quack advertisements to the number of 1,500 were removed in Chicago and 3,500 educational posters substituted. Druggists were educated against counter prescribing. With the absolute and full cooperation of the physician and the druggist venereal disease could be as effectively controlled as tuberculosis.

Lipovaccines with Special Reference to Public Health Work.—Colonel EUGENE R. WHITMORE of Washington, D. C., said that protective inoculation was one of the important methods of prevention of infectious diseases. In using bacterial vaccines in protective inoculation, it was necessary to use a rather large amount of bacterial material to obtain practical protection. With the saline suspended vaccines, it was necessary to give the vaccine in several doses, as the general reaction was severe if the entire amount was given at one time. The necessity of giving repeated doses made it difficult to carry out protective inoculation on a large scale, even when only one disease was considered. When attempt was made to vaccinate against several diseases, the repeated doses made such vaccination impossible. The body could elaborate antibodies against several pathogenic bacteria at the same time; but when attempt was made to include more than one organism in a saline vaccine, the dose of each organism had to be reduced below what was considered necessary to give protection. Another objection to saline suspended bacterial vaccines was that there was rapid autolysis of the organisms in the saline solution, and it was not advisable to use the vaccine after it was over three or four months old. French investigators showed that it was possible to inject large amounts of bacterial material suspended in oil, without producing severe general reaction. This was due to the slow absorption of the bacterial material in the oil, and to the detoxifying action of the oil. They also showed that the immunity response was as good after injection of the entire amount of bacterial material at one dose suspended in oil as when it was injected in divided doses suspended in saline solution. They also showed that the bacteria remained in the oil for at least eight months without undergoing any change. The French investigators obtained satisfactory results with a T. A. B. vaccine suspended in oil; and they gave the name lipovaccine to these vaccines. In the United States Army, a number of lipovaccines had been prepared; and the triple typhoid lipovaccine was now the official vaccine in the army. A pneumococcus lipovaccine was being used in the army, and meningococcus, dysentery, cholera, plague, and streptococcus lipovaccines had been prepared and tried out. The lipovaccines had the advantages that the entire amount of bacterial material could be given at one dose, without severe general reaction, and the immunity response was at least as good as where the bacterial material was given in divided doses suspended in saline solution. The lipovaccines kept for at least eight months. It was considered that these advantages were of importance in public health work. The lipovaccines were probably not adapted to use in therapeutics. It was necessary to guard against attempting to adapt the advantages of the lipovaccines to the preparation of shotgun vaccines.

Industrial Disease Administration at the Present Time.—Dr. EMERY R. HAYHURST of Columbus, Ohio, stated that several important problems were at hand in adjusting health administration to cover industrial diseases and hygiene at the present time. There were: (1) keeping the workers able to work; (2) providing for increasing numbers of women, older people and youths; (3) maintaining all sanitary regulations; (4) watching especially against fatigue; (5) maintaining not only average vitality but raising the average vitality; (6) counteracting the indifference promoted by personal prosperity, number of available jobs, etc., and (7) continuing the spread of fundamental information calculated to save human waste—so-called hygieiology. Neither war nor peace had discovered many new forms of human waste. They had, however, uncovered to the world the necessity of and the possibilities in industrial hygiene. Expansion was the principal adjustment. One establishment in Ohio employing over 5,000 women increased its output ten per cent. almost over night by giving heed to advice from the State Department of Health on temperature and humidity control in the work-rooms and at the same time cut down remarkably absences, quittings, and a peculiar form of sickness which was spreading through the plant. Such might be done in many other establishments. The war had put sanitation and hygiene upon a firm basis in the public's opinion. Advantage should be taken of this in industry. Shortage of hygienists and sanitarians to meet the demands was acutely felt and it was necessary for certain properly equipped schools or the Federal Public Health Service to select and instruct by short courses a large number of engineers, sanitarians, and physicians in the principles of industrial hygiene and diseases. A result of the great war was that a thousand people now really saw the point of workplace sanitation and personal hygiene, to one person a couple of years ago. Plenty of knowledge was at hand and needed only to be applied.

Modern Advertising and the Nostrum Evil.—Dr. ARTHUR J. CRAMP of Chicago said that the evils connected with the sale of medicinal preparations of the home remedy type—the so-called patent medicines—were due to proprietaryship and to the advertising methods that such proprietaryship engendered. The perpetual proprietary monopoly which the patent medicine seller obtained by means of our trade-mark laws made extensive advertising profitable and, together with secrecy of composition, had led to the gross abuses which had made the patent medicine business a menace to the public health. The man who advertised and sold a patent medicine had an important commercial advantage over the seller and advertiser of general merchandise. The former had nature working in his interest; the latter had nature operating against him. The man who sold a suit of clothes or a piano or an automobile had natural forces (as expressed in wear and tear) as his competitor; the man, on the other hand, who sold a patent medicine had the forces of nature as an assistant. Those selling remedial agents not only had the advantages of making a lucky fluke but also had the much greater chance of being given credit for results to which their remedies in no way contributed. Modern advertising differed from its earlier prototype in that whereas the latter chiefly, if not exclusively, notified the public simply where and how its demands might be supplied; the former was based largely on the principle of creating demands for the products advertised. In the case of general merchandise there might be some excuse for these attempts to create in the minds of the public a desire for certain things it would not otherwise want. No such excuse could be put forward in favor of the sale of medicaments. No man had any moral right to so advertise as to make well persons think they were sick and sick persons think they were very sick. Such advertising was an offense against the public health. Modern medical advertising by the skillful use of testimonials, by plausible claims, direct or inferential, led the public to magnify every trivial ailment, deceived those who were well into the belief that they were sick, and impressed the idea that the products were panaceas for whatever ailments the public was suffering from or could be deceived into believing itself to be suffering from. Medicaments of the home remedy type for the self-treatment of simple ailments should contain no dangerous or habit-forming drugs; should not be recommended for diseases that were obviously too serious to be self-treated; should be non-secret, and should not be sold under false claims, or so as to make the public magnify trivial ills and dose itself unnecessarily. There

were plenty of official products (U. S. P. and N. F.) to meet every legitimate requirement for medicaments for self-treatment. These products were non-secret; their purity was established and protected by law. As any competent pharmaceutical house could make them, the elements of secrecy and proprietaryship were removed, and the incentive to fraudulent or misleading advertising claims was abolished.

Compensation for Vocational Diseases.—Dr. Frederich L. Van Sickle of Olyphant, Penn., said that the foundation of industrial insurance was built upon the man who employed, the society which fostered, the government which wished to protect the men or women who must earn their own living and that of a family by daily occupation at some employment, and the desire so to remunerate that worker during a period of disability as to effectuate the income. This foundation was only as substantial as the conscientious endeavor of the employer; the municipalities and the State should surround it with security and with equitable fairness to the employee. If industrial insurance was a feature of industry, which must exist in the United States, for the purpose of making happy, making content, making self-prosperous, making efficient the working people of the United States, it should be the endeavor of all right-minded people in every walk of life, who in the sum total must bear the added burden of any insurance feature which should be placed upon the product of any industry in its ultimate result, to see that it was made a proper and substantial measure. Fundamentally, it would make very little difference to the manufacturer whatever added cost were placed upon any industry in order that insurance might be carried, premiums paid, awards made in cases of disability, competent medical and surgical nursing and hospital facilities supplied, provided no complaint were made upon the part of the ultimate consumer relative to the added costs thereby incurred. Our solution then of the problem of compensation as it related to vocational insurance must be first rated upon the hazards of the industry, upon the needs of the worker and upon the facilities supplied to care for him or her in a disease or condition arising from that vocation. There could be no question as to the equitability of a protective insurance as it related to sickness, as well as its relation to workmen's compensation in injury in our present every day thought from an American viewpoint. Prolonged disability in civic life was not included in a discussion of compensation in diseases but was well known to physicians, where the individual desired to escape the responsibility or necessity of employment. The limit of twenty-six weeks in any one year had been an old standard in many states, in lodges and societies, which no doubt was a fair limit of time when we considered that on an average not more than nine days per year was lost by each individual worker in industry, due to sickness. A closer relationship with the medical profession in a discussion as to the methods of application of social insurance as it related to sickness must obtain with employers and representatives of labor, in that a modern American plan of application be arranged, in order to make it a success in this country. Members of the medical profession, as a rule, were reasonable men and women, willing to give much of their time and their talent without compensation, which had been proven from hospital statistics. It could not and should not be expected of the medical profession so to rearrange the application of their daily work, if it produced so changed a plan, in the application of insurance for vocational diseases, wherein they were not familiar or willing to accept the plans and provisions as made by assemblies, without voice or vote on the part of the physicians. The compensation to medical men and women must be proportionate to the skill required in the treatment of particular diseases arising from any particular industry, and the facilities offered by the employer for having such treatment properly administered, so that efficient results might be obtained. He maintained that the same provisions should be incorporated in every act, whether for disease or for injury, that the fees obtained in a like community for such services rendered to the individual should be the fees paid in either compensation for injury or in sickness insurance or in vocational disease insurance.

Tuberculosis Control Following War Conditions.—Dr. D. B. Armstrong of Framingham, Mass., stated that the war would undoubtedly increase the magnitude of the tuberculosis problem in the United States, just as it had in foreign countries. From the first draft alone there were returned to civilian communities 50,000 cases of hitherto undiscovered tuberculosis. In England and in the other warring countries the tuberculosis death rates had shown decided increases since the war began. In 1913 the death rate from pulmonary tuberculosis in England and Wales was 101 per 100,000 people living. By 1916 this had increased to 118 per 100,000. In Birmingham alone, for instance, the 1913 rate of 119 per 100,000 had increased in 1917 to 130 per 100,000. As a result of the special tuberculosis work being done under the auspices of the National Tuberculosis Association in Framingham, Mass., they already had in this community excellent evidence to show that tuberculosis existed in the civil population to a greater extent than had hitherto been supposed. In Framingham, which was a typical industrial town with average health conditions, there were on January 1, 1917, twenty-seven known cases of tuberculosis. After an extensive search for tuberculosis the number of living known cases was increased to 181 in November, 1918. An intensive examination of about two-thirds of the population of this New England town had shown that approximately 2 per cent. of the people had tuberculosis in either an active or an arrested form. This meant that in the United States as a whole there were 2,000,000 cases of tuberculosis, and at least 1,000,000 people who had the disease in an active and possibly contagious form. The Framingham work was financed by the Metropolitan Life Insurance Company. How were we to meet this national problem? In the first place, it meant adequate appropriations for general health and anti-tuberculosis work among infants, in schools, in factories, etc. Where we had been spending 15 cents or 25 cents per capita on health work, we must spend from $1 to $2 per capita if we were going to meet our obligations. As to tuberculosis in particular, it was important to find the early cases and to get them under adequate treatment. The provision in Framingham of an expert medical consultation service for the local practising physicians had greatly increased the discovery and reporting of the disease. The early cases as well as the arrested cases could adequately be cared for at home if satisfactory nursing arrangements were made. Finally, the public at large must be educated more intensively than hitherto regarding the principles of hygienic living. The necessity for the health of the civil population was one of the lessons the war had taught us. We had gloriously won the war. The extent to which we were successful in applying the hygienic lessons of the war to our civil population was one of the measures of a glorious and victorious peace. As Dr. Livingston Farrand, the head of the American Red Cross Tuberculosis Commission in France, said, "To make our country really safe for democracy, we must first make it healthy."

The Work of the Department of Health and Sanitation of the United States Shipping Board.—Lieutenant Colonel Philip S. Doane, M. C., U. S. A., Director of Health and Sanitation, United States Shipping Board Emergency Fleet Corporation, said that the United States Shipping Board Emergency Fleet Corporation, through its Department of Health and Sanitation, was maintaining supervision over the health of about 430,000 employees, building ships in 171 yards scattered over 7,000 miles of coast line. Like all war emergency industries, the Shipping Board had to organize its various departments in such a manner as to meet peculiar needs. It was more than a year after its organization that the need of a department of health and sanitation was felt by the board. As in all new war industries, there were no precedents established here. The needs, moreover, of the shipyards from a health and sanitation standpoint were varied and peculiar. The problem confronting the Department of Health and Sanitation of the United States Shipping Board Emergency Fleet Corporation was to secure such conditions in shipyards and their environment as to maintain the workers in the healthy, vigorous condition so essential to speedy construction of ships. Arrangements were made with local hospitals for the care of injured employees. Yards employing over 10,000 men, without the nearby

hospital facilities, had their own hospital. These hospitals were constructed according to plans and specifications outlined by the Army, with suitable modifications. The surgical care of injuries was given special attention. Minor accidents were very numerous in a shipbuilding yard. All employees were urged to report for dressing with every injury, no matter how slight; consequently the monthly reports showed a percentage of injuries often running as high as 50 per cent. of the men employed. The use of dichloramine-T was strongly recommended in the yards. Experience had proved that the use of dichloramine-T was both efficient and economical, but that it must be used correctly or the desired results were not obtained. The board was cooperating with the Surgeon-General of the Army, the Surgeon-General of the Navy, the United States Public Health Service, and the Committee on National Defense in carrying on a prophylactic venereal campaign both in the shipyards and in the cities and towns surrounding them. The educational campaign in the yard was conducted by enlightening lectures given by men of experience, assisted by lantern slides, drawings, and charts. This campaign was becoming so general in character that State laws were necessarily being enacted to favor this work. The efficiency of the ship workers had been markedly interfered with in many cases by venereal diseases. The eradication of mosquitos was an important measure at shipyards. This department cooperated with local and State health authorities to obtain suitable drainage of the yard and its environment, filling in low land, oiling stagnant water, etc. In mosquito countries screening of buildings and sleeping quarters was urged, using normally No. 16 mesh. Where the yellow fever mosquito might be bred at least No. 18 mesh was required. Insanitary conditions often existed to a marked degree in towns and cities in which the shipbuilder must live. Having no jurisdiction in these premises, it became necessary for them to call upon the State or civic health boards to assist in carrying on their work. The country at large recognized the necessity of the ships and they had but to make the request for assistance when every possible agency seemed more than willing to do its part. The department's every resource had just been put to the test when the socalled influenza epidemic attacked the shipyards. The Fore River yard at Quincy, Mass., just outside Boston, was the first yard seriously affected. The disease then spread to all the yards along the northeastern coast line, then to the large yards in the Delaware River region, then west and south, and last of all to the yards in the Great Lakes region. It was strange that the Pacific Coast yards should have been affected before those of the Great Lakes region. They were proud to note that, owing to the efficient action of the medical and sanitary experts, not a single shipyard had been compelled to shut down.

New Evidence on the Cause of Human Tuberculosis.—Dr. BURTON R. ROGERS of New York City stated that childhood was now almost universally recognized as the age when the bulk of the primary tuberculous infections occurred, even though symptoms might not appear or death occur until twenty or more years later. The two paramount conditions of babyhood and childhood were close association with parent and the milk drinking period. In spite of the prevailing opinion, with all the evidence in, final analysis might some day prove that milk-borne infection of bovine origin was and had been the principal factor in the primary cause of human tuberculosis. The American Public Health and National Tuberculosis Associations should study all methods and make recommendations as to the best methods so as to secure the greatest and quickest returns from the vast appropriations that were and would be made, if for no other purpose than to eliminate the controversial problem of intertransmission, and at the same time whatever human tuberculosis might be of bovine origin. Was tuberculosis really a city disease? Take Crawford County, Ind., near the human population center, for instance, which was the blackest and worst county in that whole State for human tuberculosis. Marion County, in which Indianapolis was located, the four times largest city, yet stood only fifth in a tuberculosis death rate—and this might be due to the slum conditions of a present or past period in the surrounding dairy zone rather than slum conditions in the homes. Crawford County had 304 square miles of outdoors. Less than 13,000 people lived in the county. They were scattered on 1,861 farms and in twenty-one towns and villages. The largest town contained less than 1,200 people. It was doubtful if there was a three-story tenement in the county, and if every house was not at least 10 feet from every other house, and some several miles apart, and if every living and sleeping room had not one or more outside windows. These were certainly not city conditions. Yet in a six-year period (1909-14) 24 per cent. of the human deaths in this county were due to tuberculosis. It was possible that, instead of the vast expenditures for human tuberculosis sanatoria, hospitals, and dispensaries, in the long run, it might have been better to have bought or leased farms and barns and mobilized the tuberculous cattle—not for the sake of and in the interests of the cattle *per se* or other cattle and animals or their financial owners, but so their products could knowingly and intelligently be made safe and even therapeutic—because virulent tuberculous cattle unconsciously scattered in an immense number of unknown herds were infinitely more dangerous than if knowingly concentrated on a few known farms, for such scattered cattle might menace more human beings than might those tuberculous people who had been, were now, and would be mobilized in human tuberculosis sanatoria. Indeed, the sacrifice of human life involved should justify the Association seriously considering whether the risky arbitrary standard, practically unchanged since 1898, based solely upon deductions from variations in simple shape or morphology and cultural modifications of the tubercle bacilli after they had grown for some time in different species, and perpetuated after implantation in dead non-resisting test-tube media, should not be substituted for a newer and certainly safer standard, viz., the unquestioned effect of the tubercle bacilli of herbivorous bovine origin upon the living resistant omnivorous hog, a much nearer approach to man or babies, than a dead non-resisting test tube ever could be.

Democracy and Public Health.—Dr. CHARLES J. HASTINGS of Toronto, President of the Association, said that every nation that permitted people to remain under the fetters of preventable disease and permitted social conditions to exist that made it impossible for them to be properly fed, clothed, and housed so as to maintain a high degree of resistance and physical fitness, and that endorsed a wage that did not afford sufficient revenue for the home, a revenue that would make possible the development of a sound mind and body, was trampling a primary principle of democracy under its feet. Equal opportunity for all was the underlying principle of American democracy. Good health was the foundation of a strong nation. No nation could afford to neglect it or to ignore the lessons taught by the absence of a reasonable degree of physical efficiency.

Team-Work in Public Health.—Dr. GEORGE E. VINCENT, President of the Rockefeller Foundation of New York City, stated that the work of the fifty-seven health societies of the United States was to a large degree unsuccessful because too much time was spent in the collection of funds and preaching about accomplishments, thereby leaving no time for scientific investigation. It was certain that so long as the voluntary agencies of public health of this country persisted in the present policy of isolation and rivalry, seeing their specialties out of focus, unconsciously misleading the public, hampering the development of unbiased research, preventing the consistent and careful education of the people, they would be in no position to bring to bear upon the Federal Government pressure for the creation of a Federal department of health with a secretary in the President's Cabinet. Three things were necessary to correct these evils: (1) The establishment of a definite body of scientific knowledge. (2) Effective demonstration of the application of such knowledge. (3) Systematic, unified, consistent education of the public in the scientific basis of health and the principles of procedure.

The Future State Policy in Relation to Health and Welfare.—Mr. FREDERICK L. HOFFMAN of Newark, N. J., stated that a beginning had fortunately been made in this country through the Children's Bureau at Washington to initiate a plan for the systematic

measurement of children of preschool age, subsequently, no doubt, to be followed by the introduction of systematic measurements of children during the teaching period from the primary grade to the university. It was true, of course, that vast numbers of children were being measured in school and out, and that equally vast numbers of measurements were made of young persons in industry or in the military service, etc. The lamentable fact, however, was that these measurements were, in the first place, crudely made, and, in the second place, the prevailing standards of normal height and weight, chest expansion, etc., were seriously deficient in scientific accuracy; and in the third place, the ascertained deficiencies, or departures from the normal, were not made a matter of serious concern on the part of the school or the parents, or the medical profession, or all combined. The second prerequisite for a rational and effective public health administration was the accurate and complete registration of all serious illnesses, whether in private practice or in institutions under medical supervision and control. The third fundamental principle of modern health administration was a thoroughly well worked out State medical service, including under the term all of the medical services now rendered in connection with public institutions, poor-law establishments, schools, State and municipal dispensaries, clinics of all kinds, etc. The proposed administration would seem to group itself into three main divisions, each of which should be in charge of an assistant federal health administrator, as follows:

Division A. *General Public Health and Quarantine.*—Section (1) Health organization and administration. (2) Health laws and ordinances. (3) States relations service. (4) International and war time quarantine. (5) Communicable and transmissible diseases. (6) Urban sanitation, town planning and housing. (7) Rural sanitation. (8) Sanitary engineering and drainage. (9) Tropical medicine and sanitation. (10) Hygienic laboratory. (11) General scientific research.

Division B. *Medical Practice and Physical Welfare.*—Section (12) Medical practice, pharmacy, and dentistry. (13) Physical anthropology. (14) Child hygiene. (15) School hygiene. (16) Personal hygiene. (17) Industrial hygiene. (18) Mental hygiene. (19) Social hygiene. (20) Hospitals and institutions. (21) Race pathology.

Division C. *Statistics and Information.*—Section (22) Mortality statistics. (23) Morbidity statistics. (24) Health education, health propaganda, and publications. (25) Associated activities and health promoting agencies.

An Inquiry Into the Reliability of Diagnosis of Diseases Causing Death.—Mr. Louis I. Dublin and Mr. George H. Vanburen of New York City said that in September, 1915, Dr. Haven Emerson emphasized the fact that registrars, life insurance companies, pathologists, and others believed that there was a high percentage of inaccuracy in the statistics of cause of death on account of the correspondingly high proportion of inaccurate diagnoses which formed the basis for these statistics. Dr. Emerson's viewpoint was that, especially in cases where more or less obscure conditions caused death, a good proportion of the diagnoses based on clinical findings were very certain to be wrong. So much interest was attached to the questions raised by Dr. Emerson that the Chairman of the Vital Statistics Section appointed a committee on "The Accuracy of Certified Causes of Death," and this committee was instructed to consider the relation of this subject to mortality statistics and to the International List of Causes of Death. Recommendations covering 189 titles of the International List of Causes of Death were made with a view to separating them into two classes. The first class was made up of those titles which the committee believed should be accepted as representing reports of causes of death based upon essentially reliable diagnoses, without autopsy and without the statement that there were specific supporting data other than clinical findings. The second class consisted of those which should not be accepted as based substantially upon reliable diagnoses, unless it was clear that they were verified by autopsy, pathological findings, or other specific supporting data. This subject the Metropolitan Life Insurance Company decided to be one of sufficient interest to the public health movement to form the basis of a special inquiry to determine the proportion of cases in its mortality experience in which the diagnosis of cause of death might be considered accurate and complete. The information concerning the reliability of the statements of cause of death among its policyholders was secured from the records of mortality during the period of January to June, inclusive, 1918. The findings set forth were based on 64,820 deaths of industrial policyholders. On this basis it was determined that, according to the standards of reliability of diagnosis set down by the eminent clinicians and pathologists who served on the American Public Health Association Committee, 55,372, or 85.4 per cent., of the 64,820 deaths in their industrial experience during the six months covered by this report were definitely and reliably classified as to cause of death. There was little doubt that an estimate of 90 per cent. would not be excessive as the figures representing the ratio of diagnoses that were correct on the basis of the recommendations of the committee appointed by the Vital Statistics Section to study this subject. Dr. Emerson's assumption was therefore incorrect.

Vaccination as a War Measure.—Dr. Maurice Ostheimer of Philadelphia stated that there was not the slightest doubt that smallpox had increased during the period of the war throughout the United States, and in a great many instances the spread of the disease was definitely to be attributed to unvaccinated workers in the industrial plants making munitions. In some instances a migrating unvaccinated worker developed smallpox, gave the disease to one or more workers in one, two or even three plants before he was caught and isolated. In Philadelphia alone up to October 18, 1918, there had been 33 cases of smallpox reported, while there had only been 12 during the entire year of 1917 and only 5 in 1916. He suggested that it might prove practicable for the United States Public Health Service to request of the United States Railway Administration that tickets for places outside of the city be sold only to a purchaser who presented certificates of successful vaccination for each member of his party. It would be an excellent idea to have the Surgeon-General of the U. S. Public Health Service put into practice some method of securing the vaccination of all unvaccinated adults.

The Clinic for Vocational Diseases.—Dr. Louis I. Harris of New York City said the work of the various clinics had been handicapped by the fact that the industrial corporations had been slow in extending this work, not seeing that humanity and profits went hand in hand. Very few of the municipalities up to the present time had done anything in the way of clinical study or of industrial hygiene. Too many of them were held back by the fear that it meant elaborate equipment, when what was really needed was enthusiasm and social vision and the knowledge that a man who carried a stethoscope, a blood pressure instrument, possibly a tongue depressor, and such equipment as was possessed and carried by every doctor in his rounds, plus common sense and a knowledge of the diseases the industrial environment might either directly produce or predispose to, was splendidly equipped to go into a factory and extemporize a clinic in any spare room that was well lighted and free from noise. This traditional idea that to do anything we must have elaborate outfit and budget had retarded progress in many communities of an industrial character. In the City of New York less than 200 cases per annum, about 178, of occupational diseases were reported by all the 8,000 doctors, all the hospitals and dispensaries and all the industrial corporation physicians. This must reflect either ignorance or indifference or limiting of social vision. This too was but an infinitesimal fraction of the number of cases which would subsequently be registered as tuberculosis cases, as cases of all kinds of occupational poisoning, and the things in which the occupational factor would never be recognized. The vocational clinic in New York gave to the poor man in the community, whom the health authorities were obligated to protect, the type of protective medical care which had up to the present time been enjoyed only by the rich who could consult their doctors at frequent intervals to learn as to their physical well-being. Life extension work should not be an object of commerce, or profit, but a life saving activity of every well ordered health department. Enthusiasm and a knowledge of the appalling horrors of in-

dustrial disease, and not elaborate equipment, were needed to initiate this work.

Milk and the War.—Dr. Charles E. North of New York City said that it was desirable first to get a clear view of the position which the dairy industry occupied in the economic structure. The word "economics" had been to a large extent allowed no place in the deliberations of the American Public Health Association, or of health officers and sanitarians on the grounds that costs, prices, and profits and losses were commercial matters with which medicine and public health science had nothing in common. It happened, however, that the moment that public health authorities undertook to control the quality of a food commodity they immediately affected the quantity and the price. Consequently, any of the regulations or recommendations which might result from the activities of an organization such as the American Public Health Association and its section on Food and Drugs might affect not only the commercial structure of a great industry, but the quantity and the prices of a commodity offered to the consuming public. In 1917, according to figures obtained from the United States Department of Agriculture, there was produced in the United States over 84,000,000,000 pounds of milk; 43 per cent. was used as fluid milk, 41 per cent. as butter, 5 per cent. as cheese, 2.9 per cent. as condensed milk, 3.7 per cent. as ice cream, and 4.3 per cent. was fed to calves and pigs. The first effect of the war on the dairy industry was similar to its effect on the other food industries; namely, a great increase in the cost of raw materials and in the cost of labor. A tabulation of stable food commodities from July, 1910, to 1918 showed milk costing 21.2 cents per gallon in 1910 and 30.2 cents per gallon in 1918 with other foods showing a similar increase. One of the chief causes for this was the demand for export trade, and to these exports the dairy industry made some very large contributions, principally in butter, cheese, and condensed milk. Condensed milk shipments alone increased from 3,000,000 cases in 1915 to 25,129,000 in 1917. In considering the economics of the dairy industry one point of importance which was commonly overlooked and but little understood by the consuming public was the enormous fluctuations in supply and demand and the inequalities between these two factors. These fluctuations were so great that at certain seasons of the year at least 100 per cent. more milk was being produced than was being consumed, while at other seasons there was a shortage amounting to 25 per cent. Attempts were made to adjust these differences through the manufacture of surplus milk into by-products. When, however, all of the fluid product was paid for at the full fluid price and the manufacture of by-products entailed at times enormous financial losses, which could only be made up by an increased retail price of such fluid milk as was sold. The effect of the war on the milk producer had been to increase his two largest cost items; namely, the cost of grain and of labor. In 1914 the cost of producing 100 pounds of milk was $2.08, or 4½ cents per quart. In 1918 the cost was $3.60, or about 8 cents per quart. The effect of the war on the milk distributer had been to enlarge practically every cost item, including labor. In 1915 the cost of milk distribution was about 5 cents per quart, milk retailing at that time at 9 cents; in 1918 the cost of distribution was over 8 cents per quart, the same milk retailing at 17 cents per quart. These cost items had been carefully studied by the Federal Food Administration and were accepted by them as the basis for present payments to the producers and the retail prices to consumers. War conditions had greatly intensified the public interest in possible economies in the milk industry. There were many of these which could be instituted both in the departments of milk production and milk distribution. One of the most obvious was the elimination of milk wagons, and this applied to fully as great an extent to the country end of the line as to the city end. A survey of eleven large country milk shipping stations in New York State revealed the fact that 453 farmers' wagons were carrying milk to railways which could be easily carried by 44 wagons. In New York City there were 4,978 licensed retail wagons while the actual number needed to carry the retail milk was only 2,243. There were also 1,522 licensed wholesale wagons for milk which could be carried by only 300 wagons. The economies which would result from centralizing the delivery system of city wagons alone would amount to about one-half cent per quart. Other economies in distribution and in production might make it possible to reduce the total cost of milk as much as 2 cents per quart. Figures compiled by Professor H. C. Sherman of Columbia University seemed to fix the place occupied by milk in the United States as representing from 10 to 12 per cent. of the total cost of all food, while butter occupied a position between 5 and 9 per cent. of the cost of all food. As a result of the war while the cost of eggs had increased 269 per cent. and beef 166 per cent., the cost of milk even at 17 cents per quart had increased only 88 per cent. It was his opinion that the poor and the infants in our large cities were not suffering so much from the high prices of milk as they were from ignorance of the real value of milk as compared with other foods.

Registration of Births and Deaths in Illinois.—Dr. C. St. Clair Drake of Springfield, Ill., stated that, while a law requiring reports of births and deaths was enacted in Illinois in 1877, in the fifty-ninth year of statehood, it was not until almost forty years later that a good law affecting vital statistics was secured, and it was not until the year that marked the State centennial anniversary that Illinois was recognized as a registration State by the United States Bureau of the Census. The interim of forty years, between the passage of the law of 1877 and that of 1915, was marked by many appeals to the General Assembly for a satisfactory law, each attempt being met with a certain amount of opposition, based to a large extent upon lack of education as to the acute need for such a law and to the geographical conditions and differences in the origin and distribution of the population. The law which was finally secured in 1915 was patterned largely after the so-called model law. It divided the State into very small and convenient districts for registration purposes, designating the duly elected officials of these districts as registrars and making registration a duty similar to any other prescribed by law pertaining to official position. Public officials of this type were in all instances permanent residents of their communities, usually fully conversant with local happenings and capable of knowing, through common report, the extent to which the law was being ignored or violated. While the law afforded every reasonable convenience to the public, it did away with the fees that were paid under the old law and, for this and for other reasons, it was obvious that its successful application would necessitate a broad campaign of education to supplement the legislative enactment. From the moment that the law was passed, this educational campaign had been carried out. The press service and other means of publicity of the Division of Public Health Instruction were employed, motion pictures were prepared and sent out through the State, and portable exhibits shown at fairs, conventions and public gatherings, held firmly before the people that vital statistics must be regarded as the very foundation of any constructive public health work. The people were impressed in every way with the discredit associated with the previous failure on the part of Illinois to do her part in this direction. While the registration districts were very small and the registrars officials generally well known, the difficulty of not knowing the proper person to whom to apply had been largely overcome by the publication of a complete State register of registrars, which had been sent to all physicians, undertakers, and other interested persons. It might be stated in this connection, that the undertakers upon whom the burden of carrying out the details of the law were imposed, and who, incidentally, were loud in their protests against the law in 1901, had met the requirements of the present act cheerfully and with general uniformity. The law became effective July 1, 1915, and steps were taken at once to place it in operation by the State Board of Health. The next General Assembly enacted the Civil Administrative Code, entirely reorganizing the State government of Illinois, through which the functions of the State Board of Health were taken over by the State Department of Health. It was not until 1917, when this general change came, that the vital statistics machinery of the State was fully organized, so in practical application the new law was put in definite operation by the newly

created department. During the autumn of the present year, after due investigation, Illinois was recognized as a registration State by the United States Bureau of the Census, the mortuary returns being found to be something over 93 per cent. complete. The birth returns, of course, had not proven so satisfactory, and the department was continuing in developing its educational work to increase birth registration. To this end a survey was undertaken by the State Federation of the Women's Club and the department in which every available means of education was employed, and a further broad campaign was launched in conjunction with the Women's Council of National Defense in Illinois, as a part of the program for Children's Year. As a means of encouraging registration on the part of parents, the department had prepared an engraved certificate of registration which was sent without charge and accompanied by educational material on the care of the child to the parent of every infant duly registered in Illinois. The increase in birth returns was steady and in the main satisfactory. For the first time in the history of the State it was now possible to utilize the existing mortuary figures to estimate, with a reasonable degree of certainty, the prevalence of communicable diseases and the cost of these diseases to the people of the State. Based upon these mortuary figures and checked up as far as possible by morbidity returns, there had been prepared in the office of the department a table which indicated that eleven principal preventable diseases had occasioned the State of Illinois during a single year a total loss of $154,881,685. However accurate or inaccurate these estimates might be, Illinois for the first time in its history was able to utilize her mortuary statistics for public health purposes with the assurance that these mortuary figures were something over 90 per cent. complete. Under the provisions of the present law, with certain minor amendments which might prove advisable, and with the great impetus which the present war had given to birth registration, and the ever growing interest on the part of the people in public health affairs, it was believed that it would not be long before Illinois could qualify as a registration State in births as well as deaths and thereby make an end to the many years of relative neglect and inactivity of the practical features of birth and death bookkeeping.

Report of Committee on Closing Schools as a Means of Controlling Epidemics.—Mr. WILLARD S. SMALL, Chairman of the Bureau of Education, stated the following resolution was adopted by the American Public Health Association, October 20, 1917: "RESOLVED, That it is the sense of the American Public Health Association that the Federal Bureau of Education should attempt to discover what is proper practice as to continuing or closing the schools as a means of controlling epidemics of measles, whooping cough, scarlet fever, diphtheria, smallpox, and poliomyelitis, and that they should publish their conclusions in the annual report of the Bureau and in bulletin forms." This service was accepted by the Bureau of Education upon the condition that a committee of the association be appointed to cooperate with it in carrying out the purposes of the resolution. The committee believed the facts and conclusions as presented in this preliminary report were correct and sound, and that the final report would merely amplify and confirm these facts and conclusions. An inquiry consisting of fourteen questions was sent to fifty cities in thirty-one States. Replies were received from thirty-two cities in nineteen States.

Conclusions: "(1) Closure of schools as a means of controlling epidemics of the six diseases specified is unnecessary, unscientific, and unjustifiable. (2) Disinfection by fumigation is unnecessary and ineffective. The use of chemical solutions is generally unnecessary. Disinfection by air and sun and cleansing with hot water, soap, and scrubbing is to be commended. (3) The proper method of control involves sufficient inspectorial force of physicians and nurses to maintain close supervision of cases and contacts; enforcement of isolation and quarantine under elastic administrative regulations; the employment of clinical and laboratory tests and reliance upon such data; close correlation of the school medical inspection, on the one hand, with the health department, and, on the other hand, with the school forces; and continuous education of the public. (4) The wide diversities in rule and practice revealed by this study should be eliminated or reduced. It is unreasonable, unscientific, and absurd that there should be such variations in the minimum period of exclusion as from fourteen to forty-two days (scarlet fever). This is merely typical of many variations that could and should be eliminated. They do not depend upon adequate or inadequate support of medical inspection; they depend solely upon ignorance, indifference or unreasonable difference of opinion. Much of this diversity would be eliminated by acceptance by all school health officers of the standards set up in the report of the Committee on Standard Regulations for Control of Communicable Diseases, submitted to and adopted at the last meeting of the American Public Health Association."

Recommendations: (1) That this preliminary report be approved and adopted by the American Public Health Association. (2) That the committee be continued and requested to complete its work and amplify the report by inclusion of specific citations of rules and practice. (3) That the committee be requested to confer with the Committee on Standard Regulations for Control of Communicable Diseases with a view to summarizing the standards of this committee in so far as they apply to the control of communicable diseases in schools and adapting them to the specific problems of schools. (4) That the American Public Health Association authorize the committee to arrange with the Bureau of Education to publish and distribute the report as soon as completed.

One Year of Infant Mortality in the United States During War.—Mr. FREDERICK S. CRUM stated that the influenza epidemic had already resulted in a large infant mortality. The effect of the epidemic was seen clearly in the 46 individual cities which reported weekly to the United States Bureau of the Census and, of course, it was equally apparent in the infant deaths and death rates by geographical groups of cities. Even in the North Atlantic cities, which include Boston, the effect of the epidemic was not reflected in the infant mortality rate prior to the week ending September 14. By October 1 the epidemic was clearly reflected in the infant death rates of several of the cities in the North Atlantic group. Comparing the infant mortality during the nine weeks ending November 30, 1918, and the nine weeks ending December 1, 1917, they found that it was 70 per cent. higher in 1918 in the north Atlantic cities; 72 per cent. higher in the central Atlantic cities; 61 per cent. higher in the Southern cities; 33 per cent. higher in the cities of the middle west; and 41 per cent. higher in the western cities. Through the various intensive studies of infant mortality by localities many interesting and valuable facts relating to the fundamental or underlying causes of infant mortality were being learned. Equally valuable were the studies which were being made by the various child hygiene bureaus, departments or divisions of our State and municipal departments of health. The Cincinnati unit organization also represented one of several special activities which were throwing new light upon the complex problems of infant mortality. The experience in England, France, Germany, New Zealand, the United States, and elsewhere seemed to prove quite conclusively that the most immediately hopeful method of attack upon infant mortality was through education of the mother and more particularly in how properly to care for herself before and after the birth of the child and in the great importance that attached to breast feeding of the infant. In New Zealand, where these methods had perhaps been carried farthest under the auspices of the Royal New Zealand Society for the Health of Women and Children, cooperating with the government, the infant deaths for the year 1917 were only 48.2 per 1,000 of living births. The war seemed to have had little effect upon the infant death rate in New Zealand, whereas in the United States, already existent child-conservation organizations were active in keeping up the public interest in the work.

Beneficial Consequences of Food Shortage in Germany.—Among the diseases favorably influenced by underfeeding are appendicitis, eclampsia, diabetes, rheumatism and gout. Laborers suffer under the regimen and neurasthenics abound.—*La Presse Médicale.*

Philadelphia Neurological Society.

At a stated meeting held December 18 Dr. Nathan S. Yawger exhibited "A Case of Syphilis Hereditaria Tarda, with 'Tiptoe Gait.'" The patient was a girl, ten years old, who was apparently well until the age of six, when she began to exhibit signs of mental deterioration, which progressed to a state of imbecility. At the same time she developed the peculiarity of walking and running on the tips of her toes, much as a ballet dancer. The knees became overextended in action, but x-ray examination failed to disclose anatomical changes in the joints. The muscles of both upper and lower extremities were well developed. The reflexes were slightly increased, but there was no spasticity, no ankle-clonus, and no Babinski reflex. The teeth were of the Hutchinson type, pegged, notched, distorted. There was a scar on the cornea. The blood yielded a negative Wassermann reaction. Spinal fluid could not be obtained. The father admitted having had gonorrhea, but denied luetic infection, and his blood also yielded a negative Wassermann reaction.

Dr. Thomas E. Shea exhibited by invitation "A Case of Median-Nerve Injury Due to Stab-wound from the Ulnar Side of the Hand." The patient was a young man who was stabbed with a pocket knife through the hypothenar eminence. At once the hand became numb, and power was lost in the thumb and index and middle fingers, with loss of sensibility and muscular wasting. A trophic ulcer formed on one of the affected fingers and a slight burn caused desquamation of the skin covering a portion of the affected parts. Under treatment with electricity and massage improvement set in, and in view of the circumstances surgical intervention seemed at this time not indicated. The conclusion was reached that the median nerve, and especially its superficial fibers, had been close to its point of division for the supply of the outer portion of the hand and the thumb and the index and middle fingers.

Dr. Francis X. Dercum exhibited "A Case of Hysteria with Multiple Operations." The patient was a woman of neurotic temperament who had been subjected to five successive abdominal operations for the relief of pain referred to different viscera, but without relief. The patient winced when a fold of the skin was pinched, but she bore pressure in the same situation without apparent discomfort. Dr. Dercum imagined cases of the same kind must come more or less frequently under observation of neurologists and he cautioned against operations in neurotics in the absence of positive indications. On the other hand, care must be taken not to neglect necessary operation in an individual who happens to be neurotic.

Dr. Dercum exhibited also "Two Cases of Friedreich's Ataxia in Brothers." The patients were children, six and eight years old respectively, born of an alcoholic father, and who presented ataxic gait, with loss of knee-jerk on one side and diminution on the other, with perhaps slight mental deficiency.

Dr. Sherman F. Gilpin exhibited "A Case of Tabes Dorsalis Showing Results of Treatment, Including Drainage of Cerebrospinal Fluid." The patient was a woman with classical symptoms in whom the Wassermann reaction became negative and the number of cells in the spinal fluid diminished, while gait and station were much improved. The treatment consisted of frequent inunction with mercurial ointment, together with as complete evacuation as possible of cerebrospinal fluid about once a week or two weeks. The case was one of a considerable number of tabes, taboparesis, and paresis treated in the same way, as a rule with distinct advantage and without any untoward result whatever. It was suggested that the improvement might be due to relief of pressure, with a resultant good effect on the nutrition of the cord, the possible induction of passive hyperemia, and the elimination of toxic substances.

Dr. Alfred Gordon exhibited "A Case of Nystagmus on Monocular Vision." The patient was a girl, fifteen years old, who presented some fullness of the neck perhaps referable to the thyroid gland, slight protrusion of the eyes and some acceleration of pulse. It was noted that, while the eyes could be rotated laterally in association, when one eye was covered nystagmus developed in the exposed eye. It was suggested that the condition was due to weakness of the external recti.

Dr. James Hendrie Lloyd read for Dr. Charles K. Mills "A Biographical Sketch and Appreciation of Major Alfred Reginald Allen, U. S. A., who died of gunshot injuries in September, 1918, while leading his battalion at the battle of the Meuse. Dr. Allen had been at different times President and Secretary of the Society, Secretary-Treasurer of the American Neurological Association, President of the American Psychopathological Association, and Associate in Neuropathology in the University of Pennsylvania.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Dominion Medical Examining Boabd.

Toronto, June, 1918.

(*Concluded from page* 46.)

MEDICINE (including THERAPEUTICS).

1. Hematuria: Give the causes. Where it occurs in tuberculosis of the kidney give the other symptoms and signs of the onset and course of this lesion which justify the diagnosis.

2. Edema: Give your conception of the causes producing edema. Describe the signs and symptoms of edema of the lungs and give the treatment.

3. Describe the signs and symptoms which would lead you to suspect hyperthyroidism occurring alone or complicating other diseases.

4. Give an account of the gastrointestinal symptoms which may be produced by cholelithiasis without gallstone colic.

5. Give the causes of irregularities in the action of the heart, and describe how any one type of irregularity may be recognized clinically with or without instrumental records.

6. Discuss Allen's starvation treatment of diabetes with special reference to treatment of (*a*) obese individuals, (*b*) children, (*c*) chronic diabetes in emaciated men above middle-age.

SURGERY.

1. Describe the injury known as Colles' fracture, and write fully your treatment from the time of injury until discharged from your care. Discuss the occurrence of ischemic paralysis in this condition.

2. Mention the conditions that cause pain in the right lower quadrant of the abdomen, male and female, and discuss the differential diagnosis of each.

3. Enumerate the various forms of goiter. Discuss the medical and surgical treatment of exophthalmic goiter.

4. What are the different causes of pyuria? How would you determine the source of the pus? Describe the symptoms and physical signs of a case of tuberculosis of the kidney, with treatment.

5. A machine gun bullet enters one inch below the right nipple and leaves the chest at the inferior angle of the right scapula. Describe (*a*) immediate symptoms and signs; (*b*) immediate treatment; (*c*) complications and their treatment.

6. Discuss the differential diagnosis of carcinoma of the breast. Describe the operation you would perform.

PATHOLOGY AND BACTERIOLOGY.

1. (*a*) Describe in detail your method of isolating the micro-organism in the blood in a case of streptococcus septicemia. (*b*) How would you prepare a vaccine after you have isolated the bacterium?

2. What are the pathological changes occurring in the lung in acute lobar pneumonia? Describe macroscopically and microscopically the various stages.

3. Describe fully the blood picture in a case of myelogenous leukemia. What changes would be found in the internal organs?

4. (*a*) Discuss the relationship between the human and bovine types of tuberculosis. (*b*) What is the Von Pirquet test, how is it applied, and what is its significance?

5. Describe the principle of complement-fixation and discuss the importance of the Wassermann test in the diagnosis of syphilis.

6. Classify tumors of the breast. Describe the gross and histological features of one benign and one malignant tumor of this region.

ANSWERS.

MEDICINE (including THERAPEUTICS).

1. *Causes of hematuria:* Acute nephritis, acute congestion of the kidney, chronic nephritis, severe forms of acute infectious diseases (as scarlet fever), hemophilia, scurvy, purpura, filariasis, tuberculosis of kidney, cancer of kidney, poisoning by turpentine or phenol or cantharides, calculus, ulcer or cancer of the bladder, traumatism or disease in the urethra.

In *tuberculosis of the kidney* there is pain over one or both kidneys, frequency of urination, the urine is acid and contains pus, blood, albumin, and tubercle bacilli; chills, sweats, fever, and emaciation may follow in severe cases.

The diagnosis is made by finding the tubercle bacilli in the urine, and then by culture and inoculation into guinea pigs; ureteral catheterization shows which kidney is involved. Frequently *x*-ray examination will show calcareous or caseous foci in the kidney. General symptoms are hectic fever, tuberculosis in lungs (and elsewhere), malnutrition.

2. *Edema may be caused* by: "(1) Differences of pressure, a filtration process. (2) An increased secretion by the endothelial cells of the vessels. (3) Osmosis, resulting from variations in the relative concentration of salts, particularly sodium chloride, on either side of the osmotic membranes, the cell walls. (4) The most satisfactory explanation of the occurrence of edema can probably be based upon the properties of colloidal (non-crystalloid) bodies such as gelatin and, presumably, other proteins. If dried gelatin is placed in water, it will absorb a definite quantity of that water and will swell up to a certain point. If the water be slightly acidified the amount absorbed becomes very much greater. It has been shown that an inadequate supply of oxygen results in the production in the tissues of acids, particularly lactic acid and carbon dioxide, which, in turn, increase the tendency of colloids to take up water; consequently edema is brought about. There is probably little of it due to increased capillary pressure or to secretory activity on the part of the endothelium of the blood-vessels."—(McConnell's *Manual of Pathology.*)

EDEMA OF THE LUNGS.—"The symptoms consist in rapidly developing dyspnea, cough, and expectoration. Breathing is very difficult and becomes progressively worse as the exudate continues to accumulate. The patient is anxious and terrified and is fully conscious of the danger which threatens him. As the edema increases the pulse becomes weak and small, cyanosis changes to lividity, a cold sweat breaks out over the body, the extremities become icy, consciousness is lost, and death ensues under all the manifestations of profound asthenia. The temperature is usually subnormal. . . . The physical signs are not characteristic. Upon percussion normal resonance is found to be diminished, particularly over the posterior portion of the lungs. Occasionally small patches of tympany may be found interspersed throughout the dull area. Upon auscultation various rales—fine and coarse, mucous, bubbling, and crepitant—are heard."

"*Treatment* must be directed both to the immediate source of danger to life—that is, to the edema—and to the causative affection. For the first purpose, counter-irritation in the form of dry cups or a large mustard plaster should always be employed, and in the more urgent cases venesection may be used with advantage. When cups are used they should be placed over the entire posterior pulmonary area. Inhalations of oxygen may be tried in the hope that they will allay dyspnea. The heart must be stimulated by camphor and ether administered hypodermically. A solution containing one grain of camphor to ten minims of ether is well adapted for ordinary use; ten minims of this solution may be injected beneath the skin every half-hour. Atropine is another drug of value; give 1/50 of a grain hypodermically for the first dose and then use a smaller quantity at the end of three hours if indications for its employment are still present."—(From Osler and McCrae's *Modern Medicine.*)

3. The *clinical evidence of hyperthyroidism* is thus summed up by Schäfer: Rapid and often irregular pulse; nervous and psychical excitation, with muscular tremors; a feeling of warmth in the skin, and throbbing of cutaneous vessels, often accompanied by profuse sweating; shallow respiration; markedly increased metabolism (especially nitrogenous), with abnormal appetite and loss of body fat; a decreased assimilatory power for carbohydrates; an anxious, restless expression; prominence of the eyeballs; wide palpebral aperture, often with dilatation of pupils. The enlargement of the thyroid may involve only one lobe.

4. *The gastrointestinal symptoms which may be produced by cholelithiasis without gallstone colic* are chronic, long-continued, or recurring indigestion; often there are no symptoms for a time, later there will be observed the "inaugural symptoms," described by Moynihan as follows: "The patient complains of a fullness, weight and distention or oppression in the epigastrium coming on soon after meals, within half or three-quarters of an hour, relieved by belching and dismissed almost on the instant by vomiting, elicited with remarkable constancy by certain articles of diet, especially those of a greasy nature and depending rather on the quality than on the quantity of the food. There is a sensation of great tightness which if unrelieved may become acute pain from which the patient obtains ease by bending the body forward, by flexing the right thigh on the abdomen, or by loosening all garments which fit tightly to the waist. There is frequently great complaint of acidity or heartburn, and in the act of belching there may be sour or acid regurgitation. While the discomfort lasts the patient may notice a catch in his breath and he finds, perhaps, that it is impossible to breathe deeply without feeling an acute stabbing pain at the right costal margin. There may be a feeling of faintness and nausea, and, rarely, vomiting may occur spontaneously. After a more than usually severe attack of indigestion the body and side may feel stiff for several days. A frequent and characteristic early symptom is the occurrence, during an attack of indigestion, of a slight sensation of chilliness, especially in the evenings after a meal. The sensation of goose-flesh is often experienced."

5. *Causes of palpitation of the heart:* "Among the more important causes may be mentioned female sex, puberty, menstrual disorders, anemia, emotion, mental anxiety, hysteria, overexertion following acute or chronic disease, 'heart-strain' (Da Costa), dyspepsia, long-continued use of tea, coffee, tobacco, and alcohol in large quantities, and excessive venery."

Causes of Tachycardia: "The direct cause is somewhat obscure. The condition may be found associated with one of the crises of cerebral or spinal disease, the menopause, neuritis of the pneumogastric nerve, chronic myocarditis, neurasthenia, chronic gastritis, the excessive use of tobacco, petit mal, pyrexia, lesions of the base of the brain, etc."

Causes of Bradycardia: "It is often associated with organic nervous diseases and is a symptom of such cardiac diseases as fibroid and fatty heart and atheroma of the coronary arteries. The condition frequently occurs during convalescence from infectious diseases, such as diphtheria, pneumonia, typhoid fever, erysipelas, and rheumatism; uremia, lead-poisoning, anemia, and chronic alcoholism are often causes. According to Balfour, "Many, if not most, of the sufferers from bradycardia are epileptics."

Causes of Arrhythmia: "Valvular diseases; myocardial diseases; cardiac dilated hypertrophy; atheroma of coronary arteries and aorta; excessive use of tobacco, tea, or coffee; flatulent dyspepsia; neurasthenia, hysteria, and melancholia."

Usually *palpitation of the heart* has a sudden onset after some one of the causes mentioned, with precordial oppression or pain; rapid, tumultuous beating, the impulse being visible through the patient's clothing; dyspnea, anxiety, and a sense of choking or fullness in the throat, the recumbent position being impossible; vertigo, faintness, flashes of light, the pulse full and strong or feeble, and the face flushed or pale, the patient having a feeling of anxiety with a sense of impending danger and a fear of sudden death. These

attacks are paroxysmal, lasting from a few moments to several hours or a day, the patient often voiding a large quantity of limpid urine after the paroxysm has subsided, when there is a strong tendency to sleep. Irritability of the heart is differentiated from the various forms of cardiac disease by the absence of all the physical signs occurring in those conditions."—(Hughes' *Practice of Medicine.*)

6. *Allen's starvation treatment in diabetes.* The essential part of this treatment is complete rest of the alimentary tract so long as even a trace of sugar is found in the urine. The patient is, first of all, starved until his urine is free from sugar and for a further period of twenty-four hours. During this period water, tea, and coffee may be taken. The carbohydrate tolerance is then ascertained. The next step is the arrangement of a scheme for diet, in which the *intake* of *proteins*, of *fats*, and of *carbohydrates*, and the *bulk of the food* have each to be determined. It is impossible to lay down hard and fast rules; each case must be considered separately, and the treatment made as *individual* as possible.

The following outline of this method of treatment has been prepared by Dr. Joslin and is issued by him to his patients: *Fasting*—Fast until sugar-free. Drink water freely and tea, coffee and clear meat broth as desired. In very severe, long-standing and complicated cases, without otherwise changing habits or diet, omit fat, after two days omit protein and halve carbohydrate daily to 10 gm., then fast. *Alcohol*—If acidosis (diacetic acid) is present, take 0.5 c.c. alcohol per kilogram body weight daily until acidosis disappears. Alcohol is best given in small doses every three hours. *Carbohydrate Tolerance*—When the twenty-four hour urine is sugar-free, add 150 gm. of 5 per cent. vegetables, and continue to add 5 gm. carbohydrates daily up to 20, and then 5 gm. every other day, passing successively upward through the 5, 10, and 15 per cent. vegetables, 5 and 10 per cent, fruits, potato and oatmeal to bread, unless sugar appears or the tolerance reaches 3 gm. carbohydrate per kilogram body weight. *Protein Tolerance*—When the urine has been sugar-free for two days, add 20 gm. protein (3 eggs) and thereafter 15 gm. protein daily in the form of meat until the patient is receiving 1 gm. protein per kilogram body weight, or if the carbohydrate tolerance is zero, only ¾ gm. per kilogram body weight. *Fat Tolerance*—While testing the protein tolerance, a small quantity of fat is included in the eggs and meat given. Add no more fat until the protein reaches 1 gm. per kilogram (unless the protein tolerance is below this figure), but then add 25 gm. daily until the patient ceases to lose weight or receives not over 40 calories per kilogram body weight. *Reappearance of Sugar*—The return of sugar demands fasting for twenty-four hours or until sugar-free. The diet is then increased twice as rapidly as before, but the carbohydrate should not exceed half the former tolerance until the urine has been sugar-free for two weeks, and it should not then be increased more than 5 gm. per week. *Weekly Fast Days*—Whenever the tolerance is less than 20 gm. carbohydrate, fasting should be practised one day in seven; when the tolerance is between 20 and 50 gm. carbohydrates, upon the weekly fast day 5 per cent. vegetables and one-half the usual quantity of protein and fat are allowed; when the tolerance is between 50 and 100 gm. carbohydrate, the 10 and 15 per cent. vegetables are added as well. If the tolerance is more than 100 gm. carbohydrate, upon weekly fast days the carbohydrate should be halved.

In *obese individuals* extra caution is necessary in reducing the body weight.

In *children* the prognosis is poor, but the diet is borne well and should be rigidly adhered to. The physician must remember not to increase the amount of carbohydrates, etc., as if he were prescribing for an adult, but the weight of the child must be observed. Children are especially sensitive to acid poisoning.

In *emaciated chronics above middle age* changes in diet and régime are dangerous; these patients must be watched very carefully, and acidosis should be avoided.

SURGERY.

1. *Colles' fracture* is a transverse fracture at lower end of radius; it is due to falls on the outstretched palm. The line of fracture is about an inch above the wrist, and runs obliquely downwards from behind. The lower fragment is driven backwards and upwards, and rotated to the radial side, carrying the hand with it into the position of abduction, and leaving the tip of the radius at the same level as, or higher than, the tip of the styloid process of the ulna. The internal lateral ligament of the wrist is ruptured or the styloid process torn off. The fracture is usually impacted, the upper fragment being driven into the lower. The deformity is characteristic, viz.: (1) the hand is abducted; (2) the styloid process is on the same level as, or lower than, the tip of the radius; (3) the upper end of the lower fragment projects above the back of the wrist; on the front is a corresponding depression, while above it the upper fragment projects forward. Union occurs readily, but it is common to get deformity and adhesions about the site of fracture.

Treatment.—"It cannot be too strongly insisted upon that success in the treatment of Colles' fracture with displacement depends chiefly upon complete and accurate reduction, and to enable this to be effected a general anesthetic is of great assistance, especially when impaction exists. The surgeon grasps the patient's hand, as if shaking hands with him, and, resting the palmar surface of the wrist on his bent knee, makes traction through the hand, and counter-extension through the forearm, with lateral movements, if necessary, to undo impaction. When the fragments are freed from one another, the wrist is flexed, and the hand carried to the ulnar side, while the fragments are moulded into position. When reduction is complete, the deformity almost entirely disappears, and the two styloid processes regain their normal positions relative to one another. As there is no tendency to redisplacement, no retentive apparatus is required, but, as it adds to the patient's comfort and sense of security, a firm flannel bandage, a broad strip of adhesive plaster, or a poroplastic wristlet may be applied. In severe cases, however, anterior and posterior splints, similar to those used for fracture of both bones of the forearm, or a dorsal splint padded so as to flex the wrist to an angle of 45°, but somewhat narrower, may be employed. The hand and forearm are in any case supported in a sling. To avoid the stiffness which often follows this fracture, the massage and gentle movement of the wrist and fingers should be carried out from the first, the range of movement being gradually increased until the function of the joints is perfectly restored. If splints are used, they should be discarded in a week, and the patient is then encouraged to use the wrist freely."—Thomson and Miles' *Manual of Surgery.*)

Ischemic paralysis is a degeneration of the tissues of the limb (chiefly of the muscles) and is due to arrested blood supply caused by tight bandaging; sometimes the nerve is also damaged. It has been observed even when splints are not employed. There is muscular degeneration, followed by fatty infiltration, induration, and contraction; the conditions may come on rapidly. The prognosis of this condition is not very good. It mild cases, massage, electricity, and attempts to straighten the fingers may prove of service. In severe cases the muscle tendons have been lengthened; shortening of the bones has also been tried.

2. Conditions that cause pain in the right lower quadrant of the abdomen are: Appendicitis, uterine or ovarian disease, pelvic inflammations, ectopic gestation, peritonitis.

In *appendicitis* the pain is of sudden onset and is localized in the right iliac fossa; there is abdominal rigidity, chiefly of the right rectus muscle, and tenderness at McBurney's point; there are usually fever, nausea, vomiting, and constipation.

In *inflammation of the right ovary* the pain is not localized, but may be bilateral, and spreads to the vagina and rectum; there is no tenderness at McBurney's point; it is usually worse just before the menstrual period, which sometimes affords relief; on vaginal examination the ovary is found to be tender.

In *salpingitis* there is a dragging sensation in the neighborhood of the affected tube; colicky pain, which is increased on exertion or even on standing; abdominal tenderness; menstrual disorders, as amenorrhea, metrorrhagia, dysmenorrhea, menorrhagia; dyspareunia; there may be septic symptoms and peritonitis;

sterility generally ensues. On examination there will be found a fullness in Douglas' pouch and one or both lateral fornices; in these latter will be felt either the tubes, distorted and possibly adherent, or a sausage-shaped tumor, which is very painful; the uterus is retroverted or retroflexed, and may be bound down by adhesion; there may be an intermittent expulsion of pus accompanied and preceded by a burning pelvic pain.

Pelvic peritonitis is characterized by: Intense and diffuse abdominal pain, tenderness, and distention; vomiting, constipation, elevation of the temperature (103°-104° F.), small, hard, rapid, and wiry pulse (120-140), and increased respiration (30-40) of a painful character are also present. The dorsal decubitus with the legs and thighs drawn up is assumed.

For *ectopic gestation* see OBSTETRICS AND GYNECOLOGY, Question 3.

3. The *various forms of goiter* are: (1) Exophthalmic; (2) simple or parenchymatous; (3) cystic; (4) fibro-adenomatous; (5) acute, and (6) malignant.

Medical treatment includes rest (both physical and mental), hydrotherapy, proper diet (avoiding too much food, also indigestible and stimulating food), and fresh air. Medicine should be given only when indicated for symptoms; strychnine, atropine, bromides, hypnotics, digitalis, strophanthus, iodides, cathartics, etc., have all been used; electricity, suggestion, *x*-rays, and organotherapy have also been advocated.

Surgical treatment: The whole gland must not be removed, or myxedema may result; and the parathyroids must not be removed, or the patient may develop tetany. Ligation of one or more of the thyroid vessels may be done, or one-half of the gland may be removed. Local anesthesia is safer than general anesthesia in these cases.

In some cases the disease tends to spontaneous recovery. Probably the surgical treatment affords the best chance of cure or alleviation of symptoms. But before operation the patient should have complete rest, both bodily and mental, and during this time the various medical measures mentioned may be tried.

4. *Causes of pyuria:* Infection in the kidney (including tuberculosis), abscess, nephrolithiasis, pyelitis; ureteritis; cystitis; urethritis. To determine the source of the pus:—The patient should pass his urine into three separate vessels; if the urine in all three is similarly affected, the pus is from the kidneys; if most of it is in the first vessel, the pus is from the urethra; if most of it is in the last vessel, the pus comes from the bladder.

In addition, the use of the cystoscope, and catheterization of the ureters may enable one to see the source of the pus.

Signs and symptoms of tuberculosis of the kidney: Pain—Slight at first; severe later; attacks of colic from blocked ureter; some tenderness on palpation. *Tumor*—Moderate size, often due to perinephritis; ballottement well marked; may be lobulated. *Urine*—Polyuria; acid; pyuria and hematuria; urea and phosphates diminished; great variations due to blocking ureter. *Pyuria*—Dirty grey pus in small quantity; mixed with caseous masses and phosphatic débris. *Hematuria*—Very constant symptom; slight in amount; sometimes clots moulded in ureter. *Bacilli*—Tubercle bacilli in small numbers and difficult of detection. Septic organisms become abundant late in the disease. Absence of other organisms in acid purulent urine points to tubercle. *Cystoscopy*—Ureteral orifice is red, with pouting, swollen lips, or retracted. Methylene blue given as a hypodermic is not excreted, or excreted very slowly, by the diseased kidney. *Per rectum or vaginam*—The thickened ureter may sometimes be felt. *Albuminuria*—Always present when pelvis is diseased. *Polyuria*—Very marked, especially at night. *Dysuria*—Pain in neck of bladder. The earliest symptoms. Sometimes due to phosphatic débris in bladder. *Constitutional*—Evening temperature raised to 100°-101° F.; if secondary sepsis has occurred, to 103°-104° F. Loss of flesh. Anemia. Rigors and sweats in last stage.—(Grove's *Synopsis of Surgery.*)

Treatment: If on exposure of the kidney a limited portion is found to be diseased, a wedge-shaped portion is excised. If, as is more usual, the kidney is extensively affected, two methods may be adopted: (1) If the other kidney is healthy, nephrectomy with removal of as much of the ureter as possible is done. (2) Nephrotomy, followed by drainage, is done when the patient's condition is too bad to stand the bigger operation, or when the other kidney is also affected.

5. The *immediate symptoms and signs* will be shock, pain (sometimes comparatively slight), dyspnea, hemoptysis, vomiting, and hiccough. *Immediate treatment* should include as much rest as possible, a hypodermic of morphine (¾ to 1 grain) with atropine sulphate, plenty of fluid to drink (but not alcohol), and aseptic pads applied to the wounds. The patient should be moved as little as possible.

Later complications include injury to the chest wall, surgical emphysema, hemothorax, pyothorax, pneumothorax, and injury to the lung.

For the *hemothorax* rest in bed is necessary; do not explore unless infection is present; potassium iodide in 15-grain doses may be given t.i.d. for three days; tincture of iodine may be used as a counterirritant; the wounds of entrance and exit of the bullet should be cleansed. For *pyothorax* excision of one or two ribs may be necessary. (From J. Keogh Murphy's *Wounds of the Thorax in War.*) The same writer gives the following summary: (1) Modern bullet wounds of the thorax usually keep a straight course along the line the bullet has entered the thorax. (2) The entrance and exit wounds are usually much the same in size. An expansive exit wound is uncommon, unless the bullet strikes the spine or the shoulder. (3) The wound is probably uniformly septic from end to end, but this sepsis is of a mild character and in the deeper parts is usually overcome by the body itself. (4) The danger of probing bullet wounds of the thorax is extreme and real. (5) Bullets usually lodge in the posterior part of the thorax. If they become subcutaneous they can readily be removed, but otherwise they should be left alone. (6) Comminuted fracture of the ribs is usually very septic. (7) An uncomplicated hemothorax should be left alone. (8) It is by no means uncommon for a hemothorax to become infected, especially where there has been much movement of the patient, and such cases should be dealt with and given the proper drainage. (9) A localized pneumothorax is not uncommon. (10) The immediate treatment of wounds of the thorax differs considerably from the treatment which should be adopted at a later stage. (11) The employment of bacterial therapeutics should never be neglected, for, even if the results are sometimes disappointing, no harm to the patient can ensue."

6. The two breasts should be inspected, and any abnormal appearance should be noted. Then the physician, standing behind the patient, should palpate the breast, noting the location of the lump, its size, shape, and consistence; this should be done by making firm pressure with the flat of the hand. Then the condition of the skin should be observed, to see if there is any abnormal attachment to the breast or tumor; note if the nipple is retracted; observe also if the breast is freely movable on the chest wall. The condition of the lymphatic glands in the axilla and above the clavicle should be observed. The main object of the diagnosis is to differentiate between a benign and a malignant tumor. In well-marked cases this is not difficult. *Benign tumors* grow slowly and gradually; as a rule, they are freely movable, firm, round, and the nearer they are to the skin the softer they are; they are not encapsulated, and do not cause retraction of the nipple or enlargement of the neighboring lymphatic glands. *Malignant tumors* grow rapidly, are movable in the early stages, but later become adherent to the skin or pectoralis major muscle; they are hard and immovable; the nipple is retracted, and the axillary lymphatic glands are enlarged; pain is a symptom; cachexia may be noticed, and there may be metastatic growths. But there is a large group of *doubtful cases*, which can only be diagnosed by a microscopical examination of a piece of the tumor.

The patient should be advised, if the tumor is *malignant* (and it is not an inoperable case), that prompt thorough operation is absolutely necessary. If the tumor is *benign*, the tumor alone should be excised. In *doubtful* cases it is well to imagine the growth malignant until it is proved to be otherwise. If the breast is removed and the tumor is proved benign, the woman

has lost a breast; whereas, if it is not removed, and the tumor should prove to be malignant, she will lose her life. The best plan is (with the consent of the patient) to prepare for a radical operation, excise a piece of the tumor, have it examined microscopically, and if it proves to be benign, remove the tumor; if it is malignant, remove the whole breast and neighboring lymphatic glands.

The following table (from Eisendrath's *Surgical Diagnosis*) may prove useful:

	Chronic Cystic Mastitis.	Fibroadenoma.	Carcinoma.
Age	Usually before forty, but may occur before menopause, often more painful and larger during menses.	In young women.	Generally over forty, rarely before that age; accompanied by cachexia.
Location and growth	Multiple nodules in one or both breasts. Very slow growth, except in large cysts.	Anywhere. Grow very slowly.	Usually in inner quadrants. Grow rapidly.
Mobility	Not movable in breast unless one or more large cysts—then only moderate mobility.	Freely movable.	Movable in very earliest stage; later adherent to skin or pectoral muscle and fixed in breast.
Consistency and form	Large cysts either are round or fluctuate or are elastic. Smaller multiple nodules feel like beans.	Not as hard as carcinoma; outline rounded and sharp.	Very hard, irregular, and not demarcated.
Condition of nipple, and pain	Very rarely retracted. Tumors often painful, especially at menses.	No change. No pain, as a rule.	Early retraction. Often pain, quite severe and early.
Condition of axillary lymphnodes and metastases	Earlier enlargement than in cancer. Tender and soft. Often more painful during menses.	Not enlarged, as a rule.	Early enlargement. Induration very marked. Evidence of metastases.

"*Halsted's operation* aims to remove in one piece the entire breast and overlying skin, the costal portion of the pectoralis major, the pectoralis minor, and all the fat and glands of the axilla. The supraclavicular glands are removed in a second piece. An incision is carried through the skin and fat, and a triangular flap turned back. The costal portion of the pectoralis major is divided close to the ribs and separated from the clavicular portion, which with the overlying skin is divided up to the clavicle, exposing the apex of the axilla; these flaps are drawn upward with a retractor and separated from the underlying tissues, and the muscle further split as far as the humerus, where it is severed close to the bone. The breast, pectoralis major, and all fat are stripped from the chest wall, including the pectoralis minor, which is divided at each end, thus exposing the entire axilla, which is cleansed of fat and lymphatic glands from above and within, downward and outward, all small vessels being ligated close to the axillary vessels, which, with the nerves, should alone remain. The triangular flap of skin is drawn outward and the lateral and posterior walls of the axilla likewise cleared, the subscapular vessels being ligated, and the subscapular nerves preserved if possible. The mass is then turned inward and removed from the chest. A vertical incision is now made along the posterior margin of the sternomastoid, and the supra- and infraclavicular fat and glands removed by dissecting from the junction of the internal jugular and subclavian veins downward and outward. The cervical wound is sutured, and the edges of the chest wound approximated by a buried purse-string suture of silk, which includes the base of the triangular flap, the apex being spread over the axilla. The rest of the wound is covered with Thiersch's skin grafts. The axilla is not drained. The disability resulting after such an extensive operation is surprisingly slight. The entire wound may be closed in most cases by fashioning two flaps from the lower lip of the wound. A small gauze drain should always be placed in the axilla, preferably through a small incision at its posterior margin, in order to drain the large quantity of fluid which escapes from the severed lymph vessels."—(Stewart's *Surgery*.)

PATHOLOGY AND BACTERIOLOGY.

1. *To isolate the microorganism in the blood in a case of streptococcus scpticemia:* "The blood is taken from the median basilic vein. The skin over the vein should be prepared with green soap, alcohol, and bichloride of mercury, as for a surgical operation. The syringe should be of some sterilizable variety which is easily manipulated and does not draw with a jerky, irregular motion. Its capacity should be at least 10 c.c. It may be sterilized by boiling for half an hour. Before drawing the blood, a linen bandage is wound tightly about the upper arm of the patient in order to cause the veins to stand out prominently. When the veins are plainly in view, the needle may be plunged through the skin into the vein in a direction parallel to the vessel and in the direction of the blood-stream. After perforation of the skin, while the needle is groping for the vein, gentle suction may be exerted with the piston. Great care should be exercised, however, that the piston is not allowed to slip back and air be, by accident, forced into the vessel. In most cases no suction is necessary, the pressure of the blood being sufficient to push up the piston. After the blood has been drawn it should be immediately transferred to the proper media (glucose-meat-infusion agar and glucose-meat-infusion broth). At least six glucose-agar tubes should be melted and immersed in water at 45° C. Before the blood is mixed with the medium, the agar should be cooled to 41° C. in order that bacteria, if present, may not be injured by the heat. The blood is added to the tubes in varying quantities, ranging from 0.25 to 1 c.c. each, in order that different degrees of concentration may be obtained. Mixing is accomplished by the usual dipping and rotary motion, the formation of air bubbles being thus avoided. The mouth of each test tube should be passed through the flame before pouring the contents into the plates. Three flasks of glucose broth, containing 100 to 150 c.c. of fluid each, should be inoculated with varying quantities of blood—at least one of the flasks containing the blood in high dilution. The most stringent care in the withdrawal and replacement of the cotton stoppers should be exercised. Hiss and Zinsser use, in place of one of these flasks, one containing, in addition to the glucose, 1 gram of powdered calcium carbonate. This ensures neutrality, permitting (pneumococci or) streptococci, which are sensitive to acid, to develop and retain their vitality."—(From Hiss and Zinsser's *Bacteriology*.)

To prepare a vaccine: "All media and apparatus should be sterilized. Having isolated the organism, it is inoculated upon one or more agar slants, and after a growth of from five to seven hours (with streptococci) the growth on these inoculated slants is taken up with salt solution, thoroughly shaken up in the diluting solution and standardized. The most practical way is to gently rub off the growth on the agar in about 1 or 2 c.c. of salt solution with a platinum loop. Then pour the bacterial emulsion into a sterile test-tube and repeat the process with three to five agar slants, until we have from 6 to 10 c.c. of the emulsion in the sterile test-tube. By heating to melting point in the flame a piece of glass tubing and attaching it to the rim of the test-tube (also melted), we have a handle with which to draw out the test-tube when heated about 1 inch from the mouth in a blowpipe flame. Drawing this out, we let it cool, and then filing the constricted portion we break it off and seal it in the flame. By shaking up

and down vigorously for five to fifteen minutes, the bacteria are distributed evenly in the salt solution. A piece of platinum wire, twisted into corkscrew shape and fused in the draw-out end of the containing test-tube, helps in breaking up the bacterial emulsion. The sealed test-tube is then placed in a water-bath at 60° C. and heated at this temperature for one hour. Again shake. The constricted sealed end is again filed off and a few drops shaken out in a watch glass for standardization, and at the same time a few drops are deposited on an agar slant as a test for sterility. (Incubation for twenty-four hours should not show growth.)" —(Stitt's *Practical Bacteriology.*)

2. *Pathological changes occurring in the lung in acute lobar pneumonia:* "(*a*) The stage of *hyperemia* is very exceptionally observed unless the subject dies in twenty-four to thirty-six hours, although hyperemia may be seen at the edges of the consolidation where the pneumonia is beginning to extend. The lung crepitates less and floats: it is red, tears readily, since it has lost its elasticity, and on section exudes a serosanguineous fluid. Under the microscope, congestion, serum, and diplococci in the alveoli are observed. The alveolar epithelial cells swell and desquamate, which, according to some observers, are the primary changes. (*b*) In the stage of *red hepatization*, the lung is evenly red, friable, airless (not wholly so in pneumonia of an upper lobe), and sinks when put into water. Its weight is increased 10 to 50 ounces. The lung has marks of the ribs on its fibrin-coated surface and is enlarged to the size of deepest inspiration. On scraping the cut surface, fibrinous plugs or casts of the bronchioles are observed. The lung is granular on section, from fibrinous exudation into the alveoli; these granulations are seen best by oblique illumination. Under the microscope, coagulated blood and exudate, alveolar epithelium, injected bloodvessels, emigration of leucocytes, diplococci, and meshes of fibrin are noted. (c) In the stage of *gray hepatization* the granulations are grayish-yellow—not red, because the blood is absorbed; they are larger and looser than in the second stage. The connective tissue is grayer than the granulations, and is sharply defined by the lung pigment. It has been claimed that death always occurs if this stage is reached. If the patient lives, the granulations disappear; the lung exudate becomes semifluid (purulent infiltration) and can be washed out; resorption of this fatty emulsion occurs by the lymphatic vessels and not by evacuation through the sputum. Proteolytic ferments, probably derived from the leucocytes, dissolve the exudate; the products of this autolysis are excreted by the kidneys."—(Edwards' *Practice of Medicine.*)

3. In *myelogenous leucemia*, the *blood* shows a permanent increase in the leucocytes other than the polymorphonuclear variety; myelocytes are present in great numbers, constituting from 20 to 60 per cent. of all leucocytes. The total number is about 300,000 per cubic millimeter as an average, but counts as high as 750,000 have been reported. The number, however, may be as low as 100,000 or even in some the count may approximate the normal. The differential count of the white cells in combination with the usual increase in number is the characteristic feature. The main form is the large mononuclear myelocyte containing neutrophile granules. They may constitute some 35 per cent. of all the leucocytes. The nucleus is situated, as a rule, in the center and is well staining, it may be eccentric, however, or poorly staining. The large cell with the pale nucleus is seldom found in any other condition than in this form of leucemia. The neutrophilic granules may be lacking entirely and the nuclei show hydropic degeneration. Occasionally small myelocytes with deeply staining nuclei may be present. Eosinophilic myelocytes may be found in large numbers, varying from 3,000 to 100,000 per cubic millimeter. Such an increase is pathognomonic of splenomyelogenous leucemia. The ordinary type of eosinophiles is also increased. Basophiles or mast-cells are increased, sometimes very markedly, this condition being quite characteristic of leucemia. Polymorphonuclear neutrophilic leucocytes are relatively diminished as the myelocytes increase, and form about 46 per cent. of the total. They are absolutely increased to 60,000 or 70,000. Degenerative changes are very common, the cells becoming more cohesive, the nuclei pale and showing karyolysis or rhexis, and frequently mitotic figures. Lymphocytes are not very numerous as a rule; they constitute about 10 per cent. although the number may vary considerably. The blood itself may be pale and the specific gravity lowered. Coagulation takes place slowly. The erythrocytes are decreased to about 3,000,000, the hemoglobin is diminished also, 40 per cent., color index about 0.6. Many of them are nucleated and show changes in size and shape. The normoblasts are very common, and megaloblasts are frequently seen.

The *organs involved* are the spleen and bone-marrow. The latter shows a marked hyperplasia, loses its yellow color and becomes dark red. Numerous nucleated erythrocytes and eosinophiles are present. The spleen is much enlarged as a result of a general hyperplasia of both the connective and lymphoid tissue. Grayish, circumscribed areas, due to the infiltration of leucocytes, may be seen. The liver is usually somewhat enlarged, and the lymph nodes may show some hyperplastic changes. Hemorrhages into the serous and mucous membranes and the retina are quite frequent. Fatty degeneration of the viscera generally occurs to some extent.—(McConnell's *Pathology.*)

4. *Relation between the human and bovine types of tuberculosis:* "Widely divergent views are held respecting the danger to man of infection from bovine sources. There are those who, like v. Behring, maintain that the common forms of tuberculosis usually originate in infancy through intestinal infection with milk, and that the bacilli remain latent in the tissues for long periods; Koch and others have declared that the susceptibility of man to bovine tuberculosis is slight, and that infection with the milk, butter, or flesh of tuberculous animals is a very rare occurrence. The question is complicated and its experimental solution presents many technical difficulties. It was first clearly established by the work of Theobald Smith that the bovine tubercle bacillus was a distinct variety or race of the mammalian tubercle bacillus, and as such possessed certain definite and rather constant characters. Some modifications may occur in passing from host to host, but Smith believes that 'the modification of bovine bacilli in the same human body beyond recognition as such by the bacteriologist, if it ever occurs, necessarily presupposes a prolonged sojourn, probably of years at the shortest.' Granting a fair degree of constancy, it follows that tubercle bacilli recovered from the human body may be identified with more or less certainty as of bovine or human origin. A number of observers have encountered bacilli of the bovine type in the human subject, and it is therefore plain that, so far as this line of evidence goes, infection with bovine bacilli can and does take place. At the same time, it must be noted that the fully studied and established cases of this sort are few in number, and that there is still inadequate information respecting the relative frequency with which bacilli of the bovine type are found in human tuberculosis. Inoculation experiments have shown that cattle may be infected with human tubercle bacilli and sputum, contrary to the view at one time enunciated by Koch. Evidence that the converse also may occur is not lacking."—(Jordan's *Bacteriology.*)

Von Pirquet's test is a tuberculin test for the presence of tuberculosis. Two small drops of old tuberculin are placed on the skin of the front of the forearm about two inches apart, and the skin is slightly scarified, first at a point midway between them, and then through each of the drops. In about ten minutes the excess of tuberculin is gently wiped away with cotton. No bandage is necessary. A positive reaction is shown by the appearance in twenty-four to forty-eight hours of a papule with red areola, which contrasts markedly with the small red spot left by the control scarification.

5. *Fixation of the Complement* and *Wassermann test:* "When a substance capable of inciting the body-cells to the formation of antibodies, *i.e.* an antigen, is mixed with its corresponding heated serum, *i.e* antibody or amboceptor, in the presence of complement, the latter is so "fixed" in combination with the antigen that it is no longer free to enter into any other combination. This is shown by the fact that if such a mixture be placed in contact with the sensitized red blood cells, no hemolysis is produced. If, in the above reaction, the heated serum contained no antibody, the complement would not be fixed and hemolysis would take

place on the addition of the sensitized red blood cells. In this way one may determine the presence in given fluids of specific antibodies, on the one hand, or of antigens on the other, if he have at hand the homologous antigens or antibodies as the case may be. For antigens one may use bacteria or bacterial extracts. In *Wassermann's test* it was assumed that syphilitic organs might contain uncombined portions of products of Spirochæte (Treponema) pallidum, *i.e.* free syphilitic antigens, and thus extracts in salt solution or alcohol were made of organs—spleen, liver, etc.—of a syphilitic fetus. But it was discovered later that specific antigens are not necessary for the reaction; that extracts of normal organs, liver, spleen, heart, human or animal, or lecithin in solution can act as antigens in the tests."—(Delafield and Prudden's *Pathology.*)

Value of the Wassermann test: A well-pronounced positive reaction probably indicates the presence of syphilis; but leprosy, sleeping sickness, and scarlet fever must be ruled out. Cancer is also said to give a positive reaction. It may indicate that the patient *has* syphilis, or that he has *had* it. The test requires elaborate technique at the hand of an expert.

6. *Tumors of the breast* may be *classified* as benign and malignant. The *benign tumors* are fibroma, fibroadenoma, myxoma, lipoma, adenoma, papilloma and enchondroma. The *malignant tumors* are sarcoma and carcinoma (including epithelioma).

"*Fibro-adenoma* is the commonest benign tumor in the breast. It arises as an adenoma, or proliferation of epithelial cells and increase of acini, surrounded by fibrous tissue (or possibly as a fibrous tumor enclosing glandular acini, *adeno-fibroma*). Two varieties are recognized microscopically; in one of which, the commonest, the acini form small clusters imbedded in a considerable amount of fibrous tissue; in the other they are of a more tubular shape, and are dilated at intervals to form cysts (*cysto-adenoma*), into which project outgrowths of fibrous tissue covered with epithelium. In neither case is the basement membrane encroached upon by the epithelial cells. The tissue outside the acini is either well-formed fibrous tissue; or it is soft and gelatinous (*myxo-adenoma*); or in other cases it is composed of elementary connective tissue resembling sarcomatous cells."—(Buchanan's *Surgery.*)

Epithelioma, or squamous-celled carcinoma, may arise on any surface covered with stratified epithelium. It usually arises in the middle-aged or elderly, but may also occur in the young. It often results from long-continued irritation, and may arise in old scars or ulcers. It may appear in one of three forms: (1) A wartlike growth with an indurated base; (2) a small circular ulcer with raised, rampart-like edges; (3) an indurated fissure. The growth extends to the deeper structures; the surface ulcerates and becomes foul from contamination with putrefactive organisms. The nearest lymphatic glands always become infected sooner or later, and a fatal termination occurs rapidly unless treatment is early and thorough. Secondary deposits, except in the glands, are rarer than in glandular carcinoma. The glands sometimes undergo cystic change, invade the skin, ulcerate, become foul, and may cause death by secondary hemorrhage from ulceration into large bloodvessels. Microscopically, columns of cells are seen extending from the epithelium into the underlying tissues, and interlacing with one another. In some of the columns concentrically arranged masses of flattened, cornified cells occur, called "cell nests." The tissues immediaately surrounding the growth are infiltrated with small round cells.—(*Aids to Surgery.*)

Total German Casualties.—According to a Holland periodical the names of German soldiers already published in casualty lists, inclusive of prisoners, but not of the victims of disease, occupy 22,000 printed pages. The actual number of names, which may include some duplication, is more than 8,000,000.—*Pathologia.*

Undernourishment in Sweden.—While not at war, Sweden nevertheless is evidently suffering from the effects of undernourishment, for, according to dispatches from Copenhagen, an endemic dropsy has made its appearance in that country. There are numerous victims, especially among the working classes.—*El Siglo Médico.*

Therapeutic Hints.

Treatment of Gunshot Wounds.—Major Charles W. Duggan, R. A. M. C. (retired), writes in the *Therapeutic Gazette* in praise of ichthyol and glycerin in the treatment of gunshot wounds. He uses equal parts of ichthyol and glycerin, as long as there is suppuration—an average period of three days, and then reduces the strength of ichthyol to 20 per cent. The combination is painted on the surface of the wound and the surrounding skin by means of a camel's-hair brush and the parts are then covered with antiseptic gauze and cotton wool retained by a bandage. An impermeable dressing, such as oiled skin, should not be used as it would inevitably delay the healing process. When the dressing is changed the surface is dried with sterilized cotton-wool and occasionally dabbed with alcohol, but not washed.

Formalin for Ingrowing Toenail.—Suldey advises application of a solution of formaldehyde (formalin) for the relief of ingrowing toenail. A pledget of cotton wet with formalin is swabbed over the granulations once every day. The pain is relieved almost immediately, the inflammation is rapidly reduced, and the cure is practically complete in four or five days.—*Journal de Médecine et de Chirurgie Pratiques.*

Treatment of Grippe Pneumonia with Plasma from Convalescents.—Grigaut and Moutier have practiced the intravenous injection of the blood plasma of convalescents, the plasma varying in age from 4 to 8 hours and the amount from 50 to 500 c.c. for each 24 hours. The method was found to be quite harmless. In regard to efficacy, much depends on the date of the injection. When given early in the case a favorable influence was at once apparent. After the fifth day no benefit was apparent. The total number treated was 10, of which 8 received the injections before the third day. The crisis in these cases came about within 24 hours. Sometimes 60 c.c. were sufficient to produce this result. The massive doses were used only in the most serious cases.—*Le Progrès Médical.*

Acute Tonsillitis.—The best remedy for acute sore throat—acute tonsillitis—is Vichy water, in medium or large doses, according to the severity of the case, taken on an empty stomach.—*De Castro Pérez.*

Fibrinous Pneumonia.—Give medium or large doses, according to the case, of sodium bicarbonate on an empty stomach.—*De Castro Pérez.*

Asthma.—Bensaude and Hallion advise a mixture of pituitary extract, the equivalent of 0.25 gram of the fresh gland, and one-half milligram of adrenalin chloride, to be given hypodermically once a day. Relief is usually experienced within five minutes, and the effect persists for a day or longer.—*La Presse Médicale.*

Gastric Acidity.—Gaston Sardou recommends sodium citrate for this condition, and says the salt is better tolerated by weak stomachs if it is given in the nascent state. He makes a solution of 15 grains of sodium bicarbonate in a glass of water and adds thereto a teaspoonful of lemon or lime juice, the potion being taken as soon as effervescence has ceased. A little magnesium hydrate may be added to increase the tolerance.—*Journal des Praticiens.*

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 95, No. 4.
Whole No. 2516.

NEW YORK, JANUARY 25, 1919.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

TWO HUNDRED AND FIFTY MAJOR OPERATIONS UNDER LOCAL ANESTHESIA.*

BY JOSEPH WIENER, M.D.,

NEW YORK.

ASSOCIATE SURGEON MOUNT SINAI HOSPITAL.

WHAT a far cry it is from the pioneer work of Corning, Reclus, and Schleich, with their massive intradermal infiltration of dilute cocaine solutions, with their limited field and their ever-present danger of poisoning, to the modern synthetic compounds with which we can work for an hour or longer, using as many grains as we desire, with no danger of any constitutional manifestations, and yet with complete anesthesia of the tissues. To quote from Matas, "The synthetic chemists and pharmacologists have not been idle, and their untiring and brilliant efforts to find substitutes for the dangerous and costly cocaine have given us a succession of remarkable synthetic products. In like manner, the genius of synthetic chemistry and the biologic laboratory have found in suprarenin a less perishable substitute for adrenalin. The advent of adrenalin and its synthetic substitutes has marked a new era in the history of local anesthesia. By its powerful and lasting vasoconstrictor and ischemic action it gives the operator a bloodless field, which has deserved for it the name of chemical tourniquet (Braun).

What do we expect of the ideal local anesthetic? (1) It should be non-toxic. (2) It should produce a durable anesthesia. (3) It should cause as little local disturbance as possible. (4) It should be soluble in water, compatible with adrenalin and sterilizable by heat. Today we have two synthetic compounds, both belonging to the ester group, both having an amido base, that stand far above all other anesthetics. I refer to novocain and apothesine. They differ in two essentials. Novocain is made with ethyl alcohol and benzoic acid, and apothesine with propyl alcohol and cinnamic acid. Shortly after we entered the war, the U. S. Government requisitioned most of the available supply of novocain. About that time a chemist from one of our large drug manufacturing companies came to me with samples of apothesine and asked me to give it a trial. Since then I have been using it exclusively. It is not a derivative of cocaine, is not a habit-forming drug and is not subject to the Harrison law. According to the manufacturers apothesine is the hydrochloride of gamma-diethyl-amino-propyl cinnamate. It occurs as a small white crystal having a melting point of 137 degrees Celsius. It is readily soluble in alcohol, slightly soluble in acetone and ether, and readily soluble in water. The solution in water is neutral to litmus. It is precipitated from solution by alkalies and by the ordinary alkaloidal reagents. As is the case with all anaesthetics and alkaloids, the best results are insured by the use of freshly prepared solutions." Novocain, discovered by Einhorn in 1905, is the diethyl-amino-ethanol ester of paraaminobenzoic acid. Like other synthetic compounds, novocain and apothesine diffuse slowly through the tissues and a reasonable amount of time should be allowed for the anesthetic to act. I have been in the habit of referring to operations under local as D. L. and W. operations—delay, linger, and wait. In my hands there has been no interference with the healing of wounds. I have often been asked about the toxicity of apothesine. I have used as much as twelve grains at one sitting and have never seen any sign of toxicity. By mistake of a nurse one patient was given 6 grains in solution to drink; I then injected 6 grains and removed a perforated appendix, and there were no signs of any toxic effect. Just how much it is safe to use I do not know. As far as my experience goes apothesine is not a toxic drug. My experience coincides with that of Arthur D. Bevan, who wrote in 1917, "I have recently used apothesine in twenty-five operations, including removal of inguinal glands, resection of rib and drainage of lung abscess, circumcision, inguinal and femoral hernia, carcinoma of the face, ligation of thyroid vessels, gastroenterostomy, drainage of subphrenic abscess, and a very extensive thyroidectomy. We have used as large an amount as five and one-half ounces of a one-half per cent. solution. We have not noticed any toxic effect of any kind and no interference with primary wound healing."

To show how important the details of the technique are, I would refer to the fact that one of the masters of local anesthesia, Prof. Braun, gave it up for appendicitis because his results were not satisfactory. He tried to anesthetize all layers of the abdominal wall before operation and failed. We anesthetize layer by layer and get complete anesthesia. Owing to this fact, a large proportion of my work has been in the field of acute and chronic appendicitis. To my mind one of the great advantages of apothesine is the fact that we can look forward to a steady supply of the drug. Coming, as it did, at a time when the foreign supply of novocain was almost cut off, it was doubly welcome. That it has stood the acid test of time and is at least the equal of the best synthetic local anesthetics we have ever had from abroad, must be a source

*Read before the New York County Medical Society, December 23, 1918.

of gratification to us all. Bevan, Allen, and other surgeons who have used it are well satisfied. The experience of these men coincides with my own. Even when large amounts were employed there were no toxic or unpleasant after-effects. Most observers agree that its action is intensified by the addition of a small amount of adrenalin, and that has also been my experience. My own impression is that anesthesia acts more quickly and lasts longer when adrenalin is used, although I frequently have operated without using adrenalin and have obtained complete anesthesia. A few cases of marginal necrosis of the wound following its use have been reported by various surgeons. I have had no similar experience. If the marginal necrosis is due to the drug—which I doubt—it may be due to faulty preparation of the solution or to faulty sterilization. I think I have had a sufficiently large number of cases to have encountered this result if it were due to the anesthetic. Of course we sometimes get a marginal necrosis of the wound when no local anesthetic is used. And I can testify to having seen such necrosis in days gone by, when I still used alypin as a local anesthetic. Adrenalin played no role in producing skin necrosis in these earlier cases where alypin was used. For it is only in the past few years that adrenalin has been extensively employed in conjunction with local anesthetics. Prof. Heinrich Braun of Zwickau, Germany, deserves the credit for this great addition to our technique. For years he was an ardent worker and writer in the field of local anesthesia, and it is due to his writing that adrenalin has been so widely employed as a valuable adjunct in local anesthesia solutions. When there is no adrenalin in the apothesine tablets, I use five drops of a one to a thousand solution of adrenalin to the ounce of the anesthetic fluid. The solution regularly turns to a light pink on boiling if adrenalin is present. The amount of capillary oozing is very much lessened when adrenalin is used and this anemia lasts usually an hour. I fully agree with Allen when he says "the advantages of this anemia are the greater facility and freedom with which delicate dissection may be performed in a comparatively bloodless field. Aside from the hemosstasis, the most notable gain derived from the use of adrenalin is its power to retain the anesthetic agent within the tissues for a considerable length of time. This retention within the tissues intensifies the anesthetic action and lessens the likelihood of repeated injections being necessary in a prolonged operation. When adrenalin is used the trauma of repeated infiltrations upon the tissues is avoided and the possible toxic action of such constant infiltrations is eliminated. The likelihood of any toxic action developing is lessened, even if the solution injected be retained in the tissues a long period of time. When absorption does occur it is so gradual that no constitutional effects are to be noticed."

Novocain and apothesine can be sterilized either by boiling for a few minutes, or by placing the solution, contained in a bottle, in the sterilizer with the dressings and leaving it there fifty minutes. The mouth of the bottle should be stopped with absorbent cotton to prevent excessive evaporation of the solution. To prevent its decomposition the ordinary solution of adrenalin usually has added to it hydrochloric acid and some antiseptic such as thymol. In this form the adrenalin solution can be sterilized by heat and, if placed in a dark bottle, can be kept a long time; the addition of any alkali will tend to cause decomposition of the adrenalin. But in the tablet form both adrenalin and novocain and apothesine keep very much better than in solution. It is difficult to sterilize the tablets; they should be dissolved in water and sterilized just before use. I usually make up enough for each operation separately.

Lennander has shown, both at operations and experimentally, that the principal parts of the abdomen that are sensitive are, the anterior and the posterior parietal peritoneum, pelvic peritoneum, and the peritoneum covering the diaphragm, as far as it is innervated by the spinal nerves. The visceral peritoneum, stomach, intestines, omentum, and the peritoneal covering of the gall-bladder, liver, and kidneys, are quite insensitive. However, pulling on these organs may cause pain or nausea. I have always found the wall of the stomach, as well as of the intestines, free from sensation, and have clamped or incised without causing any pain. The fundus of the gall-bladder can be clamped and cut without causing pain, but if the gall-bladder is pulled on forcibly, pain will be elicited. The introducing and removing of large gauze packings is distinctly painful.

Why should we use local anesthesia at all? First and foremost to avoid the dangers to life of a general anesthetic. How great these dangers are in any given case we do not know. Some apparently good risks take anesthesia very badly; other patients who seem bad risks, take it well. But that there is a risk to life in every general anesthetic used there can be no doubt. Statistics of anesthesia mean very little. As the witty Talleyrand said, "La statistique c'est le mensonge en chiffres"—statistics are lies in the shape of numbers. And we must not forget that the mere fact that a patient does not succumb during the first few days after operation does not always mean that the danger from the anesthetic is over. Who of us has not seen an aspiration pneumonia—I mean a real "Schluck-Pneumonie," as the Germans called it, prove fatal five or more days after operation. How often does a nephritis date from an operation. Did the operation cause the nephritis? Certainly not, but the ether did. How often have we seen so-called paralytic ileus following abdominal operations? Did the operation cause the ileus or was it the ether? How often have we seen patients after abdominal operations vomit for days and then die exhausted. Did the operation cause the vomiting or was it the ether? I have operated on several peritonitis cases under local anesthetics and it is surprising how little the patients vomit, how little the abdomen is distended, and how quickly they recuperate. In fact I consider a peritonitis a distinct indication for the use of local anesthesia. When we consider that the system is already struggling to throw off a peritoneal infection, and that the organs of excretion are doing a large part of this defensive work, the danger of handicapping these organs still further by giving an anesthetic, must be apparent. And if we can remove an offending appendix, or other lesion, in the presence of a peritonitis under local anesthesia, we are giving our patient a far better chance for a rapid recovery.

Increasing experience but serves to strengthen the conviction that I expressed in one of my earlier papers, that much of the danger from most major operations is the danger of the anesthetic. Much of the postoperative morbidity, many of the complications and not a few of the deaths, should be called not postoperative but postanesthetic. Much of the postoperative distention, gastric as well as intestinal, much of the pain, the inability to move the bowels, the cardiac weakness, and many other of these so-called postoperative complications, are in reality postanesthetic, for many of these complications are either entirely absent, or very much lessened when local anesthesia is used. And with some operations we can say positively that the mortality is lower when local anesthesia is used; *e. g.* gastrostomy and gastroenterostomy for carcinoma, strangulated hernia operations with or without resection of gut, and appendicitis with peritonitis. I have done these various operations with and without anesthesia and I feel sure that some of these cases, alive to-day, owe their lives to the use of local anesthesia. The same is true of two cases of radical amputation of the breast for carcinoma in advanced cardio-nephritic cases. This applies also to an old man of sixty-four with icterus and much loss of weight, whose gall-bladder I removed and whose common duct I split under apothesine. This old man felt so well that he wanted to leave his bed two days after operation. To anyone who has not followed these cases it seems like a gross exaggeration to portray their remarkable postoperative comfort and well-being.

How often are we confronted by patients who, we say, are bad operative risks, when we mean they are bad anesthetic risks. Take some of these patients and give them ether for forty-five minutes or longer, and do no operation on them at all, and they will have a stormy time for several days, and some of them might even die as a result of the anesthetic. It is a well known fact that patients are much less uncomfortable and have less postoperative complications after a short than after a long operation. This means they have had less ether and therefore are less sick. If we take away the ether altogether, is it not natural to expect a much smoother convalescence?

But are there any inherent objections to operations under local anesthesia? Surely there are, or else all surgeons would be using it much more freely than they do. First is the fear of causing pain. With increasing experience, with proper technique, and with careful selection of cases, pain can to a large extent be eliminated. And even if pain were not entirely eliminated in some cases, the lessened danger of the operation, the fewer postoperative complications, the wonderful difference in postoperative comfort, would weigh heavily in favor of such procedure. That operations under local anesthesia take more time is true, but if we figure ten or fifteen minutes to get the patient under ether, the difference in time in many operations will not be marked. One objection is a real one. It is more trying for the surgeon to operate under local than under general anesthesia. There is the additional mental strain of encouraging the patient to keep quiet and to keep up his courage. It takes many months of careful painstaking feeling one's way, as it were, before the surgeon has acquired the requisite experience and has perfected his technique sufficiently to warrant his undertaking major operations under local anesthesia. And that the preparatory course of training is often a most trying one I can truthfully testify. Much greater care and gentleness must be used in handling the tissues, or the patient will have pain. Added to this is the consciousness that any slight error in the technique will cause pain. The cooperation of an intelligent patient is a greater help. That is the reason why so large a percentage of my cases were private cases. In any case, we can arrange our day's work so that not too many operations under local anesthesia are done at one sitting. Even if it is much more trying to do major operations without general anesthesia, should we not sacrifice our personal comfort for the great advantages that accrue to the patient? The answer to that question will in large measure determine the field of usefulness of this procedure in the hands of each individual surgeon.

It is important to gain the confidence and cooperation of the patient. I operated on a nervous young woman, who required considerable persuasion to allow me to remove her appendix under local anesthesia. As I was sewing up the wound she asked me to repair her lacerated perineum. I offered her ether for this, but she would not hear of it. Whereupon I did a colpoperineorrhaphy under local anesthesia, and the patient assured me that both operations were quite painless.

We have repeatedly had two and three cases of appendicitis operated on under local anesthesia in the ward at the same time, and the patients who had been through it usually encouraged the new ones to have it done. When we consider the character of our ward patients, we can be quite sure that this would not have been the case if the operations had not been painless.

Some hospital patients who complained during the operation assured me later that they had simply been frightened and that the pain was really trivial. Various patients who had previously been operated on under ether assured me that they would never again want to take ether for an operation. The difference in the postoperative comfort is so striking that all these patients commented on it. I removed the appendix of a gentleman one afternoon and the next morning his wife came in and found him reading the paper. She was astounded at the absence of all pain and discomfort. Her own appendix had been removed under ether, and she assured me that her suffering from abdominal distention for forty-eight hours after operation had been more severe than her labor pains. A physician, whose appendix I removed one evening during an acute attack, was phoning to his patients the next morning. And these are not isolated cases. The absence of postoperative pain and discomfort is a very striking feature of almost all cases done under local anesthesia.

Pain during Operation.—Almost all of the patients who complained of pain during the operation said later that they had had very little pain, but that they had been afraid. One young lady fell asleep during an operation for femoral hernia. She woke up and was surprised to hear that the operation had been completed. Both patients on whom a radical amputation of the breast for carcinoma

was done assured me that the pain during the prolonged operation was trifling.

Postoperative Distention.—This was strikingly absent in almost all of the cases, and I consider this one of the great advantages of local anesthesia. I usually give one c.c. of pituitrin hypodermically on the day after operation, and follow it in half an hour with a rectal irrigation or a high enema. Most of the postoperative pain and discomfort is due to inhibition of peristalsis caused not so much by the operation as by the anesthetic. If local anesthesia did nothing else than eliminate this, it would well be worth while. One of the striking facts in these patients is that they usually pass gas on the day after operation. In one case of empyema of the appendix gas was passed voluntarily twelve hours after operation, and neither enema nor cathartic was given during the entire convalescence.

Nausea and Vomiting.—With exception of the peritonitis and abscess cases, nausea and vomiting have been almost uniformly absent in our cases. Only in the exceptional cases have we seen it.

Opiates after Operation.—The average number given was two and a quarter. The largest number given was four and this was necessary only in very few cases. Several patients received only one hypodermic during the entire after treatment.

Postoperative Course.—The postoperative course is in striking contrast to what we see in cases that have had ether. A few hours after operation there is a little wound pain which is easily controlled by codeine or a little morphine. The restlessness, nausea, and vomiting that usually follow the use of ether are entirely absent. The patients greet you with a smile the next morning and usually express their surprise that they have so little discomfort. Peristalsis is usually established early, and the troublesome and painful postoperative distention is entirely absent. A hypodermic injection of one c.c. of pituitrin on the day after operation adds to the comfort of the patient. Almost all of the patients have been able to take and retain fluids within a few hours after operation. There is an entire absence of the mental depression so common with ether. The patients usually get out of bed sooner than if ether is given. In short, smooth and rapid convalescence, even in the acute cases, is a most gratifying phenomenon.

The cases which furnish the basis of this paper are divided into hospital and private.* The hospital cases are from the first surgical service at Mount Sinai Hospital. A few of the cases were operated on by members of the house staff. The private cases were operated on at various hospitals and sanitariums and some at the patients' homes. In several of these I found out after operation that relatives were anxiously listening outside the door to catch any sound of distress from the patient. Repeatedly I had an anesthetist ready to give ether if necessary, but in none of these cases, done at home, was there any complaint from the patient and in none of them was a general anesthetic used. I have not done any major operation under local anesthesia in a patient under fourteen years; the oldest patient, a case of strangulated hernia, was ninety-one years old. This old lady did not know that an operation was being done; she was told that the hernia would only be reduced. I was able to do a radical operation and she was puzzled for a week to know why we had bandaged up the parts.

I shall not give a detailed account of the forty cases done under local anesthesia before 1916. They were operated on with various of the earlier local anesthetics—eucaine, stovaine, alypine, etc. Complete data of these earlier cases are not at hand, and moreover they were done before my present technique was developed and were done more or less as operations of necessity under local anesthesia. These earlier operations included suprapubic cystotomy, herniotomy, gastrostomy, tracheotomy, and a few cases of intestinal resection in strangulated hernia. But during the years preceding 1916 my work under local anesthesia was of the desultory kind such as most surgeons did at that time. Since 1916 I have asked myself not what is the contraindication to a general anesthetic in a given case, but rather what is the contraindication for local anesthesia. And it is surprising how the number of operations in which local anesthesia can be satisfactorily employed has increased. This is especially true among intelligent private patients, who are only too glad to escape the dangers and discomforts of general anesthesia. And so it is that I am able to report eighty-eight major operations on private patients in the past three years. And a goodly number of these patients are being sent by other patients, who had been operated on under local anesthesia. And several doctors and nurses are among the most enthusiastic patients of this class.

Technique.—During the past three years I have from time to time made changes in the method of procedure. The technique which I now employ is as follows: Three-quarters of an hour before operation the patient receives a quarter of a grain of morphine hypodermically. Unless the patient appears drowsy this dose is usually repeated just before operation. I use a 1 per cent. solution of novocain or aposthesine to an ounce to which five or six drops of a one-to-a-thousand solution of epinephrin have been added. Tablets of apothesine with epinephrin are a great convenience. One ounce of the anesthetic solution usually suffices for a herniotomy or an appendicitis operation. While I am in the habit of using a 1 per cent solution, it is true that weaker solutions will often give complete anesthesia. By mistake I once did two successive operations for appendicitis at a private sanitarium with a one-third of 1 per cent. solution of apothesine, and both operations were entirely painless. But I believe that a quicker and more satisfactory anesthesia is obtained with a 1 per cent. solution. In appendicitis operations I regularly use the muscle splitting McBurney incision and it is particularly well adapted to the operation under local anesthesia. Its great advantage is the fact that it comes right down on the cecum. Not only is it rarely necessary to pack away the intestines, but there is very little handling of the intestines. The first injection of the anesthetic is not under the skin but into the skin along the line of proposed incision. In doing this the skin should be blanched by the solution. As soon as this has been done I pass the needle into the deeper tissues and inject some anesthetic. The advantage of this is that while we are waiting for the skin to become anesthetic some of the

*Of the 210 major operations performed under local anesthesia in the past three years, 88 were on private patients and 122 on hospital patients.

deeper tissues are being partially anesthetized. It is very important to have the skin thoroughly anesthetized, so that you gain the confidence of your patient at the beginning of the operation.

After waiting two or three minutes the skin and subcutaneous tissues are divided. I always use a sharp scalpel for dividing all layers, as scissors being blunter are more apt to cause pain. The anesthetic is next injected under the aponeurosis of the external oblique and also into the internal oblique muscle. After two minutes both these structures can be painlessly divided. The needle is then passed obliquely under the peritoneum to prevent the possibility of its injuring a coil of intestine and a few drops of anesthetic are injected. After two minutes the peritoneum is divided. Done in this way there will be no pain up to this point. Both operator and assistants should handle the tissues with the greatest gentleness.

As soon as the cecum with the appendix is exposed a catgut ligature is passed through the base of the mesentery close to the appendix. This ligature is not tied, but is used as a tractor to draw the base of the appendix into the field of operation. As soon as the base of the appendix is exposed the anesthetic is injected freely into its mesentery. I omitted to do this in my earlier cases and the patients usually complained of cramps referred to the epigastrium or umbilical region. Sometimes I wait a minute after injecting the base of the mesentery and then pull on the ligature and expose the balance of the mesentery, which is then anesthetized in its entire length. Sometimes it is possible to inject the anesthetic into the entire mesenteriolum as soon as the base of the appendix is exposed. I have not found it necessary to anesthetize the mesocecum. It can be done readily enough, but in our experience it is unnecessary. A few minutes after injecting the mesentery, the appendix can be pulled out of the abdomen, the mesentery ligated and divided, and the appendix removed with no pain. It is not necessary to inject the anesthetic into the base of the appendix. I have operated on many cases with adhesions. Fibrous adhesions are not sensitive and can be readily divided. Omental adhesions are readily anesthetized by injecting a few drops of the solution. In a few minutes the adhesions can be painlessly ligated and divided. If necessary the right tube and ovary can be drawn into the wound and resected. The closure of the wound in layers is unusually painless. Of late I have been leaving a small drain under the skin to prevent a collection of serum which sometimes occurs with local anesthesia. This little drain is removed at the first dressing.

In my earlier herniotomies I was in the habit of blocking the iliohypogastric and ilioinguinal nerves. Of late I have given this up and now use the anesthetic in all the layers of the abdominal wall as described above. I always inject some anesthetic into the neck of the sack, as this is usually sensitive.

Time of Operation.—Including both the acute and chronic cases of appendicitis the average time was twenty-two minutes. Almost half of the time is consumed in waiting for the anesthetic to act. Furthermore, and this is another advantage of the procedure, as the patients are conscious all their tissues must be handled much more gently and deliberately. All this time is time consuming, but is of great advantage to the patient in the course of the after-treatment. While it is true that the ordinary operation for appendicitis under ether takes only twelve to fifteen minutes, we must not forget that it takes five to ten minutes to get the patient under ether. After all, in operations under local anesthesia, the element of time is of very little importance. The ordinary inguinal hernia operation takes but little longer under local anesthesia than under ether. I have repeatedly completed the double inguinal hernia operation within an hour. The two cases of radical amputation of the breast for carcinoma, done entirely under local anesthesia, took an hour each, and at the end of that time there was still complete skin anesthesia, so that the skin could be painlessly sutured. The longest operation I have done was the removal of carcinomatous glands of the neck, and this took one and a half hours. I this case I injected apothesine several times during the course of the very difficult dissection. Most operations take a little longer under local anesthesia; and, as mentioned above, a satisfactory operation under local anesthesia must be done slowly and deliberately. There is no harm in having an eye on the clock, but this should be done in order to see that enough time elapses after injecting the anesthetic before proceeding to incise each layer. When I have several cases to do in succession I have one of the assistants sew up the skin and apply the dressings while I am injecting the anesthetic into the next case. By following this method I was able from 2.30 to 5 P. M. to operate on the following cases under local anesthesia: (1)—Gastroenterostomy through a Sprengel incision. (2)—Division of peripyloric adhesions through Sprengel incision. (3)—Acute appendicitis. (4)—Suprapubic cystotomy.

Appendix.—Of the 115 acute and chronic cases there were two deaths which are referred to below. To show the kind of cases that can be operated on under local anesthesia, I append the following histories:

CASE I.—Irving R., twenty-four years old, admitted to Mount Sinai Hospital July 27, 1916. Two days before admission he had been seized with abdominal pain which became localized in the right iliac fossa. The pain gradually increased and vomiting set in. Examination showed a distended abdomen, with tenderness and rigidity in the right lower quadrant. Temperature, 101.6° F.; pulse, 96. Immediate operation for gangrenous perforative appendicitis with spreading peritonitis. In spite of the marked tenderness, the abdomen was opened painlessly, through an intermuscular incision. On opening the peritoneum free turbid, foul-smelling fluid was evacuated. The appendix, which was surrounded by a dense plastic exudate, was completely gangrenous, filled with pus, and contained several coproliths. The adhesions and the plastic exudate were infiltrated with novocain, and the appendix was removed. A drain was introduced and the wound sutured. The operation took twenty-seven minutes and was associated with very little pain. During the after-treatment a pelvic abscess which developed opened spontaneously into the rectum. The man made a good recovery.

This was certainly a case that tested the method severely. In spite of the pain and tenderness the abdomen was opened painlessly. In spite of the gravity of the lesion and the presence of a peritonitis and of extensive dense adhesions, we were able to do the operation completely under local anesthesia with very little discomfort to the patient. It is just in this class of cases with peritonitis that we believe the greatest field of usefulness for the

operation exists. If such a patient is given ether he is exposed to the danger of a nephritis or a pulmonary complication, which may be just enough to turn the scale against him and cause his death. How much better is such a patient able to throw off his infection if he is saved the all too common postoperative distention, nausea and vomiting, with its concomitant extra strain on the circulation! I firmly believe that in this class of cases local anesthesia will often be a life-saving procedure.

Case II.—George H., forty-two years old, admitted to Mount Sinai Hospital January 31, 1917. Eleven days before admission he had been suddenly seized with severe pain in the right iliac region, which was not relieved by cathartics. The pain had persisted since the onset. Temperature, 100.4° F.; pulse, 100. There was moderate rigidity over the lower right rectus and tenderness over McBurney's point. Operation February 1, 1917, for gangrenous perforative appendicitis with abscess. On opening the abdomen through an intermuscular incision a large amount of thick, foul pus was evacuated. In the abscess cavity a free sloughing mass, the size and shape of the appendix, was found and removed. Two large coproliths were also removed from the abscess cavity. The wound was closed with drainage. Time of operation was thirty minutes. Recovery was uneventful.

Case III.—Gertrude L., nineteen years old, admitted to Mount Sinai Hospital January 7, 1917. Four days before admission she had been seized with epigastric cramps, which soon settled in the right iliac fossa. She had vomited several times and had repeatedly felt chilly. There was considerable tenderness and rigidity in the right iliac region. Temperature, 102° F.; pulse, 88. Immediate operation for gangrenous appendicitis with diffuse peritonitis. On opening the abdomen free turbid fluid was found. The cecum was mobilized with great difficulty on account of adhesions. The appendix was found retrocecal, adherent, gangrenous, imbedded in an inflammatory mass. Novocaine was injected into the adhesions before dividing them. The appendix was then painlessly removed, and the abdomen closed with drainage. Time of operation was thirty-six minutes. Convalescence was delayed by a femoral phlebitis, but was otherwise uneventful.

In this case, too, the patient was surprisingly comfortable when the severity of the case is considered. The first two days after operation were a great contrast to what we usually see in peritonitis cases operated under ether. There was none of the restlessness, vomiting, tympanites, and severe pain which are so trying to the patients and to the attendants. In fact, the absence of these symptoms in our acute cases is one of the most gratifying features of the procedure.

Of the many other interesting cases, the following are selected to give some idea of the scope of operations under local anesthesia:

Case IV.—Subphrenic Abcess.—Mrs. X. was an old lady who had symptoms of subphrenic abscess, but repeated aspirations by various men failed to show pus. The radiograph showed a large shadow in the region of the right subphrenic space. I resected the eighth rib in the axillary line and sewed the two layers of pleura together. I then aspirated through the diaphragm, found pus, and opened an abscess containing at least 8 ounces. The operation, done under local anesthesia, presented no difficulties, and the patient made a good recovery.

Case V.—Resection of Metatarsus, and Phalanx for Infected Bunion.—The patient was an old gentleman of sixty-two, who had a bad heart, and both his physician and his family were opposed to his taking ether. I made incisions on the dorsal and plantar aspects of the foot to drain the cellulitis, excised the infected bursa, resected the base of the phalanx of the big toe and also the head of the metatarsus, which was badly infected. I used novocaine freely in the soft parts, after applying a Martin bandage to the leg, and I was careful to inject novocain under the periosteum of the phalanx and of the metatarsus. At no time during the rather extensive operation did this old gentleman complain of pain.

Case VI.—Resection of Thrombosed Femoral Vein.—Miss K., a trained nurse, after lifting a heavy patient, had suddenly noticed a swelling in her left groin. Immediately thereafter she had vomited and fainted. She was employed at that time in one of the German University clinics. The attending surgeon diagnosed femoral hernia, and she was given ether preparatory to having it operated on. Before the operation had been started she collapsed, and was resuscitated only with great difficulty. No operation was attempted and she was told that she should never try to take ether again. For ten years following this experience a small swelling remained in the groin, but did not cause much discomfort. She then began to have pain in the left leg and thigh at frequent intervals, with occasional swelling of the foot and leg. During all this time the diagnosis of femoral hernia was adhered to. I first examined this case eighteen years after the onset of the trouble. I found a small elastic swelling in the left groin just below Poupart's ligament. It was quite tender and not reducible. There was no evidence of any varicose veins and I concurred in the diagnosis of irreducible femoral hernia. At the operation done under local anesthesia I was very much surprised to find that the swelling consisted of the enormously distended common femoral vein which was filled with a firmly organized clot. I resected the vein and the patient made a good recovery, and has had no further trouble.

Case VII.—Cholecystectomy and Choledochotomy for Cholelithiasis and Cholangitis.—B. G., a man of sixty-five years, in poor general condition, had lost 15 pounds in weight. Four weeks preceding operation he began to complain of pain in the epigastrium and right hypochondrium. He had had chills and fever and was deeply jaundiced. The liver was enlarged and a mass was to be felt below it. His coagulation time was eight minutes. Through a Sprengel cross incision the gall bladder, which contained stones and infected bile, was removed. The common duct contained a stricture which was divided. This old man had very little pain during the extensive operation and tolerated all necessary manipulation. He made a very rapid, smooth recovery, and has remained well during the ten months that have elapsed since operation. This man came to operation in very poor condition and would certainly have been a distinctly bad risk for general anesthesia. He was the patient, referred to above, who felt so well that he wanted to leave his bed two days after operation.

Case VIII.—Gastroenterostomy for Pyloric Ulcer.—Eva K., fifty-three years old, was admitted January 28, 1918. She had lost 40 pounds in ten months and complained of pain in the upper abdomen, accompanied by a feeling of fullness after meals. Gastric analysis showed food retention, epithelial and blood cells. Through a Sprengel incision a typical posterior gastroenterostomy was done with Connell sutures. The operation was entirely painless and the patient was discharged in fifteen days.

Case IX.—Posterior Gastroenterostomy for Pyloric Obstruction.—Mr. C., a gentleman of sixty-seven, had a gastric history of many years standing. Radiographic pictures showed no tumor, but almost complete closure of the pylorus, with great dilatation of the stomach. He had been vomiting several times daily for many weeks and was very much emaciated. At operation a mass was found at the pylorus which had the appearance of being inflammatory. A typical posterior gastroenterostomy was done with sutures. This old gentleman complained of no pain at any time during the operation. His vomiting stopped and his general condition improved.

Case X.—Cholecystectomy for Chronic Cholecystitis.—Lillian M., forty years old, had been complaining for ten months of severe attacks of pain in the right hypochondrium. There has been jaundice in some of the attacks. Her liver was enlarged and there was a slight icterus at the time of operation. Through a Sprengel incision the gall bladder was separated from the surrounding adhesions and removed in the usual way.

There was no pain during the operation and the patient made a smooth recovery.

CASE XI.—Intestinal Resection in Strangulated Hernia.—Frieda N., sixty-nine years old, was admitted to the First Surgical Service of Mount Sinai Hospital January 12, 1916. Twenty-four hours before admission, after taking a cathartic, she had had a sudden cutting pain in the hypogastrium, and a mass appeared on the left inguinal region. She had vomited three times, the pain had persisted, and she was unable to move her bowels. On admission a very tender swelling, the size of a hen's egg, was found in the left inguinal and femoral region. Attempts at reduction, both before and after admission to the hospital, proved ineffectual. I undertook the operation shortly after admission. On opening the sac it was found to contain some bloody fluid and a loop of necrotic small intestine. There was no pulsation in the mesentery, and to ascertain the viability of the gut the mesentery was cut at right angle to its vessels. The mesentery was incised 2 inches to one side of the necrotic gut and 4 inches to the other side before active bleeding was encountered. Ten inches of gut were removed, the ends of the gut crushed and ligated, and each stump buried with two rows of linen sutures. A typical side-to-side anastomosis with Connell linen sutures was done. The typical Bassini operation for femoral hernia was then carried out. The operation consumed one hour and fifteen minutes and had been preceded by a full dose of morphine. Novocain and adrenalin made the operation entirely painless, and at no time did the patient complain of any pain. She made an uneventful recovery. In view of her advanced years and the extensive operation that was necessary, a general anesthetic would have been associated with considerable danger.

CASE XII.—Radical Amputation of Breast for Carcinoma.—Fanny W., fifty-five years old, had been suffering from chronic nephritis for several years, with blood pressure of 200 and more. Two years before operation she had been in a hospital for an attack of uremia. She had had a tumor in her left breast for over six months before operation. A typical radical breast amputation was done through the Stewart incision. The axillary glands, both pectoral muscles, together with the entire breast and overlying skin, were removed in one piece. In other words, the technique was exactly the same as if the patient had been under ether. I first injected the apothesine around the upper half of the breast and cleaned out the axillary space at the beginning of the operation. I then injected the anesthetic around the lower half of the breast. The operation was quite painless and the skin was free from pain at the end of the operation, which took an hour. The microscopic diagnosis was scirrhus carcinoma. This patient, a very intelligent woman, assured me that at no time during the extensive dissection did she have much pain.

Multiple Operations.—In the following cases more than one operation was done at one sitting under local anesthesia:

	Cases.
Appendectomy and colpoperineorrhaphy	1
Double inguinal hernia	10
Appendectomy and excision varicose veins	1
Appendectomy and herniotomy	4
Umbilical hernia and hemorrhoids	1
Inguinal hernia and hemorrhoids	1
Cholecystectomy and choledochotomy	1
Appendectomy and salpingo-oophorectomy	1
Total	20

MORTALITY.

Private Cases.—Of the eighty-five cases there were two deaths:

CASE I.—A gentleman of seventy-three years, with an extensive carcinoma involving one vocal cord, had been under laryngological treatment for six months. I split the larynx, excised the tumor with one vocal cord, and touched the base with actual cautery. The operation was painless and was well tolerated. The patient had a comfortable night, but died very suddenly, presumably of an embolus, twenty-four hours after the operation.

CASE II.—A lady of sixty-eight years came to operation for strangulated umbilical hernia. There had been symptoms of intestinal obstruction, with rapid and thready pulse, for three days. The patient came to the operation in a desperate condition and died a few hours later.

Hospital Cases.—Of the 122 cases there were six deaths:

CASE I.—Acute appendicitis with abscess. The patient came to operation with an uncompensated valvular lesion and died of cardiac decompensation seven days after the operation.

CASE II.—Acute gangrenous appendicitis with peritonitis. This man had had diabetes several years. He died in diabetic coma eleven days after operation.

CASE III.—A man of sixty-five years had a suprapubic cystotomy done for enlarged prostate gland. He died of uremia in five days.

CASE IV.—An old man with extensive carcinoma of the larynx had had tracheotomy and excision of a specimen of the growth done by another surgeon. I did a hemilaryngectomy, which was followed by death in a few hours from shock.

CASE V.—A woman of fifty-six with inoperable carcinoma of the bile ducts died two days following an exploratory operation.

CASE VI.—Excision of large colloid goiter. Death ensued on the day after operation from shock or embolus.

SUMMARY.

	Private cases.	Hospital cases.	Totals.
Appendicitis	37	78	115
Chronic appendicitis	10	52	62
Subacute appendicitis	7	3	10
Acute appendicitis	8	10	18
Gangrenous appendicitis	4	5	9
Empyema	5	3	8
Gangrenous, abscess	3	2	5
Gangrenous, peritonitis	..	3	3
Hernia	30	14	44
Hernia inguinal	8	6	14
Hernia inguinal, bilateral	9	1	10
Hernia inguinal, recurrent	2	..	2
Hernia inguinal, strangulated	2	2	4
Hernia femoral	5	1	6
Hernia femoral, strangulated	1	..	1
Hernia umbilical	1	2	3
Hernia umbilical, strangulated	1	..	1
Hernia epigastric	1	1	1
Hernia ventral	..	1	1
Cystotomy, suprapubic	8	10	18

Miscellaneous.	Private cases.	Hospital cases.
Varicose veins, excision	3	..
Varicose veins, thrombosis femoral veins	..	1
Infected bunion (resection)	1	1
Breast carc. radical amputation	1	1
Breast fibroma, excision	1	3
Carc. glands neck, excision	1	..
Tuberculous glands neck, excision	1	..
Deep abscess neck, incision	1	..
Larynx carc. excision	1	1
Sarcoma anal region, excision	1	..
Fist. in ano excision	1	..
Lipoma of back excision	1	..
Floating kidney, nephropexy	1	..
Perinephric abscess incision	1	..
Hemorrhoids C. C. excision	5	1
Exlor. lap. carc. stomach	1	..
Explor. lap. carc. ovary	1	..
Explor. lap. carc bile ducts	1	1
Gastroenterostomy	1	1
Intestinal fistula, excision	1	1
Gastrostomy	..	2
Jejunostomy	1	..
Peripyloric adhesions	..	1
Cholecystectomy and choledochotomy	1	..
Epididymectomy and vasectomy	..	1
Varicocele	..	1
Empyema, rib resection	..	3
Orchidectomy	..	1
Colloid goiter excision	..	1

Private Cases.

1916	19
1917	24
1918	45
Total	88

Hospital Cases.

Appendicitis only, 1916	28
All cases, 1917	46
Up to August 1, 1918	48
Total	122

In conclusion I think we are justified in saying that local anesthesia will save some lives, that it will eliminate ether pneumonia, and many of the other complications that we formerly thought were due to the operation, but now know are due to the anesthetic. It is particularly useful in peritonitis, nephritis, diabetes, arteriosclerosis, old age, and asthenia. But we are steadily widening its field and we hope in time, instead of seeking the indications for local anesthesia, we will rather question in every case the indications for ether. I feel that we have in this method a very valuable mine. We have but scratched the surface. Shall we dig deep down and unearth its priceless treasures?

41 East 78th Street.

FUTURE POLICY IN DEALING WITH DISABLED CIVILIANS; SOME CONCLUSIONS FROM EXPERIENCE.

By DOUGLAS C. McMURTRIE,

NEW YORK.

DIRECTOR, RED CROSS INSTITUTE FOR CRIPPLED AND DISABLED MEN, PRESIDENT, FEDERATION OF ASSOCIATIONS FOR CRIPPLES.

The rehabilitation for self-support of disabled soldiers and sailors has attracted wide public interest. As we now enter upon the reconstruction period there arises the question as to how far the policies developed in dealing with military cripples can be carried over for the benefit of disabled civilians. Some results have already been accomplished in the reeducation of industrial cripples. What conclusions helpful to the formation of future state or national policy have been drawn?

The first conclusion from experience is that rehabilitation of the disabled does not consist solely in vocational education. It is as largely a piece of social work as it is educational. The chief problem of any individual disabled man is a character problem. The chief necessity is to inspire his ambition, to overcome the tendency to inertia, combat the psychological conditions which inevitably develop with a permanent injury, and to inspire perseverance to continue the effort at rehabilitation when once begun.

Successfully to deal with the disabled men requires a special understanding of their difficulties and extraordinary patience on the part of directors, advisers, teachers, or social workers. The average disabled man, and particularly the civilian cripple, who enters on a course of training, is likely to abandon it in discouragement at the end of the first week. The average teacher who deals with him is likely to become disgusted before that time and be perfectly willing to let him abandon the course in the sure belief that the man is not worth bothering about. Yet those who have dealt with cripples understand that this is not the case, and that with the rule of "try, try again" success can be attained in the great majority of instances.

Although I heartily believe in the restoration of a disabled man to a place in the community as a normal being, rather than committing him to a special colony for cripples, I am convinced that the most effective agency of rehabilitation is a special school for the physically handicapped. In such a school every facility is designed for disabled pupils and all members of the staff are originally picked for aptitude in dealing with cripples, and their cumulative experience makes them more skilled in doing so. All the members of the staff of the Red Cross Institute testify that difficulties they considered insuperable in the first twenty men dealt with are now minimized by experience.

A special school for the disabled can have its own social service staff, an attending physician to keep watch on the condition of the men from the medical or surgical viewpoint, and a staff of teachers fully familiar with the special requirements of the work.

Foreign experience in rehabilitation seems to point most clearly to the need of special schools. Practically all the schools of reeducation in France have been organized for war cripples. In Great Britain, where the existing facilities of technical institutes have been largely availed of, it has been found in experience necessary to start special classes or sections for the disabled, as the men did not mix successfully with the regular pupils. Even in Canada, with the exception of the interesting placement in apprenticeship which has been done, the most successful reeducation has been in schools given over to become special institutions for disabled soldiers.

These considerations lead me to believe that miscellaneous introduction of disabled persons into a general system of vocational education would be unwise, but that the establishment of special institutions for the disabled would be most highly desirable.

The mere offer of vocational rehabilitation advantages does not by any means solve the problem of the idle disabled men, and it cannot safely be assumed that any considerable number of injured men in the United States will take advantage of rehabilitation opportunity, unless there is very radical readjustment of present state legislative provisions.

Our experience at the Red Cross Institute for Crippled and Disabled Men in New York very clearly illustrates this point. For over a year this school of re-education has been in operation. It offers a reasonable variety of subjects of instruction, six in all: mechanical drafting, moving-picture operating, oxyacetylene welding, printing, the making of artificial limbs, and jewelry work. All its advantages are free, yet it has at the present time less than forty pupils.

There are in New York City, however, according to statistics, thousands upon thousands of cripples who would profit by reeducation. What is the reason they do not take advantage of the opportunity?

The answer is found in the other influences upon the disabled man. The most potent of these is the

theory and practice of workmen's compensation. Practically every compensation case that has ever come to the Red Cross Institute has come upon the day compensation expired. For one year, for two years, or for four years, the man had existed in idleness, drawing compensation, and when this support was cut off he cast about and became interested in rehabilitation. When we come to examine the compensation provisions of the various States we find that they encourage idleness, in that the compensation payments are adversely affected by any improvement in earning capacity.

At a recent conference there was discussion of who should meet the cost of rehabilitating the disabled men. As far as the industrial cripple is concerned, so soon as the movement and its philosophy shall have gained some headway there should be no cost whatever. Merely by a reapportionment of funds already provided, effected through an understanding of the possibilities of rehabilitation, there will be a net cash saving rather than increase in expenditure. I can more clearly illustrate the possibility of this by statement of a typical case than by much theoretical elaboration. A worker in Massachusetts was injured by a fall while working inside a submarine, and his hand became permanently crippled. In due course his compensation rate was determined, and he was referred to the insurance carrier to be paid ten dollars a week for a long period, with a maximum total payment of four thousand dollars. Since the disability was manifestly permanent the insurance company wrote the case off their books as a four thousand dollar loss and transferred that amount to reserve to cover the weekly payments. After the compensation had been paid for nearly a year a new official of the insurance company began looking over the list of men to whom the company was paying compensation. His attention was directed to the man in question, and the latter was requested to call at the office of the company. The case was, like many thousands of others, susceptible of rehabilitation for self-support, so the insurance company official put a proposition to the man in very frank terms. "I believe that you can be trained to earn a good living. I want you to understand very clearly, however, that this proposal is to the financial advantage of the company, but I also believe it is to your advantage as well. A total income of ten dollars a week is not very attractive to you, and you would probably rather return to work at a good wage than remain idle. If you will consent, the company will send you to a school of reeducation and see if we cannot get you back on your feet in good shape."

The injured man consented to the proposal, and the company sent him to the Red Cross Institute in New York. They began to pay him not ten dollars a week as required by law, but forty dollars a week, twenty to him in New York and twenty to his wife at home. The company also paid liberally his traveling expenses in both directions. In the period of eight weeks he was reeducated in oxy-acetylene cutting and welding and returned home. He is now making not only a satisfactory wage, but twice as much as he had ever earned before the accident took place.

In the whole transaction every party at interest was benefited. The man was advantaged in that his general living standard was distinctly raised, and the necessity of working for his living could not be considered as a hardship. The company paid less than five hundred dollars for his rehabilitation, and this expense, in conjunction with the five hundred dollars already paid in weekly compensation during the first year of idleness, made a total for the case of one thousand dollars. They were thus enabled to charge three thousand dollars of profit to the account of profit and loss. Had the course of training been earlier begun, there would have been saved five hundred dollars more. The community was infinitely the gainer in that the man, formerly an unproductive consumer, became a useful producer instead. The community further gained in the elimination of the disabled man from the category of a prospective dependent, because while compensation might have taken care of him in a very insufficient way during the period the payments ran, there would have come a time when compensation ceased, and then he would have been in a desperate economic status indeed—confirmed in habits of idleness, untrained for skilled work, and without any source of support.

It is perfectly clear that if State compensation authorities will alter their practice so as to encourage rehabilitation rather than discourage it, if casualty insurance companies will see the path of true economy (and they are coming to this at the present time), there will be no cost in the rehabilitation of the industrial cripple but rather a great economic and social saving. The case just cited throws interesting light on the question raised as to whether future legislation should embrace in its scope accident cripples not under protection of workmen's compensation laws, congenital cases, and disease cripples. If any legislation is to be passed these classes should most emphatically be included because they constitute the cripples who are most in need of assistance. As has been shown, with developments which can confidently be expected within the next couple of years, the industrial cripple will not be in much need of financial assistance. It is the other cripples who contribute most largely to dependency and who involve the greatest community expense. Their restoration is desirable in the extreme, because the elimination of dependency due to physical handicap will lift a colossal burden from the agencies of philanthropic relief.

It has been already stated that rehabilitation is intimately related to workmen's compensation. So far as the industrial cripple is concerned the administration of rehabilitation should be coincident with that of compensation. It has not as yet been possible conservatively to draw definite conclusions regarding the exact provisions of compensation laws which should be altered. It seems clear, however, that one suggestion can come from the experience of all the belligerent nations in providing for the pensions of disabled soldiers. It has been evident from the first efforts at reeducation that pension must be paid for physical injury only and not be prejudiced by increase of earning capacity and subsequent restoration to self-support. Unless this provision is made it is almost impossible to persuade men to undertake re-education. A man does not like to lose one definite advantage, even though there is a greater advantage in store. All the mili-

tary pensions, therefore, are fixed, and a man may earn twice as much after his injury as before, and yet his pension will be paid to him just the same. On the other hand, we have learned that the scale of pensions is of comparatively little importance if adequate rehabilitation advantages are offered. In fact, a fairly low pension scale may be a means of character building and encouragement, whereas an extremely high pension scale may tend to demoralization and prove an encouragement to idleness.

It is possible, for instance, that in the field of workmen's compensation there may be a small statutory award for specific injury, and then be extended in addition opportunity of reeducation at the expense of the State fund or insurance carrier. If an earnest attempt at rehabilitation is made by the man, and for one reason or another he fails, there might then be a further discretionary award by the State compensation authority making the total payment as great or preferably greater than called for by the present scale. At any rate, the rehabilitation and compensation of industrial cripples are so intimately related as to be almost impossible of administrative division.

In rehabilitation of civilian cripples what are the financial circumstances involved? It is my belief that the cost of rehabilitation will average between two hundred and three hundred dollars per case, but this is, of course, highly economical, because when a man is rehabilitated his economic problem is solved for good and he is no longer a charge in any sense of the word.

The expense of rehabilitation will be apportioned about as follows:

	Per cent.
Salaries of administrative and teaching staff	20
Maintenance of pupils during training	50
Rent, or depreciation and interest on capital investment in building	10
Depreciation and interest on equipment	10
Supplies and material	10

You will note that maintenance is the large item. If you take the average cripple met on the streets and offer him the finest course of reeducation in the world, it is unlikely he will be able to take advantage of the opportunity. Though he is earning seven dollars a week, and there is prospect of increasing his income to thirty dollars weekly, it will be impossible for him to take the course offered, because he will starve meanwhile. This was one of the first lessons learned in starting out to rehabilitate disabled civilians. There is necessary for the average case some form of living allowance, and if the same governmental principle is to be applied to the crippled civilian as is now applied to the disabled soldier, this is properly a charge upon the rehabilitation organization. For the industrial cripple, of course, this maintenance may come out of compensation reserves if intelligent adjustment of practice and legislation is made, but for the general accident, disease, or congenital cripple, no such source of support is available. Any provision of rehabilitation would be, in the mind of the public, a failure unless maintenance were provided for.

In the table just presented there has not been taken into account the medical, social service, and follow-up attention which should likewise be encouraged.

Statistics show the number of disabled persons to be very great. Of course, a very large proportion of these men, particularly those with any character or initiative, readjust themselves industrially and get back in the work of the world in such a way that their employers hardly think of them as cripples. A large number can satisfactorily be put back into employment through provision of special and expert placement facilities. An essential link in the rahabilitation program is the provision of special placement bureaus for the disabled. The Red Cross Institute in New York has operated for the past year such a bureau, and has found that many men need only vocational guidance and intelligent search for a suitable job in order to have their problem solved. There has been already delegated to the United States Employment Service of the Department of Labor a vast placement enterprise. This service should be encouraged to develop in every large center of population a special bureau for the physically handicapped. Such placement work cannot satisfactorily be done through the ordinary public employment office, but when done carefully and thoroughly is certainly a public economy.

TYPHOID VACCINE AS A THERAPEUTIC AGENT.

By WILLIAM W. CADBURY, M.D.,
CANTON, CHINA.
OF THE CANTON CHRISTIAN COLLEGE.

The remarkable effects of intravenous injections of typhoid vaccine as a convenient form of foreign protein have been recently shown by a number of American writers. Engmann and McGarry[1] speak of the value of the use of typhoid vaccine in the treatment of cases of psoriasis, lupus, erythematosus, and other skin affections. Cecil[2] presents a careful analysis of 40 cases treated with the typhoid vaccine manufactured by the New York City Board of Health. His cases included acute arthritis, rheumatic fever, and gonorrheal arthritis. There were thirty-two per cent. of complete recoveries by this method and of the remaining all but two showed improvement.

Miller[3] reports the application of this treatment to both acute and chronic joint affections, and Thomas[4] gives an additional report on the same subject.

The conclusions of these observers show that in a large number of acute joint affections the injections of typhoid vaccine are entirely curative, while in the remainder, as well as in chronic affections, considerable relief may be expected by this form of therapy.

These favorable reports so impressed me that I decided to undertake the treatment on cases in my wards at the Canton Hospital. Since it was impossible to prepare fresh vaccines in our own laboratory I decided to use the commercial vaccines that were on the market. I found an old flask of Merck's streptococcus vaccine several years old and tried three or four injections of it, giving as much as 600,000,000 cocci in one intravenous injection. The substance proved to be inert. There was no reaction whatever. I then started to use typhoid-paratyphoid prophylactic vaccine as prepared by C. M.

TABLE OF CASES.

No.	Sex.	Age.	Diagnosis.	Complication.	No. of Injections.	Period of Injections.	Immediate Results.	Final Result and Remarks.
171025	M	20	Chronic arthritis	Gonorrhea, beriberi	5	16 days	Relief.	Cured. Pot. iodid. sod. salicyl. and mercury given without relief before vaccine was tried.
171432	F	33	Gonorrheal arthritis.	Leucorrhea.	5	18	Relief.	Much improved. Return of pain in one joint.
171434	F	20	Rheumatic fever.	High fever, 7 months duration.	6	24	Relief.	Improved. Tendency to relapse.
171522	M	30	Gonorrheal arthritis.		7	21	Relief.	Much improved. One joint remained swollen.
171565	F	17	Psoriasis.	Skin of soles of feet thickened.	5	12	Paler, less itching.	Recovered; all lesions cured but partial relapse in 3 months. Returned for treatment.
171614	F	57	Neuralgic pains of chest.	Inoperable cancer of breast.	5	11	Complete relief.	Improved. Vaccine more effective than morphine. Cancer appeared smaller.
171634	M	24	Gonorrheal arthritis.	Syphilis.	5	30	Relief.	Improved. Gonococcus phylacogen without effect. Last few injections of vaccine gave little relief.
187	M	20	Chronic arthritis.		1	1	Relief.	Left day after treatment saying he was well.
1836	F	17	Psoriasis.		2	4	Paler, less itching.	Improved. Left before cure was complete.
18142	F	19	Lichen planus.		6	15	Relief of itching.	Much improved. Nodules flattened, paler, no itching.
18150	F	42	Chronic arthritis.	Ankylosis of knee.	5	63	Relief.	Much improved. Patient able to walk.
18177	M	18	Psoriasis.		1	1	Relief.	Improved. All itching ceased after one injection.
18187	F	32	Chronic arthritis.	Right hip and knee.	4	15	Relief.	Improved. Ankylosis of joint. Pain relieved.
18432	F	40	Eczema, chronic.	Skin everywhere rough and thick.	4	12	Relief.	Recovered. Itching ceased.
18464	M	21	Chronic arthritis.	Rigidity of spine.	9	67	Relief.	Back unimproved. Temporary improvement of joints.
18481	F	16	Erythema induratum.	Mitral stenosis, syphilis.	2	8	Relief.	Cure.
18589	M	42	Neuralgia following gun shot wound.	Fracture of arm.	2	7	Relief.	Cure.
18637	M	46	Chronic arthritis.	Crepitus and ankylosis knees.	8	60	Relief.	Cure. No pain. Can walk.
18643	F	48	Neuralgia of chest.	Fibroid, phthisis and contraction of chest.	4	14	Relief.	Pains almost gone. Chest condition same.
18663	M	19	Chronic arthritis.	Knees flexed.	10	39	Relief after some injections.	Improved. Arms all right, some pain in knees.
18696	F	52	Chronic eczema.	Itching so severe cannot sleep.	2	5	Relief.	Cure.
18706	M	53	Chronic arthritis.	Rigidity of neck.	2	30	Relief.	Improved.
18711	F	29	Lichen planus.	Itching.	26	90	Relief.	Itching recurred between injections.
18760	F	40	Rheumatoid arthritis.		7	30	Relief.	Much improved.
18775	F	42	Chronic arthritis.	Right knee ankylosed.	3	13	Relief.	Much improved.
18777	M	30	Gonorrheal arthritis.		5	60	Relief.	Much improved.
18796	M	25	Neuralgia following gun shot wound.	Injury of spinal cord.	2	4	Relief.	Neuralgia pains cured.
18799	M	30	Neuralgia following gun shot wound	Bullet wound of shoulder and neck.	4	19	Relief.	Recovered.
18835	M	42	Chronic arthritis of hip.	Rigid hip joint.	5	23	Relief.	Improved; relief of rigidity and pain.
18843	M	..	Neuralgia following gunshot wound of thigh.	Much tenderness.	6	33	Relief.	Much improved.
18876	M	35	Chronic arthritis of hip.		1		Relief.	Much improved. Slight pain after two days.
18877	F	22	Tic douloureux.		5	10	Relief.	Some return of pain after two days.
18909	M	21	Chronic arthritis of hip and knee, etc.		8	50	Relief after first, 2 or 3 injections.	Slight improvement.
18957	M	38	Chronic arthritis hip and knees.		2	6	Relief	Improved.
18989	M	27	Gnnorrheal arthritis.		3	13	Relief.	Recovered.
181015	M	30	Chronic arthritis of knee.	Ankylosis.	4	5	Relief.	Recovered from pain, able to walk.
181048	M	42	Psoriasis.	Syphilis.	10	26	Relief of itching.	Recovered. After a month of syphilitic treatment there was no improvement.
Disp. 18 1083	M	2	Eczema of face and body.	Psoriasis.	11	90	Relief.	Relapse few days after injection.
181133	M	33	Neuralgia from perinephritic abscess.	Pains in leg and back.	1		Relief.	Refused operation because pain relieved by vaccine.
181134	F	36	Neuralgia of head, syphilitic.	Gumma of brain.	2	3	Relief.	Recovered after course of syphilitic treatment.
181146	F	31	Eczema of leg.		6	18	Relief.	Tended to relapse.
181151	M	56	Acute arthritis.		1		Relief.	Recovered.
181187	M	25	Acute arthritis.	Shoulder and knee.	5	14	Relief.	Recovered except for one joint.
181201	M	27	Neuralgia of neck.	Inoperable sarcoma.	1	..	No relief.	Ligature of carotid artery also without effect.
181210	M	27	Facial neuralgia.	Decayed teeth.	1	..	Relief.	Recovery followed extraction of bad teeth.
181215	F	21	Neuralgia from osteosarcoma.	Knee joint also affected.	3	7	Relief. Tumors smaller.	Operation later performed on tumors of hand and foot.
181282	M	16	Chronic arthritis.		1	..	Relief.	Refused further treatment.
181285	F	26	Acute arthritis.	Malaria.	2	7	Relief.	Cure.
Disp. 181618	M	36	Syphilitic arthritis.		1	..	Relief.	Had novarsenobenzol, but relief greater after use of vaccine.
CCC A	M	31	Psoriasis.		5	10	Relief of itching.	Cure. Relapse in three months.
CCC B	M	..	Acute arthritis.		1	..	Relief.	Recovery.

Heanley of Hongkong. This was given within the time limit marked on the cover, and caused a marked reaction. Finally Burroughs and Wellcome of Shanghai kindly offered to supply me, free of cost, typhoid vaccine which had passed the date marked on the cover. One batch was labeled "not to be used after Dec. 25, 1917," and this was used after Jan. 1, 1918. The other batch, which was marked to be used before May, 1918, was given in June or thereafter. In our experience the fresh and the old typhoid vaccine are equally effective even though the latter be injected as late as six months after the date marked on the cover.

The solution for injection was prepared by mix-

ing the contents of an ampul of typhoid vaccine with sterile normal saline solution in such proportion that 1 mil should contain 100,000,000 of the bacilli. This was then kept in a sterile glass bottle and used as occasion demanded. There seemed to be no deterioration even after a week. In an adult the initial dose given was sixty to seventy million bacilli, increasing the quantity by ten million in each injection till as many as 100,000,000 were injected at a dose. An ordinary hypodermic needle was employed and the solution was injected in a vein at the bend of the elbow or forearm or hand or, in infants, in the external jugular vein. In the fifty-four cases that were treated we did not find a single one in which it was not possible to make the injection without cutting down on the vein. After the injection there was no local reaction at all. A chill usually followed in about one-half to one hour, followed by fever which persisted for from four to twelve hours, causing headache and malaise. In a few instances fever persisted for a day or two. There were no untoward symptoms although one or two patients complained of considerable distress. One case, a girl with a mitral stenotic murmur, had considerable palpitation with tachycardia. In general it may be said that patients with organic heart disease stand the vaccine injections less well. Altogether more than 200 injections have been given and in no case would we feel unwarranted to repeat if symptoms called for it.

Injections were usually given every third or fourth day and not then if there was any fever persisting after the last injection. In some of the cases injections were given only when there was a recurrence of symptoms, once a week or even at longer intervals.

I desire to express my appreciation to my colleague, Dr. J. M. Wright, who referred several of the cases to me for treatment and offered valuable suggestions in carrying out the work. After the treatment had been thoroughly inaugurated most of the injections were given by my hospital internes, Drs. Chiu Lok Nin, Wong Min, and Wong Uen Hing.

It has been impossible to follow up most of the cases after they left the hospital so that the results recorded are generally those noted when the patient was discharged from the hospital. Two of the cases were members of the teaching staff of the Canton Christian College, two were out-patients at the Canton Hospital, and all the others were admitted to the wards of the Canton Hospital. All were Chinese except one, who was an American.

Perhaps the chief evidence in favor of this treatment came from the patients themselves, who, in spite of the temporary discomfort caused by the reaction, seldom objected to subsequent treatments and often begged the physicians to give the next one before it was due.

We shall now consider the various conditions which were treated with the vaccine injections. They may be summerized as follows: Acute arthritis, 4 cases; Rheumatic fever, 1; Chronic arthritis, 16; Gonorrheal arthritis, 5; Syphilitic arthritis, 1; Neuralgia, 11; Tic douloureux, 1; Psoriasis, 5; Lichen planus, 2; Eczema, 4; Erythema induratum, 1.

Acute Arthritis.—There were 4 cases diagnosed acute arthritis Nos. 181,151, 181,187, 181,285, and C.C.C.,B. Three were male and one female. One was complicated with malaria. In one the phalangeal joints were affected. Salicylates were given with some benefit, but complete relief followed one injection of vaccine. In another the shoulder joints and one knee were painful. Sodium salicylate and aspirin gave some relief, but after 5 injections of vaccine the knee and one shoulder were free from pain, but one shoulder joint remained unimproved. The other 2 cases were completely relieved by doses of vaccine.

While in these cases salicylates were given in addition to the vaccine their usefulness seemed to be limited to a certain degree of improvement only, the injection of vaccine was followed in a few hours by marked relief and seemed to be the chief factor in bringing about a complete cure.

Rheumatic Fever.—Only one case, No. 171,434, was treated, a young girl with heart complications and a septic temperature. Each injection was followed by marked relief of pains, but the condition relapsed each time. The patient had been sick for 7 months and left the hospital against advice, before she was completely cured.

Chronic Arthritis.—Sixteen cases diagnosed as chronic arthritis were treated with the vaccine, viz., Nos. 171,025, 187, 18,150, 18,187, 18,464, 18,637, 18,663, 18,706, 18,760, 18,775, 18,835, 18,876, 18,909, 18,957, 181,015, 181,282. Of these, 4 were female and 12 male. Two gave a history of syphilis, and 3 of gonorrhea, although in neither case did these diseases seem to be causative factors of the arthritis. In 3 cases only one joint was affected, the knee in 2 and the hip in 1. In 13 cases 2 or more joints were involved, 4 of the patients were given potassium iodide, and 9 had some salicylate preparation. The benefit from these drugs was only partial, but the immediate relief afforded by the vaccine injections seemed to indicate its influence on the final result. Two cases were discharged cured, seven were very much improved and seven showed some improvement. In every case the initial injection of vaccine gave marked temporary relief. Several patients with stiff or ankylosed joints required chloroform anesthesia to break up the adhesions. The pain, however, was relieved by the vaccine. The following history, 18,760, is typical.

Mrs. M., history of repeated attacks of rheumatism. Four years ago was greatly benefited by rheumatism phylacogen, but relapsed in 2 months. Went to Battle Creek Sanitarium, and recovered after about 3½ months. Relapse about 5 months ago. Examination shows swelling and severe tenderness of toes, knees, wrists, and fingers. Had been taking potassium iodide and sodium salicylate and aspirin with only slight improvement. After 7 injections of vaccine, followed by immediate temporary relief, patient felt almost entirely free from pains. She reports the treatment much less painful and more effective than that with rheumatism phylacogen.

Gonorrheal Arthritis.—Under this heading there are five cases that were treated with typhoid vaccine, Nos. 171,432, 171,522, 171,634, 18,777, 18,989. Only one of these was a female. In all but one more than one joint was involved. In all cases there was immediate relief following the injections. One was considered cured and the other 4 much im-

proved. In several only the first 3 or 4 injections gave relief; subsequent doses gave little benefit. In one gonorrheal phylacogen was given without immediate relief, but the vaccine caused all symptoms to improve.

Case No. 171,522.—Male, age 30. Had a chancre 3 years ago, but no skin eruption. In July, 1917, had gonorrhea, and 10 days later developed pains in right heel, both knee joints, and 2 months later upper limbs and back were affected. Received 50 million bacilli on Dec. 30, 75 million on Jan. 7; on the 8th noted very marked relief in all joints except one knee. On the 12th and 15th two more injections without much change in knee. Further injections on 19th, 22d and 24th. Left hospital about well except for some pain persisting in the left knee. Sodium salicylate was given beginning on the 17th and potassium iodide on the 21st, but these caused no evident improvement.

Syphilitic Arthritis.—Case Disp. No. 181,618. Patient gave a history of syphilis and desired to have treatment with novarsenobenzol. Three doses were given, but pain still persisted in knee joints. The Wassermann test proving to be negative, 2 injections of vaccine were given with marked relief of all symptoms.

Neuralgias.—There were 11 of these cases, Nos. 171,614, 18,589, 18,643, 18,796, 18,799, 18,843, 181,133, 181,134, 181,201, 181,210, 181,215. The first was a patient with inoperable cancer of the breast, who suffered intense pains which nothing seemed to alleviate. After the dose of vaccine the patient slept like a child. The pain recurred and ultimately the vaccine lost its effectiveness. Nos. 18,589, 18,796, 18,799, 18,843 were all men with gunshot injuries involving nerves. After healing of the wounds neuralgic pains persisted, requiring morphine to alleviate them. Vaccine injections brought rapid and permanent relief.

No. 18,463 was a case of neuralgia of chest due to fibroid phthisis. In No. 181,133 the pains were due to pressure of a perinephritic abscess, and in 181,215 from osteosarcomata. In all these the pain was greatly relieved. No. 181,201 had one injection of vaccine to relieve the severe pain from an inoperable sarcoma of the neck. No relief was afforded. In 181,210 decayed teeth were found to be the cause of facial neuralgia. Before the teeth were extracted considerable relief was given by an injection of vaccine. No. 181,134 was a case of headache due to gumma. Vaccine was given by mistake before syphilitic treatment was started. The headache was considerably relieved; appropriate syphilitic treatment ultimately produced a cure.

Tic Douloureux.—The most severe case of neuralgia was No. 18,877, suffering with tic douloureux. This girl of 22 had suffered for more than a year. The paroxysms came every 10 minutes and the patient would seize her head in her hands. Five injections of vaccine were given in 10 days. For 24 hours after there was complete relief of all pains; after this slight headache began to appear. Patient left the hospital after the last treatment so that the final result is unknown.

Psoriasis.—Nos. 171,565, 1,836, 18,177, 181,048, and C.C.C.A. were all pronounced cases of psoriasis, and in no affection is the result of vaccine more striking. As a rule 2 or 3 injections are given, with a marked relief of itching and fading of lesions, and the cure is greatly hastened by the application of a weak chrysarobin ointment 2 to 4 per cent. All of the cases were temporarily relieved, but relapse occurred sooner or later.

Case C.C.C.A. is typical. Male, age 31, teacher. Has suffered from psoriasis since 6 years of age. Worst on face and scalp. Back and limbs also affected. Always worse in the winter but never entirely well. Has been treated by both Chinese and Western doctors with little improvement. Jan. 5 gave first treatment when condition was at its worst; subsequent injections given on 7th, 9th, 12th, and 15th. Lesions began to fade and itching decreased after second injection, on Jan. 9th; 3 per cent. chrysarobin ointment was given, which caused a slight dermatitis and was discontinued on 15th. On Jan. 22 all lesions had completely healed except a very small spot on the leg. One month after last injection there was some return and in 2 months there are several patches again on the skin.

Lichen Planus.—Cases Nos. 18,142 and 18,711 were diagnosed as lichen planus. There was considerable itching with elevated purplish areas. In both the elevated areas became flattened and disappeared, and the itching was greatly relieved though there was return of itching later.

Eczema.—Cases Nos. 18,432, 18,696, Disp. 181,083, and 181,146. Three of these patients were adults with chronic dry eczema. Vaccine caused marked temporary relief, but the itching recurred in 2 or 3 days. The other case was that of an infant whose face was covered with a moist eczema. The body also was greatly involved. Injections caused a slight temporary improvement only.

Erythema Induratum.—Case No. 18,481 had hard painful nodules on limbs. Various forms of treatment were tried without avail, but after 2 injections of vaccine the indurated areas rapidly healed and there was no recurrence.

Conclusions.—1. Commercial typhoid, or typhoid-paratyphoid vaccine, prepared for prophylactic inoculations, has unique and very marked therapeutic properties if injected intravenously.

2. This vaccine appears to lose none of its therapeutic efficacy if diluted with saline solution, or if given as much as six months after the date of expiration marked on the container.

3. In acute arthritis, associated with little or no fever, injections of vaccine will generally complete a cure, only partially accomplished by salicylates, aspirin, etc.

4. In rheumatic fever temporary amelioration of symptoms, at least, may be expected by the use of vaccine treatment.

5. In chronic arthritis, whether it be rheumatoid arthritis, or chronic monarticular affections, the pain is always temporarily and usually permanently relieved, and swelling and crepitus in joints may be greatly decreased. In these chronic conditions the vaccine alone is not sufficient to complete a cure but is a most valuable adjunct to other well known measures, such as the use of salicylates, baking, electricity, massage, etc.

6. In gonorrheal arthritis typhoid vaccine appears to be as effective as gonorrheal vaccine, and in conjunction with other measures is a valuable addition to our therapeutic armamentarium.

7. In syphilitic affections typhoid vaccine is effective in relieving pain, though not in any sense equal to the recognized antisyphilitic remedies.

8. In various forms of neuralgic pain, otherwise only to be relieved by morphine, typhoid vaccine is most effectual, *e. g.*, the pains of carcinoma or sarcoma, and the pains following gunshot wounds with

injury of nerves. Not only is the pain temporarily relieved, but it may be permanently checked after 2 or more injections.

9. In tic douloureux typhoid vaccine may act far more effectively than morphine.

10. Psoriasis can be temporarily cured by the vaccine.

11. Lichen planus can be temporarily cured by vaccine.

12. The itching of eczema may be temporarily greatly relieved by vaccine.

13. Erythema induratum may be cured by the vaccine.

REFERENCES.

1. *Jour. Am. Med. Assn.*, Vol. LXVII, p. 1741.
2. *Arch. Int. Med.*, Vol. XX, p. 951.
3. *Jour. Am. Med. Assn.*, Vol. LXIX, p. 765.
4. *Jour. Am. Med. Assn.*, Vol. LXIX, p. 770.

MILITARY ORGANIZATION AND THE TREATMENT OF THE TUBERCULOUS SOLDIER.

By OWEN PAGET, M.D., Captain Australian Army

Monte Video Camp (Australia), Weymouth, England.

This paper compiled from observations on nearly 300 tuberculous and query tuberculous soldiers is intended to give an impression of the practical application of my theories on the treatment of tuberculosis under military conditions.

To those who are not acquainted with my papers on tuberculosis published in America and Australia, it may suffice to state briefly that the surface epithelial cells of the ethmoid, superior and middle turbinates, and nasal sinuses are capable of forming antibodies against tuberculosis. This action is brought into play by insufflating powders of an emulsion of dead tubercle bacilli, known as tuberculin B. E. onto these surfaces by means of a glass tube and a Politzer bag. The tuberculous and query tuberculous cases here of which I have sole charge number about 130 when the wards are full. They are congregated in a hutted hospital within a depot camp.

One sister is in charge of two or three wards, and they have only hospital orderlies to assist them. There is, therefore, no constant supervision of the patients, who unless seriously ill are allowed complete freedom. After the first week here leave is granted to visit the neighboring town daily from 2 to 9 p. m.

Patients with temperatures over 100° are not supposed to leave the wards to go to the latrines. The use of drugs except a little digitalis for heart conditions, is almost nil.

The diet is on a liberal scale, but forced feeding is not employed. The wards are airy, but smoking is permitted, and no particular rules are laid down as to ventilation.

From this it will be seen that my treatment has not been materially assisted by other means. There is, however, a natural tendency to improvement here in the first 14 days, without the employment of any remedy.

Classification.—The cases are divided into tuberculous (positive) and query tuberculous. The tuberculous are again divided into tuberculous (bacteriological) and tuberculous (clinical).

The former class immensely predominates, as the consultants are reluctant to classify as tuberculous any case which does not show positive evidence in the sputum.

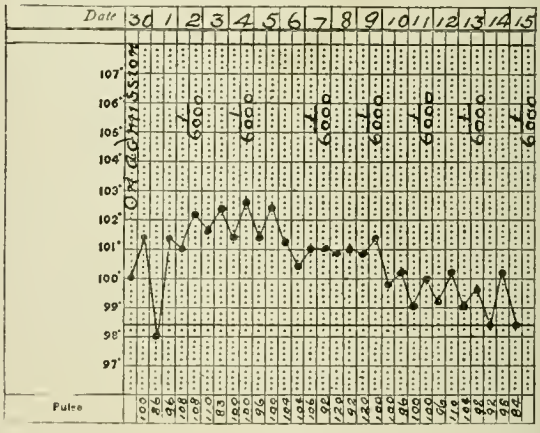
The query tuberculous, after 3 sputum tests extending over about 14 days, ultimately become either positive tuberculous or are listed bronchitis, fibrosis of lung, emphysema, etc., according to the consultant's finding.

Cases classified as tuberculous remain here till embarkation for Australia.

Routine Treatment.—The first two days after admission the patient is kept in bed to ascertain his real condition. Camp leave is allowed only in the first week.

Treatment which is not arbitrary, but guided by the personal equation of the patient, is usually commenced on the third day, and consists of an insufflation of 1/6000 mgm. of bacillary emulsion. This is given every second day up to six doses. If the temperature is now near the normal line, the dose is increased to 1/500 mgm. for six doses, and then increased to 1/40 mgm.

The method of insufflations has been described in previous papers. They are administered by an A. M. C. corporal.



A percentage of cases show, on admission here, as a result of traveling, a temperature of 101° to 102°. This usually quickly subsides under treatment. Other cases, even after treatment has commenced, will, during the first week or so, develop a typical pneumonia or pleurisy. Treatment in these cases, as well as in severe hectic cases, is continued on exactly the same lines with insufflations, but the dose is not increased over 1/6000, until the temperature has remained some four or five days at normal. The temperature falls to normal usually by lysis in approximately 10 days. The temperature once down does not tend to rise again. The attack is obviously modified so far as general symptoms and physical signs are concerned, but the temperature is apparently not immediately affected. The accompanying chart is a good example of the results of treatment in so far as the temperature is concerned. This patient had a definite pneumonia of his left lung. Duration of ill health about 2 years.

Treatment is carried on even with hemoptysis, and now I employ no other procedure in this condition. With the partial exception of a very ad-

vanced case with extensive mischief and with perforation of the nasal septum, in which proper insufflation has been very difficult, every case of tuberculosis treated has made positive and consistent progress to recovery. There have been no misfires, and only one or two cases have shown any lagging in their progress. Probably these were cases in which I underestimated the virulence of the disease as shown by the physical signs, with the result that they were too quickly pushed on to the maximum dose.

Breathing exercises are for two reasons of great importance after convalescence is established. They are usually started about six weeks from the commencement of the treatment. It is, first of all, important to test whether the patient is in a condition of stable or unstable equilibrium in so far as his disease is concerned. Mere quiescence does not necessarily imply either real healing or recovery. By graduated exercises to the lungs it is possible to test the liability to recurrence. So far this has been negligible. If a rise of temperature occurs, breathing exercises are suspended for a few days, to be resumed as speedily as possible.

The second reason for the use of breathing exercises is that the symptom which lasts longest is weak breath sounds, especially noticeable at the bases. The lung in the tuberculous patient is like an injured limb, instinctively kept as much as possible at rest.

In limb surgery the mere healing of a wound no longer suffices us, and the patient is passed on for orthopedic treatment to restore full function to the injured part. In tuberculosis the reexpansion of the lung is equally important.

The period of time for treatment here before embarkation is roughly speaking about two to three months. Our procedure is now routined, and we expect and are getting good results. The intention, hope, and aim of the system is to land the Australian tuberculous back into his own country in as good health as on the day of his enlistment. Failing this we consider it possible to achieve as good results in the healing of these tuberculous cases, as the surgeons and orthopedists obtain in their particular sphere.

To thank individually all to whom I am indebted is impossible. Few believed, yet all have helped me.

AUTHOR'S BIBLIOGRAPHY.

1. "Prevention of Pneumonokoniosis and Pulmonary Tuberculosis," *Australian Medical Gazette*, December, 1913.
2. "Adenoids," *Australian Medical Gazette*, January, 1914.
3. "Pulmonary Tuberculosis," *Australian Medical Gazette*, February, 1914.
4. "The Nose as a Safeguard Against Disease," *Australian Medical Gazette*, April, 1914.
5. "Nasal Props and Operation," *American Medical Review of Reviews*, 1915.
6. "Prevention, Treatment, and Cure of Tuberculosis," MEDICAL RECORD, February, 1915.
7. "Epithelial Function in Relation to Disease," MEDICAL RECORD, September, 1915.
8. "Autosecretion in the Treatment of Cancer," MEDICAL RECORD, April, 1916.
9. "Treatment of Tuberculosis by Insufflations," MEDICAL RECORD, 1917.
10. "Diagnosis Obscure Cases of Tuberculosis," MEDICAL RECORD, January, 1918.
11. "Diagnosis, Treatment, Immunity, and Cure of Tuberculosis," MEDICAL RECORD, 1918.

GROPING IN MEDICINE.

BY BEVERLEY ROBINSON, M.D.,
NEW YORK.

PERHAPS, feeling one's way, would be better and more explanatory. At all events, to some it would seem pleasanter to the ears, as showing something like rational trial and research, or evidence from facts, when acquired. Empiricism, so termed, is in this line, and, alas, so is much to-day that is called experimental science, based upon laboratory research and essentially attached to the history, development, and behavior of microbes—the bugbear of the younger generation of physicians.

The thoughts that arise in my mind are suggested and furthered by the attitude of many of our guides to-day *in re* influenza and its treatment. Because we have no specific against it, because we cannot as yet stop its advent and wide dissemination, because we cannot cure it indubitably when it occurs, why do much, or anything, in a preventive, or remedial way, until we shall have surely found a vaccine or serum that will do the job and indeed, one or another, upon which all the experts shall be of one mind as to its absolute safety and reliability?

The truth is, from a broad and sane viewpoint, we do know certain things about as well as they will probably be known in the years to come. We know what our forebears for many generations believed advisedly and thoroughly, and much of this is still good and true and should claim our abiding and unalterable faith. Others are now and were *sub judice*, but should at least have our respectful indulgence as to their merits. I claim even now that Huxham's tincture of bark, the formula of which is over one hundred years old, will still cure, or greatly ameliorate, in most instances, not only malarial fever, but also many febrile conditions of uncertain or unknown provenance.

I claim that since my boyhood days I know of no combined remedies that will soothe, quiet, and help beneficially a patient in many acute ills more than the sweet spirit of nitre and the spirit of mindererus. In an acute cold, when the nose is stopped up, when there are chilly and febrile conditions, a mustard footbath and a hot toddy at bedtime, with or without a Dover's powder, will do the trick when the coal tar products of latter years are prejudical or worthless. And as to vaccines, or serums, they had far better be left wisely alone, at least for the while. After numerous trials of many remedies and treatments, throughout a long series of years, I have concluded that in salicylate of ammonium I have found the best remedy, preventive and curative, of ordinary colds and also of influenza. It will not prevent or cure all cases, and I know of absolutely nothing that will, but it will be, of all remedies, the least objectionable or harmful. Of course, there are personal peculiarities that should always be considered with remedies, as with foods. Just as eggs are poisonous to a few people, so may salicylate of ammonium be. In moderate, frequently repeated doses, I have yet to meet any one that was affected in an alarming way. I have met some whose stomachs or ears could not tolerate the salt for long. In regard to the precise dose for any one, I cannot prejudge, and must rely upon

feeling one's way. I already know that, for many, five grains of salicylate of ammonium in a capsule at the beginning of a cold and taken every hour, for five, six, or even ten or twelve doses, is none too much. Thus taken, a beginning cold or influenza may be practically aborted, in some instances, in twenty-four hours.

Alas, there were instances, and not a few, in our late epidemic of influenza, in which this, like all remedies, failed. But, is not this true in certain cases of every threatening acute disease and of all remedies yet acquired by our profession through all its long ministry to human ailments? The best, the most learned, the wisest practitioner of medicine, must grope, must feel his way, must often make repeated, intelligent trials before he hits upon the real thing. And even this real thing will go back upon him when he least expects it and when previously he was most hopeful, and then something which he had not hitherto tried in what seemingly was a like case, simply does the work admirably; that is, it relieves or cures the suffering one.

A final thought is this: Every man's experience is his own, not another's. All he can do, therefore, is to report truthfully and advisedly his own findings, trusting to the future and to his fellows to mark what is good and useful and to ignore or pass over what does not fill the bill.

Rectitude in one's statements is what we most want, and if it forms the basis for one's convictions, we must trust the latter until multiplied counter evidence cancels them.

10 West Thirty-seventh Street.

Medicolegal Notes.

Discussion of Liability of Charitable Hospitals.—There is a great diversity of opinion among the courts on the question of the liability of a charitable institution to respond in damages for negligence. Some courts hold it is not liable at all for negligence. Other courts hold, though liable to others, it is not liable to a patient received for treatment, when the injury resulted from the negligence of employees and servants. Some courts hold that, though not liable at all for the negligence of its servants or employees, it is liable for injuries traceable to some negligence on the part of the corporation itself; a failure to discharge some duty that cannot be delegated to servants to perform. Thus an exception is made where the liability is traceable, not to the negligence of servants, but to the negligence of the defendant in employing incompetent servants. Even where liability has been found, the courts have based their holdings upon entirely different reasoning. Some say there is no liability because trust funds cannot be diverted from trust purposes to the satisfaction of claims for negligence. Others courts repudiate this doctrine that the funds are in the nature of trust funds and cannot be diverted from their purpose, and hold such an institution liable to a stranger or a servant for negligence, though not liable to a patient on the theory of an implied contract not to hold the institution liable for the manner of the treatment by its servants. In some cases they have been exempted from liability because they are considered agencies of the government. The Iowa Supreme Court thinks the great weight of authority is to the effect that an institution of this kind is exempted from liability to one who comes to it and accepts the benefit of its charity, to a patient received for treatment, so far as liability is predicated on the negligence of its servants in administering the charity. It therefore holds that a hospital whose purpose is not to pay pecuniary profits, being supported by donations and charges against patients able to pay, is not liable for the negligence of its servants to a pay patient. Assuming that a charitable hospital is liable for its negligence in furnishing incompetent nurses, it holds that it must affirmatively appear that an injury complained of was caused by lack of reasonable care in the selection of the nurses, and not to the independent negligence of such nurses.—Mikota v. Sisters of Mercy, Iowa Supreme Court, 168 N. W. 219. The California District Court of Appeals holds that a hospital not run for profit, and which in fact did not make any profits, was not liable to a pay patient for negligence of its employees (in this case nurses), where no negligence was shown in the employment of incompetent employees. The court followed the rule laid down by the California Supreme Court as follows: "Where one accepts the benefit of a public or private charity he exempts by implied contract the benefactor from liability for the negligence of the servants in administering the charity, if the benefactor has used due care in the selection of those servants." The court said: "The fact that plaintiff paid the regular rates charged by the hospital for paying patients does not take the case out of the operation of this rule, for it is apparent that the rates were not charged with a view of making a profit from her, and the moneys received from paying patients were not in fact sufficient to meet even the ordinary operating expenses of the hospital, without considering any interest upon the amount invested in the buildings. It is clear, therefore, that plaintiff was to some extent the beneficiary of the charity for which defendant corporation was organized, and comes within the rule quoted."—Burdell v. St. Luke's Hospital, 173 Pac. 1008.

Meaning of "Infection" in Accident Policy.—Action was brought upon a policy insuring from "accidental bodily injuries." The assured struck her leg against a truck in the department store where she worked, causing an abrasion, which became infected by the germ staphyloccus, from which developed acute general septicemia, resulting in her death. The policy contained a clause limiting the insurer's liability by 10 per cent. where the injury or loss results from, or is contributed to, by any poison, disease, infection, asphyxiation, gas, hernia, fits, vertigo, etc. The trial court construed this limitation to apply to and cover an infection received with or in consequence of the injury and as a part thereof. The New York Appellate Division thinks it should not be so construed, and that the limitation applies only to a poison, disease or infection from which the deceased was suffering prior to and at the time of the accident. Farniane v. Standard Acc. Ins. Co., 171 N. Y. Supp. 1018.

Evidence as to Infection in Personal Injury Cases.—The opinions of medical experts are essential in a personal injury action for the guidance of a jury as to infections, their causes and progress, as such matters left to the guesses of the uninformed would make possible damages based solely on speculation, and not upon evidence. The Illinois Appellate Court holds that the opinions of expert medical witnesses as to the character of the infection of the breast of a woman who was injured in a street car accident, as the result of her child being thrown against her while in the act of alighting from a car, and as to the possibility of infection either with or without any blow, are neutralized in effect where their opinions as to the causal connection are predicated upon the absence of any prior injury.—Rose v. Chicago City R. Co., 207 Ill. App., 345.

Dying Declarations.—It is not necessary to entitle a statement to be admitted in evidence as a dying declaration that the deceased should have unequivocally stated he was about to die, or that he realized his death was impending. Any act or expression which clearly shows that the deceased realizes the seriousness of the situation, and that he is in extremis is sufficient. Measured by this rule, the statements of the deceased in a murder case that she felt that she must die, and later called for a priest to administer the last rites and to anoint her, she being a member of the Catholic Church, clearly indicated that she visualized the situation, realizing that death was impending. Her statement afterward made that her husband gave her paris green for her bowels was held properly admitted as her dying declaration.—Ulrich v. Commonwealth, Kentucky Court of Appeals, 205 S. W., 586.

Military Medicine.

Doctors Needed in Siberia.—A despatch from Dr. Arthur Rudolph Teusler, head of the Czechoslovak Medical Service, to the *Associated Press*, states that there is urgent need of doctors, nurses, and medical supplies in western Siberia. The spread of typhus and the coming of 200,000 Russian soldiers, formerly imprisoned in Austria and Germany, are imposing a heavy burden on the military service. Dr. Teusler has directed the establishment of Red Cross hospitals at Omsk, Ekaterinburg, Cheliabinsk, and Tiumen. At Ekaterinburg the public bathhouse has been transformed into a typhus hospital.

Two American Units End Hospital Work in France.—The American Military Hospital No. 1, at Neuilly, near Paris, announces that its work has been completed, and no more funds will be raised. This is the hospital first organized under Dr. Joseph A. Blake, formerly of New York, and was known as the Ambulance Hospital. During the war more than $2,000,000 has been contributed to the maintenance of this hospital by the American committee. After the battle of Chateau-Thierry the capacity of the hospital was expanded from 575 beds to 2,000, and for an extended period from 600 to 800 new cases were received daily. In bringing its labors to a close the American committee feels a pardonable pride in the achievements of this hospital. It provided for the wounded the best medical, surgical, and nursing care, and made a notably high record of lives saved and of men restored to health.

The Yale Hospital Unit has also completed its work in France, and sailed for this country on January 16. This unit is under the command of Lieutenant Colonel Joseph M. Flint.

Sick Soldiers to be Sent South.—In an official announcement, under date of January 13, Surgeon-General Ireland directs that soldiers suffering from respiratory diseases be transferred to Southern hospitals. All those who have severe and persistent bronchial symptoms, and whose recovery in Northern hospitals is likely to be slow, will be transferred.

Red Cross Aids Women's Hospitals.—The Red Cross has given $50,000 to the American Women's Hospital Association for the maintenance of its Hospital No. 1, at Luzancy, France. This hospital is cooperating with the American Committee for Devastated France.

Dr. Harold Hayes has returned from active service in France and has resumed his practice at 2178 Broadway, New York City.

Deaths in the Service.—Major Asa Charles McCurdy, M. C., U. S. Army, of Battle Creek, Mich., a graduate of the University of Michigan, Ann Arbor, in 1908, attached to the Fifty-second Engineers, died in Brest, France, on November 28, from the effects of a carbuncle on the face, at the age of 32 years.

Lieut. Reese Davis, M. C., U. S. Army, of Forest City, Pa., a graduate of Jefferson Medical College, in 1916, aged 25 years, died in France from wounds received in action, on September 27.

Capt. William Chester Smith, M. C., U. S. Army, of Chicago, a graduate of the University of Louisville, Ky., in 1904, and of the University of Illinois in 1913, died of valvular heart disease while on duty at Camp Sherman, Chillicothe, Ohio, on December 11, aged 38 years.

Lieut. Homer Joseph Slocum, M. C., U. S. Army, of Carrollton, Ky., a graduate of the Louisville, Ky., Medical College in 1903, died from pneumonia, following influenza, while on duty at Camp Greenleaf, Fort Oglethorpe, Ga., on October 17, aged 39 years.

Capt. William George Turner, M. C., U. S. Army, of Fall River, Mass., a graduate of the Baltimore Medical College, in 1904, died from pneumonia, following influenza, while on duty at Fort Benjamin Harrison, Ind., on October 11, aged 39 years.

Lieut. Edwin Franklin Syrop, M. C., U. S. Army, of Bayonne, N. J., a graduate of the University of Maryland, Baltimore, in 1916, died from lobar pneumonia in Base Hospital No. 78, France, on October 27, aged 28 years.

Capt. George H. Hockett, M. C., U. S. Army, of Anderson, Ind., a graduate of the College of Medicine and Surgery, Chicago, in 1910, who entered the Officers' Training Camp at Fort Benjamin Harrison, Ind., served at Fort Oglethorpe, Ga., then went overseas in charge of the Three Hundred and Thirty-fourth Sanitary Train, Fourth Division, and participated in the fighting at Chateau Thierry, Soissons, Cambrai, and Argonne Forest, died of heart disease on December 1, aged 35 years.

Capt. John Van Doren Bedinger, M. C., U. S. Army, of Anchorage, Ky., a graduate of Johns Hopkins University, in 1911, aged 32 years, died from pneumonia, in Liverpool, England, on October 20. He was associate professor of pediatrics in the University of Louisville from 1913 to 1917, and served at Camp Oglethorpe, Ga., and Camp Shelby, Hattiesburg, Miss., before going abroad.

Lieut. William Adam Lieser, M. C., U. S. Army, of Celina, Ohio, formerly of Fort Recovery, Ohio, a graduate of the Eclectic Medical Institute, Cincinnati, in 1914, aged 34 years, is reported to have died recently in France from wounds received in action.

Major Emile L. DeLanney, M. C., U. S. Army, of Omaha, a graduate of the John A. Creighton Medical College, Omaha, in 1901, chief of the medical service at Fort Des Moines, Iowa, died in the post hospital at Des Moines, December 23, from influenza, aged 46 years.

Lieut. Wilford Andrew Fair, M. C., U. S. Army, of Pleasant Hill, Mo., a graduate of the University Medical College of Kansas City, Mo., in 1909, aged 35 years, was killed in France on October 6, during the fight in the Argonne Forest, while attempting to aid a brother officer who was wounded.

Lieut. Ralph Thomas Saunders, M. C., U. S. Army, of Sandusky, Ohio, a graduate of the Ohio State University, Columbus, in 1917, died in Camp Eustis, Va., on October 11, from pneumonia, following influenza, aged 25 years.

Major Harrison Briggs Webster, M. C., U. S. Army, of Castine, Me., a graduate of Harvard Medical School, in 1909, aged 34 years, was killed in action in France on October 12.

Lieut. Davis King Summers, M. C., U. S. Army, of Chattanooga, Tenn., a graduate of Emory University, Atlanta, Ga., in 1915, aged 30 years, was killed in battle in France, on March 1, 1918.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, January 25, 1919.

THE ABNORMAL FORMS OF CEREBROSPINAL MENINGITIS.

THE anomalous forms of cerebrospinal meningitis consist either in a predominance of the morbid process in some other system (pulmonary, circulatory, genitourinary, nervous) or in the gravity of the symptoms or the rapidity of the evolution.

The pulmonary type of the disease has been described by many competent writers, and is more frequent than is generally supposed. Epidemic foci have been referred to in which pulmonary localizations of the meningococcus were more common than meningeal. The lesions usually met with are pulmonary congestion, bronchitis, bronchopneumonia, and lung abscess. Serofibrinous pleurisy has been observed either at the beginning of the disease, at its full development, or during convalescence.

The heart is less frequently the seat of the process, but a number of writers have observed a pericardial fluid collection due to the specific organism. Lesions of the myocardium have been described, and in one instance an abscess was found.

The urogenital localizations of the meningococcus are of great interest on account of the similarity between the specific organism of cerebrospinal meningitis and the gonococcus, rendering the diagnosis a matter of some difficulty, and the development of meningeal symptoms may alone clear up the true situation. Suppurating cystitis due to the meningococcus is more frequently observed in babies. In adults, albuminuria seems to be the only meningococcal manifestation in the urinary apparatus. It is usually transitory, and may be accompanied by hematuria. The genital organs are the seat of uncommon localizations involving the testicle, seminal vesicles, and vas deferens.

Generally speaking, the nervous system is the one most fertile in symptomatic manifestations during cerebrospinal meningitis, but the abnormal forms of the morbid process are perhaps not generally well known. In them the nervous symptoms are abnormal either from the predominance of a single symptom with complete absence of all others, or from the sequelæ that remain after the patient has recovered. This frequency of sequelæ in the nervous system is so considerable that it should be thoroughly understood. Among these, facial paralysis is to be mentioned, particularly as it appears to be the most frequent. Deafness, paralysis of the cranial nerves, and hemiplegia, although less common than facial paralysis, represent the least exceptional clinical types. Some are merely temporary, and completely disappear after recovery has taken place, while others only partially disappear, leaving variable remains of their presence in their wake.

In children, hydrocephalus is one of the most important and constant of the sequelæ, while those of a psychic nature are variable, consisting particularly in disturbances of the memory, a decrease of the intelligence or of the faculty of attention, irritability, and psychic instability.

Cutaneous complications are not uncommon in cerebrospinal meningitis. The herpetic, petechial, and erythematous forms are often observed, and in these lesions the meningococcus has been found. The infection is probably secondary in the majority of cases, but it may also be primary.

The French have given particular attention to the joint manifestations of the meningococcus. The resulting arthritides almost always suppurate, and the knee is the joint most usually involved.

In the so-called larval types of cerebrospinal meningitis the patient complains of general lameness, pain in the head, neck, and loins, but nevertheless continues his work. Sometimes there is merely a simple malaise that may readily be mistaken for influenza. Some transitory, fleeting meningeal syndromes, varying from one day to another, may be met with, and should the physician see the patient when the meningeal syndrome is manifest the diagnosis is easy, otherwise not. In the latter case the question of diagnosis is delicate, and even lumbar puncture is not always sufficient to make it, and it will be only by a bacteriological examination, often only by hemoculture, that the meningococcus can be discovered.

In the fulminating forms of cerebrospinal meningitis it is evident that infection and intoxication of the entire organism are in play. The symptoms are intense fever, chills, and cyanosis of the limbs, followed by coma and death, the latter occurring occasionally before a diagnosis has been made by lumbar puncture and bacteriological examination of the cerebrospinal fluids.

ETIOLOGY OF BLACKWATER FEVER.

OWING to the fact that a great deal of the campaigning of the war was undertaken in tropical and subtropical climates, where diseases more or less peculiar to these climates were rife, a considerable amount of knowledge has been gathered with regard to the etiology, prevalence, treatment, and so on of such diseases by military medical officers. Indeed, a new page has been opened in the chapter of tropical diseases.

For some time it was believed that blackwater fever was a disease by itself, or caused by malaria or by quinine, but it now seems to be thought by many to be due to malarial infection only. Experi-

ence during the war appears to have confirmed this view in some instances.

In the *Tropical Diseases Bulletin*, November, 1918, Warrington Yorke reviews some recent literature by Joseph A. Arkwright and Elizabeth H. Lepper regarding cases of blackwater fever occurring in the Eastern Mediterranean. The conclusions of these authors are as follows: (1) Blackwater fever is due to malaria; (2) it is predisposed to by a long-standing malaria infection with repeated relapses; (3) an attack of blackwater fever is precipitated by a relapse or recurrence of malaria; (4) the ascertained maximum and minimum intervals in different cases in the service of the authors, between the arrival in a malarial country and the first attack of blackwater fever were, maximum ten years, minimum seven months; between the first recognized attack of malaria and the first attack of blackwater fever, maximum ten years, minimum fifty days; between the arrival in a country which was non-malarial and free from Anopheles, and the first attack of blackwater fever, maximum five months, miminum one month; (5) quinine, in the class of cases which the authors met, had no share in producing blackwater fever, nor had quinine treatment during or after the attack any effect in prolonging or reproducing hemoglobinuria; (6) the jaundice of blackwater fever is certainly in some cases due to bile pigment in the circulation; (7) it is possible to estimate the total amount of blood pigment in the urine, whether in solution or in the deposit, after converting it into acid hematin, modified Sahli's method. The amount of hemoglobin lost by the kidneys is much greater than would be ascertained by an attempt at direct hemoglobin estimation of the urine. The investigators, however, are convinced that the kidneys excrete only part, possibly a small part, of the hemoglobin which is lost in an attack of blackwater fever. (8) The treatment which appeared to be of most value was intravenous or rectal administration of physiological salt solution. Whether quinine is of value or not was difficult to decide, since all the author's patients had some quinine and the intensity of the attack was no doubt different in each case.

It may be recalled that Manson, in his work on tropical diseases, after a consideration of the malarial and quinine theories of blackwater fever, gave it as his opinion that it was a specific disease of parasitic origin. Garin, Girard, and Sarrouy hold the view that it is much more probable that this affection is a syndrome which can result from very diverse causes, and that in any case it is certain that the syndrome was observed fairly frequently in the course of secondary malaria of Macedonian origin. From observations and investigations made by these French authors the conclusion is reached that there is an evident relationship between the appearance of hemoglobinuria and the administration of quinine, orally or subcutaneously. Other observations and experiments appear to go to show that quinine is a factor in the production of hemoglobinuria. The question of the etiology of blackwater fever, then, is still in doubt, and, on the whole, the attitude assumed by Drs. Garin, Girard, and Sarrouy that it is a syndrome which may result from several causes, seems to be supported by the weight of authority.

POSTOPERATIVE GASTROINTESTINAL HEMORRHAGE.

Gastric or intestinal hemorrhage may be encountered after any surgical interference, no matter of what nature, but unquestionably it is more prone to occur after an abdominal operation, particularly when the interference has been for the relief of some lesion of the digestive tract. This means that it must be due on the one hand to local factors, such as primary lesions of the digestive tract or peritoneum, or on the other hand to general causes, such as infection, intoxication, or perchance to reflex disturbances.

Infection, be it localized or general, is the most common etiological factor, although it may occasionally be difficult to attribute the respective parts played by septicemia and chloroform poisoning when the latter drug has been used as the anesthetic. In point of fact, chloroform may not only set up hemorrhages in a predisposed soil, but it is likewise quite capable of determining by itself a sanguineous dyscrasia with a gastrointestinal localization.

The other major etiological factors are traumatic or mechanical lesions of the digestive tract, which may or may not be attributable to a defective technique, such, for example, as prolonged operative maneuvers on the omentum and extensive resections of this viscus. The nature and seat of the lesions of the digestive tract are very variable, according to the pathogenesis of the hemorrhage. The most frequent, however, is a hemorrhagic erosion or deep ulceration almost always seated in the gastric or duodenal mucosa. In 25 per cent. of autopsies no gastrointestinal lesion could be discovered.

The clinical picture of these hemorrhages also varies greatly, and the most sagacious medical mind will be quite unable to make a diagnosis of the exact mechanism of the hemorrhagic complication unless all details of the operative interference and symptoms offered by the patient are passed in review, not overlooking the time of the appearance of the loss of blood.

The prognosis of postoperative gastrointestinal hemorrhage is subordinated to both the amount of blood lost and the gravity of the concomitant symptomatic *ensemble*. Generally speaking, a very reserved prognosis should be made, because out of a total of 249 cases reported by Fourdinier death occurred in 130; in other words, a mortality of 52 per cent. Purves found a mortality of 72.5 per cent. while Busse came to a mean death rate of 55 per cent. These hemorrhages especially demand a reserved prognosis when they arise after operations not involving the digestive tract, and out of a total of fifteen cases of extra-abdominal operations where

this complication occurred fourteen died. In purely abdominal operations the prognosis is less gloomy, as out of a total of 74 cases there were 44 deaths, or a mortality of 59 per cent. In operative work on the digestive tract, the prognosis, although in itself serious, may be considered as relatively benign, because out of a total of 160 gastrointestinal operations there were 72 deaths, or 45 per cent. Simple hernia operations followed by gastrointestinal hemorrhage have given a mean death rate of 40 per cent., while in the case of strangulated hernia it is found to be 37 per cent., and 50 per cent. in appendicitis. Therefore, according to Sauvé, one should separately consider early hemorrhage, arising during the first four days following the operation, and late hemorrhage occurring after the fifth day. In Busse's statistics there were only 30 deaths out of a total of 56 cases of early hemorrhage, while for late hemorrhage the mortality reached nearly 80 per cent. These proportions remain about the same in all the statistics from various countries.

Surgical treatment is occasionally indicated, but usually the care of the case remains strictly medical. In certain circumstances, prophylactic measures should be carried out in order to forestall the possible occurrence of a post-operative gastrointestinal loss of blood.

Nephritis from Suppuration of the Skin.

The amyloidosis of the kidney which follows protracted and extensive suppuration is probably not akin in any way to nephritis which is believed in the Orient to follow chronic impetiginous affections. Such a sequence at once recalls albuminuria following scabies, although such sequence is rare with us, and actual nephritis is extremely rare. A recent medical graduate, Farah, a resident of the Orient, has devoted a Paris graduation thesis to this subject, reviewed in the *Journal de médecine et de chirurgie pratiques* for September 10. That young children with impetigo may develop nephritis has also been shown by Hutinel, the well-known pediatrist. Since scabies is clinically the most pronounced type of impetigo, it need not surprise us to learn that it is the most common factor in the Orient in the genesis of this renal lesion. This nephritis may be of several types, from the banal nephritis with massive albuminuria, edema, and oliguria, to simple hematuria or albuminuria. In certain cases there are marked intrathoracic complications, while enlargement of the liver and spleen appears to be the rule in the young child. While recovery is the rule, fatalities from uremia have occurred. In treating these cases the main indication is to remove the cause of suppuration, after which the kidneys are treated in the usual manner, chiefly with diet.

Cure of Malignant Disease of the Testicle.

Statisticians have claimed that the prognosis after removal of testicles which have undergone malignant degeneration is unusually hopeless. This is true especially of carcinoma. But if exceptions ever can be said to prove rules, then Professor Loumeau of Bordeaux has recently furnished two proofs, reported in the *Journal de médecine de Bordeaux* for October. In 1900 he castrated a man 35 years of age for a tumor which proved to be a spindle-cell sarcoma. This subject is still living, as is another who in 1910 was castrated for cancer (epithelioma) of the testicle. The second man was 47 at the time of operation. The most remarkable feature about these cases was the fact that Loumeau, perhaps anticipating that radical intervention would be useless, performed what would be termed ordinarily a palliative operation. He simply excised the testicle, and made no attempt to remove the inguinal glands, although this step is almost obligatory in cancer, which diffuses through the lymphatics. It is, of course, more optional in the case of sarcoma, in which propagation by lymphatics is very rare, if in this location it occurs at all. Had the usual sequence occurred, the lymphnodes of the prevertebral region would, in the cancer patient, have become infected, and the knife could not have been invoked to stay the process.

News of the Week.

Surgeon General Blue Proposes Health Sunday.—Surgeon General Blue of the Public Health Service has asked the ministers of the country to set aside Feb. 23 as Public Health Sunday, and to preach sermons emphasizing the responsibility of the nation to protect the health of the returning soldiers and sailors and of the community at large, and particularly to take vigorous measures for combating social diseases. A formal proclamation has been sent to all ministers pointing out that drastic measures must be taken to prevent, during this period, those conditions in civilian life which made these diseases the greatest cause of disability in the army. The cities and towns through which the soldiers go in the process of demobilization must be made as safe as the camps. In closing, the proclamation urges the importance of this responsibility "in order that the world may be made not only safe for democracy, but safe for posterity."

Harvey Society Lecture.—The third Harvey Society lecture of the season will be given by Dr. R. M. Yerkes at the New York Academy of Medicine, on January 25, at 8.30 P. M. The subject will be "Psychological Examination of the Soldier."

Legislators Wear Masks.—The State Senate in session at Sacramento, Cal., has waived its constitutional immunity from the provisions of the city's influenza mask ordinance and has prohibited the entrance into the Senate chamber of any person unmasked.

Pennsylvania Death Rate for 1918.—The death rate for the year 1918 was the highest in the history of the State Health Department in Pennsylvania according to the report of the State Registrar. Approximately 185,000 deaths occurred, the rate being 21.6, as compared with 14.8 for 1917. This increase is due almost entirely to influenza, which caused more than 50,000 deaths.

Commission to Fight Hookworm.—The Rockefeller Institute is planning to send a commission to Jamaica to take charge of a campaign against hookworm disease. A recent census shows that

20 per cent. of the population of Jamaica is infected.

New Departments in Georgia State Board of Health.—Two new departments, one of vital statistics and one of epidemiology, were placed in operation in the Georgia State Board of Health on January 1. These divisions will provide a clearing house for all the other activities of the departments and are expected to prove valuable addition. Dr. W. A. Davis of Austin, Texas, has been placed in charge of the department of vital statistics, and Dr. F. M. Haygood of LaGrange will take charge of the epidemiological department.

The New York State Department of Narcotic Drug Control, created by Chap. 639 of the Laws of 1918, supersedes on February 1, 1919, the "Bureau of Habit Forming Drugs" under the State Board of Health. Under the new law, every physician, druggist, dentist, veterinarian, hospital, sanatorium or other institution, wholesaler or manufacturer, prescribing, administering, dispensing, selling or manufacturing cocaine, opium or its derivations must during the month of January, 1919, file an application and receive from the department a certificate of authority to deal in habit forming drugs. This registration is for the balance of the State fiscal year and requires no fee. Thereafter, during the month of June in each year, he shall in like manner register with the Department and for this and each subsequent registration shall pay the department a fee of $1.00.

Urges Abolition of Drug Control Board.—Governor Smith has asked the New York State Legislature to immediately abolish the State Narcotic Drug Control Commission as an unnecessary bureau entailing needless expense to the State. In a special message to the lawmakers he suggests that the work of the Commission be taken over by a bureau to be created in the State Department of Health. Governor Smith in his message states that he is in sympathy with the purposes of the law and believes that the State should provide for the regulation and control of the sale of narcotic drugs. He believes, however, that inspectors and other employees of the State Health Department who are performing similar duties could at the same time give their attention to the enforcement of the law regulating the sale of narcotic drugs.

The Annual Report of the Surgeon General of the Public Health Service for 1918, has been issued recently, and gives a long, instructive, and interesting account of the work done by this service during the fiscal year 1918. Owing to the war, many health problems have had to be grappled with which are absent in times of peace. For example, the laboratory and field investigations have related almost entirely to health problems arising from the war. Perhaps the most important of the various activities of the service during the period covered by the report have been exercised in connection with venereal disease, and it may be said that the efforts in this direction, intelligently conceived and carried out, have been attended with marked success. The report, in every page, demonstrates the fact that in the Public Health Service the country possesses vigilant guardians of the health of the nation.

Rigid Prohibition Measure for New York.—Legislation to enforce prohibition in New York State, in ratification of the Federal amendment, has been drafted for introduction to the Legislature. Among the regulations controlling the sale of alcohol are very strict provisions affecting druggists and doctors. The law would allow a druggist to make no sale of alcohol for medicinal purposes except upon a physician's prescription and an affidavit would be required of all persons purchasing for mechanical, chemical or sacramental purposes. A pharmacist's license to sell alcohol or wine would be issued only to druggists who have never been convicted of an illegal sale of liquor, whose stock of alcohol on hand shall not represent more than one per cent. of the value of all the goods in his place of business, who are of temperate habits and not addicted to the use of alcohol or drugs, and who will not sell to any person known to be in the habit of using alcoholic beverages. The sale of toilet, culinary, medicinal, antiseptic and flavoring extracts and patent medicines, the manufacture of which requires payment of a United States liquor dealers' tax, would be prohibited. No one but a licensed druggist would be permitted to sell certain proprietary compounds and patent medicines named in the bill except upon the prescription of a licensed physician. Physicians would be required to keep a record of all prescriptions issued by them for alcoholic compounds, and the medical practitioners allowed to issue such prescription would first have to give bond of $2,000 for observing the provisions of the law and be licensed by the prohibition commissioner.

Labor Unions Protest against Changes in Health Department.—The Secretary of the Central Federated Union of New York, Ernest Bohm, has sent a circular letter to the affiliated unions having a membership of 300,000, calling their attention to the action of Health Commissioner Dr. Royal S. Copeland in removing the Division of Industrial Hygiene from the Bureau of Preventable Diseases, of which Dr. Louis I. Harris is Director, and urging them to protest to Mayor Hylan and Commissioner Copeland against what is termed a "conspiracy" against organized labor. The Woman's Municipal League, in its forthcoming Bulletin, will also protest "against the narrowing of the scope of the Bureau of Preventable Diseases," and will call on its members and the members of all civic bodies to join in the effort to have Dr. Harris's power restored. A mass meeting of organized labor to arouse workers to a defense of their rights to health protection was called at Washington Irving High School on January 22.

Mr. Horace Fletcher, the proclaimer of the theory that the more one chewed his food the less food was it necessary for him to eat, died of bronchitis after a long illness, in Copenhagen, on January 13, at the age of 70 years. During the war Dr. Fletcher had been a food economist for the Commission for the Relief of Belgium and had been teaching his system to millions of starving Belgians. Dr. Fletcher was a member of the Committee of 100 on National Health, President of the

National Mouth Hygiene Association, a member of the National Commission on Mental Hygiene, vice-president of the Food Reform Society of England, and many other health, sociological, and geographical societies and was the author of several books on his mastication theories.

Dr. Roy K. Flannagan has tendered his resignation as chief health officer of the city of Richmond, Va.

Dr. George A. Carpenter of Fargo, N. D., has been appointed superintendent of the Cass County Board of Health.

American Women Establish Hospital in France.—American women suffragists, in honor of the Maid of Orleans, have established at Nancy, the Hôpital de Jeanne d'Arc. The hospital is designed especially for the treatment of women and children patients who have lacked adequate hospital facilities since military requirements necessitated the taking over of nearly all the French hospitals.

Charitable Bequests.—The Presbyterian Hospital, New York, is the recipient of a bequest of $5,000 under the will of Elizabeth H. Keyes.

Medical Society Elections.—The Cass County Medical Society, at its annual meeting held in Fargo, N. D., Jan. 6, 1919, elected the following officers for the ensuing year: *President*, Dr. J. P. Aylen; *Vice-President*, Dr. J. W. Awty; *Secretary*, Dr. Paul Burton; *Treasurer*, Dr. Paul Sorkness.

The Madison County (Ala.) Medical Society, at its annual meeting held in Huntsville, January 6, 1919, elected the following officers for the ensuing year: *President*, O. J. Brooks; *Vice-President*, Dr. E. O. Williamson; *Secretary-Treasurer*, Dr. M. M. Duncan; *Jail Physician*, Dr. Carle Grote; *Poorhouse* Physician, Dr. C. E. Blanton.

The Guilford County (N. C.) Medical Society, at its annual meeting, January 2, 1919, elected the following officers for the ensuing year: *President*, Dr. J. T. J. Battle; *Vice-President*, Dr. A. R. Wilson; *Secretary-Treasurer*, Dr. R. A. Schoonover.

Obituary Notes.—Dr. Charles D. Kelly, a graduate of the Medical Department of the University of Vermont, in 1894, died suddenly of heart disease at his home in Mount Vernon, N. Y., on January 17, aged 59 years.

Dr. Thomas Kelly of New York City, a graduate of the New York University Medical College, in 1884, died suddenly in his carriage, while making his calls, on January 17, aged 55 years. He was on the staff of consulting physicians of St. Vincent's Hospital, visiting physician at the St. Lawrence Hospital, the Catholic Institute for the Blind, and the Seton Hospital at Spuyten Duyvil.

Dr. S. Wooley, retired, of Madison, S. D., died following a month's illness of acute uremia, on December 29, aged 75 years. He formerly served for a time as health officer of Madison.

Dr. J. D. Massengill, a retired physician of Blountville, Va., died after a long illness, on January 10, aged 75 years. He was a Confederate veteran, having served during the entire war.

Dr. Frederick H. Humphreys, a graduate of the University of Vienna, in 1872, President of the Humphrey's Patent Medicine Company, died at his home in Morristown, N. J., on January 14, aged 72 years.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

AN INTERESTING CASE OF IMPERSONATION—THE VISITS OF MEDICAL MEN TO LUNACY PATIENTS—DEATH OF TWO WELL-KNOWN NEUROLOGISTS—MEDICAL CANDIDATES FOR PARLIAMENT.

London, January 2, 1919.

A case has been recently heard in a police court which has certainly a very disquieting appearance for those who believe that the Medical Acts and the Official Register of the medical profession, kept in accordance with those Acts, preclude the possibility of a layman impersonating a medical man. The story in question is as follows: Some twenty years ago a Mr. James Allan, a medical graduate of the University of Edinburgh, died, but in 1901 the name and qualifications of James Allan, M.B., C. M. Edin., appeared in the Medical Directory. The Medical Directory is the private property of the well-known medical publishers, Messrs. J. & A. Churchill, and is edited with conspicuous care. It is not, however, an official publication, and has not the same facilities as those possessed by the General Medical Council for maintaining an accurate list of the profession. The official list of the profession is known as the Medical Register. The new James Allan was at one time an unqualified medical assistant, having been at some period or another a medical student, but on the strength of his name appearing in the Medical Directory he set up in practice as a medical man in the neighborhood of London and conducted his business with propriety, and apparently with efficiency. But he got his name into the Medical Directory by misrepresentation. In a sense, it may be said that it was his good work which revealed his fraud, for when the war broke out James Allan proceeded to do excellent auxiliary medical work in his neighborhood, work of such a quality that he received titular distinction, being made an officer of the Order of the British Empire (O. B. E.). His appearance in the Gazette as an O. B. E. led his name to be searched for by the Registrar in the Medical Register, where it was absent, although it appeared with the title added in the Medical Directory. Further investigation showed that the deception had been practised for nearly twenty years. James Allan was fined £20 and £10 costs for having used medical titles unlawfully, a more serious charge that he had illegally signed certificates of death not being proceeded with. The sentence is, of course, extraordinarily light, the magistrates no doubt taking into consideration—kindly, if illogically—two things: first, that in the conduct of his practice, as far as could be ascertained, he had made no clinical or professional lapses; and secondly, that any conviction, whether punished by light or heavy pecuniary fine, must mean the immediate destruction of his financial position. But no medical man can possibly regard the position of James Allan in this amiable light. Apart, however, from this, the facts show that impersonation is by no means so difficult as the Medical Acts are designed to render it. It is suggested that the later James Allan may have actually bought the diploma-documents of the previous deceased James Allan from the widow, in which case he would have written evidence to pro-

duce when applying to have his name inserted in the Medical Directory; and anyhow, this would be a very likely way of obtaining that insertion. His name being once in the Medical Directory, his position seems never to have been challenged by anybody, though consultation of the Medical Register at any time during a long range of years would have suggested the plot. No one can legally sign a death certificate whose name does not appear in the Medical Register, but neither the public nor the medical profession will take the trouble to consult the official roll. No one but a man whose name is in the Register can give medical evidence, as a doctor, in a court of law, and in consequence a medical witness is usually asked if he is "on the Register." The question, however, has been omitted before now by barristers who do not know their work, it being simply put to the witness that he is a "doctor." Of course, any one can assume the title of doctor; such assumption only becomes illegal when pretence is actually made to the legal position.

The situation dependent on the refusal to give Dr. Lionel Weatherly, the well-known alienist, proper facilities for examining a patient resident in a public lunatic asylum has already been referred to in these letters. (See MEDICAL RECORD, Dec. 14, p. 1039.) Briefly, the story is that Dr. Weatherly was asked to visit the patient by the patient's friends, where the superintendent of the asylum at first refused the necessary permission, but later withdrew the refusal at the instance of the Board of Control (Lunacy). This board is responsible for the regulations which govern public or county lunatic asylums, and it recognised that Dr. Weatherly was only asking for a right given to him by Act of Parliament. But the leave to visit the lunatic so obtained was rendered of no scientific value by the fact that Dr. Weatherly was refused permission by the superintendent to see the notes of the patient's case or to interview the medical man in direct charge of him. Dr. Weatherly accordingly applied to the Board of Control for further facilities, but could not obtain them, and the story, when last reported, was left at that stage, the probability that the help of the law courts would be sought being obvious. At the beginning of December a divisional court of the King's Bench, upon application by the brother of the certified lunatic, granted a rule against the commissioners of lunacy; in other words, the commissioners of lunacy, who are the executive officers of the Board of Control, were enjoined to appear before a High Court of Justice and give their reasons why they did not grant Dr. Weatherly the facilities which he sought. A strong bench of three High Court Judges listened to the arguments, and decided in favor of the commissioners, a ruling which cannot possibly be satisfactory to the public. This decision, however, was anticipated by most people who have had any experience of the thankless task of arraigning a public department before a Court of Justice. A clause in the Lunacy Act reads as follows: "If the manager or principal officer of any institution or place refuses or prevents or obstructs the admission to any patient of any person who produces an order of admission, he shall for every offense be liable to a penalty not to exceed £20." Now, Dr. Weatherly was certainly "admitted to the patient," but the practical utility of the visit was nullified by his being able to obtain no interview with those in clinical charge of the case, and no written records of the case. To medical men, as well as to the public, it will seem that the Commissioners of Lunacy obtained their verdict in consonance with a literal interpretation of the law which defied the spirit of the law. It is quite possible that more may yet be heard of an important altercation.

During the last few days death has suddenly removed from the ranks of the medical profession two well-known neurologists, both senior physicians to the Hospital for Epilepsy and Paralysis, in Maida Vale, Dr. George Ogilvie and Dr. Leonard Guthrie. They were well-known men in totally different capacities despite their closely interwoven medical interests. Ogilvie, a large, fair man, was notoriously one of the best after-dinner speakers in London, wore on his breast the orders of knighthood of three foreign countries, and expounded in practice the more general tenets of neurology, especially in relation to questions of heredity. Guthrie, a dark and tiny man, was absolutely self-effacing. Only his personal friends knew either his wide learning or his whimsical powers of humor. He was a neurologist of the most advanced scientific school, a wise author on pediatrics, the chairman of a committee of the Royal College of Physicians of London on Medical Nomenclature, an examiner in medicine at Oxford because he represented modern science, and Fitz Patrick lecturer at his college because he was a storehouse of ancient medical history. Ogilvie died after a very brief illness following a fall, and within a few days Guthrie, who had succeeded him at Maida Vale as senior physician, was struck by a passing train while standing on a platform, dying a few hours later.

The recent general election showed a distinct increase in the number of medical men who desired to obtain seats in Parliament, no less than 36 having been candidates. Of these, twelve new members were successsful, namely: Dr. McCartan, Dr. B. Cusack, Mr. John Crowley, Dr. W. E. Eliot, Dr. A. C. Farquharson, Dr. B. F. P. McDonald, Dr. J. E. Molson, Dr. Donald Murray, Dr. Nathan Raw, Dr. James Ryan, Sir William Whitla, Sir Robert Woods, along with three others who have already established their position in the House of Commons, viz., Dr. Christopher Addison, Sir Watson Cheyne, and Sir Auckland Geddes.

The medical candidates stood on all sorts of political tickets or programs, which is as it should be, for the right of a medical man to sit in Parliament is due only to his desire to promote the cause of health and sanitation; the shade of his political feelings on other questions is so entirely unimportant compared to his resolute convictions on the main subject that whatever the electors may do his medical colleagues can afford to forget whether a doctor in Parliament is a *quâ* politics, a Tory or a Liberal, or a party creature, or even an avowed rebel. The Parliamentary Medical Committee, whose constitution and activities have been noted in several previous letters, does not speak as openly as this but their public views are on the same lines. The medical profession in Great Britain has agreed that it requires a louder and clearer parliamentary voice, and with some qualms it has also agreed that to obtain that voice the usual customs at elections must

be followed. A man must stand if he is to have any chance of success in accordance with a political program. No man will get into Parliament on his medical claims only. But the ideal medical man in Parliament should not represent medicines only; he should be the interpreter of medical thought and aims to his fellow legislators. This he can easily be while assenting to a general party creed, provided that in every word that he utters and in every idea that he supports the predominant claims of national health are obvious. Such a legislator can conform to party politics and can keep his necessary pledges to his constituency and to his political organization, while remaining faithful to ideals outside and above such pledges.

It should be added that the Medical Parliamentary Committee, although it was born only when the general election was actually upon the country, managed to show itself of considerable use. For the committee supplied speakers to several platforms whose interpretation to the public of medical ideals was certainly valuable.

LETTER FROM CANADA.

(From an Occasional Correspondent.)

THE HOUSING QUESTION IN CANADA—VACCINATION REGULATIONS IN THE PROVINCE OF QUEBEC—PROHIBITION IN CANADA—DEMOBILIZATION AND THE VENEREAL PROBLEM—DOMINION ORTHOPEDIC MILITARY HOSPITAL IN TORONTO—MAJOR F. N. G. STARR IN FRANCE—THE JORDAN MEMORIAL HOSPITAL, NEW BRUNSWICK—DEATH OF DR. A. ORR HASTINGS.

MONTREAL, January 11, 1919.

It appears that one of the results of the war in Great Britain and in the Dominion will be greatly to improve the conditions under which the working classes live. Public health will be a prominent plank of political platforms. It is fully recognized that a first essential step in this direction is to improve the housing conditions of working people, and especially those of large cities and of industrial centers. Slums constitute a menace to the health of the entire community, and merely as a matter of self defence all the population should be housed decently. While the death rate generally, and infant mortality in particular, have been very considerably reduced in recent years, on account of improved methods of living and sanitation, there are in all large cities certain areas in which the death rates are enormously and disproportionately higher than others. As said before, these "black spots" of a city not only adversely affect the death rate of the whole city but are a standing public menace because they are generally the sources of disease, and supply the means by which infectious diseases are spread. It goes without saying that density of population and the overcrowding exemplified by several persons living in a room lead to high death rates. As a rule, the rates of mortality vary almost in exact proportion to the number of one and two-roomed houses in a district, or as Dr. Farr, in his recent work on vital statistics puts it, "The greater the proximity of man to men the greater is the mortality."

The Canadian Government a short time ago evinced in a practical manner its appreciation of the housing situation and its bearing on public health by voting twenty-five million dollars to improve housing conditions. The Toronto Bureau of Municipal Research has condemned conditions in a part of that city known as "The Ward," and in addition has made certain recommendations with a view to bettering the lot of the dwellers. One suggestion is to the effect that housing by-laws should be carefully drafted to meet the needs of the situation. However, every big city has a similar problem. Probably there are few cities of the New World, or, for that matter, of the Old World, in which the quarters where the poor exist are worse than in Montreal. The limelight was thrown on this phase of the public health question during the recent epidemic of influenza. It was then brought to the attention of all citizens that unsanitation, overcrowding, and indecent squalor were the prevailing characteristics of the slum districts of Montreal. It must be borne in mind that the municipality owes a duty to every inhabitant of a city. Good houses, with a sufficiency of air space, should be erected in all centers of population, and further adequate housing laws must be framed and enforced. Also the local authorities must insist that streets and lanes be kept clean. All this can be accomplished if money, energy, and initiative are forthcoming, and every one concerned directly and indirectly, will be infinitely better for the introduction and carrying out of these greatly needed reforms.

Prevention is better than cure, and it is impossible to raise a healthy race unless measures calculated to prevent disease, of which good housing and environment are essential factors, are well within the reach of the working classes, who, after all, constitute the majority of a population.

The superior health officers of the Province of Quebec, as a precautionary measure, have ordered all the municipalities of the province to pass by-laws enforcing vaccination. There have been a few cases of smallpox in seven municipalities, other cases have been reported from neighboring provinces, and the inspectors of the board have not been able to trace the source of all the cases. In order to prevent as far as possible the spread of the disease it has been deemed advisable to bring all municipalities into line with regard to the vaccination laws. About seven hundred of the twelve hundred municipalities in the province already have a compulsory vaccination law, and the order requiring the passage of such a law has been sent to the remaining five hundred municipalities.

The matter of prohibition is greatly exercising the minds of the general public and of those interested in the liquor trade at the present time. Prohibition was passed in all Canada as a war measure, with the exception of the Province of Quebec, while it was enacted that prohibition should become law in Quebec in May next. A good deal of dissatisfaction exists with respect to prohibition, especially among the working classes, and it is now argued by a part of the population that with the cessation of hostilities the prohibition laws should be repealed, or at any rate modified, and that so far as Quebec is concerned they should not be enforced. On the other hand, the advocates of prohibition, and these perhaps preponderate in number, contend that the laws abolishing alcoholic drinks have answered so well that they should continue in force. Sir William

Hearst, premier of Ontario, bluntly told a deputation of the provincial executive of the Dominion Trades and Labor Congress that the Government of Ontario does not intend to depart from its present temperance policy. The existing provincial legislation will remain virtually unchanged until a year after the war, when a referendum will be taken. The deputation asked that beer of 2½ per cent. alcoholic strength should be permitted instead of 2½ per cent. proof spirit as now. Sir William pointed out that the province could not alter the Dominion's provision in this respect. He noted that some labor men had not hesitated to express themselves in favor of prohibition laws. He believed their enforcement had made for efficiency and for the good of the community from the social standpoint, and indeed from all points of view, in the Province of Ontario. In support, doubtless, of the stand that alcohol is unnecessary and harmful, and perhaps in rebuke to those who took advantage of the epidemic of influenza to use alcohol for medicinal or ostensibly for medicinal purposes, the Premier quoted from the report of the American Public Health Association to the effect that alcohol was not beneficial to influenza patients.

There is no feature of demobilization which looms so large as that of venereal disease. General Mewburn, Canadian Minister of Militia, spoke recently on demobilization, of the Canadian forces and the difficulties connected therewith. Referring to the venereal question, he said: "One of the greatest dangers the nation has to cope with is the venereal trouble." He went on to mention that his adjutant general and the army medical officers said: "No, we have a duty to the nation, and we must hold these men and make them fit before being discharged, so that they will not be a menace when they go back into civil life." There is no doubt that this attitude is wise and justified by the circumstances. In any event, however, the increase of population by the influx of thousands of soldiers with money, many of whom will live in idleness for some time, will greatly complicate the venereal situation and vastly increase the problem of the streets of cities. In Canada, perhaps Montreal is the city in which the social evil is most evident. Prohibition is not in force, and according to the report of the committee of sixteen it contains a large number of houses of prostitution. Moreover, the demobilized soldiers land in Montreal, and are apt to stay in a city in which allurements are many, and unfortunately also are liable to contract venereal disease. An important conference on social hygiene was held in Toronto on November 14 and 15 last, under the auspices of the advisory committee on venereal diseases, No. 2 Military District. The meeting, presided over by Colonel McCullough, chief officer of the Ontario Board of Health, was held for the purpose of launching a nation-wide campaign against vice. One of the principal speakers was Madame Avril de Ste. Croix, president of the International Commission of Women for Unity of Morals, and there were present delegates from Montreal, Ottawa, Hamilton, and Toronto. Among the resolutions drawn up by the resolution committee were the following: That this conference is of the opinion that the use of alcohol contributes largely to immorality and its consequent venereal disease, and therefore puts itself on record in favor of nation-wide prohibition. That the problem of housing, especially in regard to young women living alone, is very acute, and should be dealt with energetically by the government and communities, in that bad housing conditions are regarded by the conference as a strongly contributing factor in the production of immorality and venereal disease. That the conference appreciates the action of the Ontario government in enacting valuable legislation, and feels that measures should be taken to see that there be coordination between the various provinces in the passing and enforcing of such legislation. Capt. Gordon Bates, C. A. M. C., of Toronto, in an able paper read before the Canadian Medical Congress, May, 1918, and published in the *International Journal of Surgery*, September, 1918, points out that investigations among troops quartered in Toronto revealed that the cases which were treated at the Base Hospital for No. 2 Military District had not all received their infections in Toronto, and that while over 50 per cent. of the infections had taken place in Toronto, infected men came in not only from almost every town and city in Ontario, but from other provinces, the United States, and from many other parts of the world. It was found that in a few parts of Canada organized prostitution existed on a fairly large scale. But it was also found that what may be termed promiscuous intercourse was frequent in Ontario cities, and was a fruitful means of spreading infection. It was discovered that in certain dance halls it was easy for men to pick up young girls, and that many girls who frequented these dance halls were both immoral and infected. When such a situation exists it may be gathered that the task of stamping out venereal diseases is rendered vastly more difficult. A diseased woman can spread the infection far and wide, and in order to prevent this means of dissemination the woman must be known and the necessary steps taken. The case of professional prostitution presents no great difficulties, but it is altogether a different matter in the case of the non-professional. However, it is most encouraging to notice that in the Canadian cities intelligently conceived and far-reaching methods are being put into force to safeguard the returned soldiers and also to prevent the soldiers from conveying infection. In fact, determined efforts are being made to decrease the volume of venereal infection, and, if possible, to stamp it out. A particularly encouraging feature in connection with the campaign against venereal disease in eastern Canada is the enthusiasm with which the question has been taken up by prominent women.

The Dominion Orthopedic Military Hospital of Toronto, formerly the National Cash Register factory, will be opened on February 1. It has a capacity of 600 beds for amputation cases and cases of internal injuries.

Major F. N. G. Starr, the well-known Toronto surgeon, is stationed at No. 14 Stationary Hospital, France.

The Jordan Memorial Hospital, New Brunswick, was presented to the province by Mrs. J. Clarke Jordan, who has expressed her willingness that it should be used as an institution for soldiers. It has passed into the hands of the Invalided Soldiers' Aid Commission.

Dr. A. Orr Hastings, a well-known physician of Toronto, and brother of Dr. Charles J. C. O. Hastings, head of the city health board, died on November 21.

Progress of Medical Science.

New York Medical Journal.

January 11, 1919.

1. The Medical Treatment of Cancer. L. Duncan Bulkley.
2. The Development of Consciousness. Henry Jones Mulford.
3. Envenomization Suggested as Etiology of Obscure War Diseases. Anne Young.
4. Spanish Influenza Epidemic. John J. Levbarg.
5. Foreign Bodies from the Trachea and Bronchi. Richmond McKinney.
6. Military Training as a Factor in Public Health—Advantages to the Country from Universal Physical Training. Charles O. Linder.

3. Envenomization Suggested as Etiology of Obscure War Diseases.—Anne Young briefly reviews the part played in the production of toxic and pathologic conditions in man and the higher animals by various insects and venomous animals, and suggests that symptoms of war diseases and other diseases of obscure origin may be explained by the pathologic changes following the introduction of an animal secretion, excretion, or tissue. This author points out that, aside from those referable to the special organ or part involved, the symptoms of all war diseases read wonderfully alike. Symptoms are controlled by the size of the dose of venom, and their character depends upon whether the venom is pre-eminently a neurotoxin (*e.g.* cobra venom) or a hemotoxin, such as the venom of the rattlesnake or Russell's viper. (The author remarks that the fact that the hemolytic power of venoms is not operative on all blood cells alike may account for the reported increase of the red cells to hemolysis while jaundice lasts in cases of epidemic jaundice. It has also been noted that while treating cobra venom with blood in the experiment of making cobra lecithin the acidity is raised. At a certain point the process is checked and it is not until an alkali is added that the process proceeds to the formation of the thermostable lecithin. This observation may explain the temperature remissions of many fevers of known bacterial origin and those of obscure etiology, such as trench fever.) The life cycle of insects may explain the peculiar outbreaks and disappearances of epidemics, even when of bacterial origin, as there are probably many symbiotic relationships between insects and bacteria. In the author's opinion the outstanding inference from this survey of literature is that the digestive secretions, excretions or tissues of animals may act as a venom when introduced into the tissues of another animal.

Journal of the American Medical Association.

January 11, 1919.

1. The Significance of Tuberculosis in Infants and Children, with Measures for Their Protection. Alfred F. Hess.
2. The Effect of Heat on the Spores of the *Bacillus Botulinus;* Its Bearing on Home Canning Methods: Part I. Georgina S. Burke.
3. Outbreak of Meningitis at Norfolk, Va. L. T. Royster and W. P. McDowell.
4. Favus Herpeticus or Mouse Favus: Possibility of Production of Favus in Man from Australian Wheat. R. E. Buchanan.
5. A Case of Multiple Chancres of the Penis. James C. Sargent.
6. Tuberculosis of the Stomach, with Report of a Case of Multiple Miliary Tubercles. G. A. Friedman.
7. Serum Treatment of Postinfluenzal Bronchopneumonia. Morris H. Kahn.
8. Physical Exercises in Use in the Cardiovascular Service, General Hospital No. 9, Lakewood, N. J. Bertnard Smith.
9. Anterior Dislocation of Atlas Following Tonsillectomy. Harold Swanberg.
10. Pneumonia at Camp Funston: Report to the Surgeon General. Eugene L. Opie, Allen W. Freeman, Francis G. Blake, James C. Small, and Thomas M. Rivers.

2. The Effect of Heat on the Spores of the Bacillus Botulinus: Its Bearing on Home Canning Methods. Part I.—Georgina Spooner Burke gives the results of a series of experiments undertaken to determine the effect of heat on the spores of the *Bacillus botulinus.* The work was prompted by seven cases of botulism investigated during the winter of 1917 to 1918 by Dr. E. C. Dickson, of the Leland Stanford, Jr., School of Medicine. (A report of these cases is in process of publication.) From the experiments made the author concludes: (1) Free spores of *B. botulinus,* grown in either broth or brain cultures, are highly resistant to heat. (2) Spores grown in brain cultures are more resistant than spores grown in broth cultures. (3) Exposure of the spores to a temperature of 100° C. or more inhibits the development of the spores of *B. botulinus* so that the incubation period is very much increased. (4) The method of canning by boiling the fruit or vegetables in an open kettle and sealing in clean jars cannot be relied on to sterilize material that is contaminated with spores of the more resistant strains of *B. botulinus,* since spores of *B. botulinus* will survive in boiling liquid for three and one-half hours; and in the foam that gathers on the side of the kettle they may live for a much longer period. (5) The sterilizing processes of the cold pack method are not sufficient to kill spores of *B. botulinus.* (By this method the fruit is blanched, then packed in jars, and the jars put into water and boiled for one continuous period of from one and a half to five hours.) Blanching in boiling water for five minutes is effective as a cleansing agent, but it does not materially injure spores of resistant strains of *B. botulinus.* One period of heating in boiling water for five hours or less will not sterilize the contents of jars if they are contaminated with the more resistant spores of *B. botulinus.* (6) Fractional sterilization on three successive days is of doubtful value because, after exposure to a temperature of 100° C. for from fifteen to sixty minutes, the germination of the spores is retarded so that they do not develop before the third sterilization period. (7) Pressure canning is the only method of sterilization that at present can be considered safe. But a pressure of 5, 10 or 15 pounds for ten minutes will not kill the more resistant spores of *B. botulinus.* Therefore a comparatively long sterilization period must be used. (8) With our present knowledge, the best way to guard against spoilage of canned goods due to *B. botulinus* is to prevent spores of this organism from entering the jars. The source of contamination is not at present known. (The author is collecting material in an effort to secure data bearing on this.) It is quite certain that the organism is not present under the skin of perfectly sound fruit and vegetables that are not overripe. Therefore, fruit and vegetables of this sort should be used. Bruised and partially spoiled material, if it is fit to use at all, should be consumed at once and not stored for future use. The fruit and vegetables should be thoroughly cleaned before they are peeled or cut in order that no foreign matter may be crushed into the pulp where it would be protected. It is possible that the spores of *B. botulinus* get into the jars from some source in the kitchen. For this reason it is essential that the hands and all utensils be made as clean as possible and that flies be eliminated. The use of sound fruit and clean methods of handling are the most important factors in canning, so far as *B. botulinus* is concerned, because the sterilization processes in common use will not kill all the spores. (9) It is important that housewives be warned of the danger of *B. botulinus* spoilage so that they may examine every jar carefully when it is opened for table use. The contents of the jar must not be tasted to "see if it is spoiled." The smallest taste will be fatal if the toxin is strong. There are three signs of spoilage from *B. botulinus,* any one of which is sufficient to condemn the jar. These are: (*a*) Gas bubbles in the jars, the tops of the jars blown and a squirt of liquid as the top is unscrewed; (*b*) an odor somewhat resembling rancid cheese; (*c*) a mushy or disintegrated appearance of the solid parts of the contents of the jars. (10) The toxin that *B. botulinus* produces after several weeks or months growth in a sealed jar may be entirely destroyed by boiling for five minutes, although the spores of *B. botulinus* are not killed by this treatment. It is the toxin and not the spores that produces illness, for the bacilli do not produce toxin when taken into the body. Therefore, any canned goods that are in the least suspicious should be emptied into a kettle and boiled for five minutes. They can then be eaten without danger. (11) Since *B. botulinus* produces toxin only in material that has

been sealed in an air-tight container for a week or more, and since it produces no toxin in the human body, there is no danger of botulism from uncooked fruit or vegetables or from those freshly cooked.

The Lancet.

December 21, 1918.

1. An Address on Lethargic Encephalitis. Delivered before the Medical Society of London on December 9, 1918. E. Farquhar Buzzard.
2. Lethargic Encephalitis: Note on its Distribution in England. S. P. James.
3. The Practical Significance of the Mass-Reflex in the Treatment of Injuries of the Spinal Cord. George Riddoch.
4. Blood Pressure and Physical Fitness of the Soldier. V. E. Sorapure.
5. The Complement-Fixation Test in Tuberculosis. Edward Fidlar.

1. An Address on Lethargic Encephalitis.—E. Farquhar Buzzard, in an address delivered before the Medical Society of London on December 9, 1918, points out that, though the fact is not realized sufficiently by the profession, encephalitis, or inflammation of the brain, is by no means uncommon. He states that for years he has urged the view that disease of the brain and spinal cord, produced by the virus of poliomyelitis, should be regarded as an acute specific fever which has a special incidence upon infants and children, the susceptibility to the infection decreasing as age advances. (The author has met with only few cases after 25, and none after 40 years of age.) Other forms of encephalitis, such as an occasional complication or sequela of typhoid fever, are more rarely encountered. It should be remembered, however, that there is a form of encephalitis which has the constitutional disturbances, the age incidence, the seasonal exacerbations, the sporadic and epidemic types, and the immunity from second attacks which are shared by measles, scarlatina, and other acute specific fevers; that it presents an inflammatory lesion of a particular tissue as in typhoid, diphtheria, and smallpox, and that it has been shown to be due to the virus of poliomyelitis. It is an acute infection, running its course in a few days, but often leaving permanent results in the form of paralysis, mental defects, and epilepsy. The epidemic which recently occurred in England is an entirely different disease, with slow onset and different age and seasonal incidence. This condition is known as lethargic encephalitis and its chief incidence is on the brain stem, the patients suffering from asthenia, lethargy, and disorders of ocular movements such as strabismus, diplopia, nystagmus, and ophthalmoplegia. Other cases occurred in which the oculomotor signs were absent but which gave the clinical picture of acute paralysis agitans; in such cases the chief incidence was on the basal ganglia and, in particular, on the globus pallidus. In a third group of patients the force of the inflammation was spent on the cerebral cortex. These cases gave rise to considerable difficulty in diagnosis, especially in regard to the possible presence of cerebral tumor, cerebral abscess, or cerebral hemorrhage. The author here cites four cases, in all of which the patients were over 40 years of age. None of them presented cardiovascular changes suggesting cerebral hemorrhage; nor did the clinical history suggest this, but rather some subacute lesion—abscess or syphilitic thrombosis. In all, the Wassermann reaction of the cerebrospinal fluid was negative. The lessons which may be learnt from these cases are: (1) That patients of over 40, and even over 50 years of age, may contract the disease. (2) That a naked eye examination of a brain on a post-mortem table is not sufficient to discriminate between an ordinary cerebral hemorrhage and a hemorrhage which is only an accidental occurrence in the course of an encephalitis. When there are no obvious gross signs of disease in the cerebral arteries to account for a hemorrhage, it is essential that microscopic examination should be carried out in order to determine the cause for the blood extravasation. (3) We must look on the presence of thrombosed cortical veins associated with hemorrhage in the neighboring brain substances as strongly indicative of an inflammatory process. There is no reason to suppose that lethargic encephalitis is a new disease, but it may be assumed that endemic cases occur from time to time. The recent epidemic is of practical importance in that it indicates the possibility of encephalitis in cases of cerebral disease which present difficulties in diagnosis. At the moment we are not in a position to say what is the nature of the infection, or to point to any method of treatment likely to abort or cure the disease. The author's experience of the four cases cited leads him to think that operative intervention in the way of decompression is contraindicated, in spite of the presence of increased intracranial tension. As to prognosis we have at present little definite information. Microscopical study of pathological lesions in the author's cases showed the remarkable way in which the vessels of the brain react in this inflammatory process. The chief features observed were: (1) Perivascular infiltration mainly with small round cells; (2) small capillary hemorrhages which suggest a gradual oozing of blood through the damaged walls of small veins and capillaries; (3) thrombosis of small and middle sized vessels in different stages of organization; (4) ischemic softenings presenting the appearance of the hemorrhagic infarction which one sees in other organs; (5) subarachnoid hemorrhages and cellular infiltration of the leptomeninges; (6) general neuroglial proliferation; (7) changes in nerve cells, in some places showing chromatolysis and in others a process resembling that of coagulation necrosis.

4. Blood Pressure and Physical Fitness of the Soldier.—V. E. Sorapure points out the importance of the tonal changes evident in making a blood pressure observation by the auditory method, the significance of which, for want of a satisfactory explanation, is so often ignored by physicians. He describes the phenomena observed in a blood pressure observation and shows that the length of the first phase should be 20 per cent. of the pulse pressure, the second 40 per cent., and the third 40 per cent. Sorapure believes that the presence and relative lengths of these phases is of wider clinical significance than the height of the systolic pressure alone, or even that of the systolic and diastolic readings compared, since it is quite a common experience to find an obviously inefficient heart giving what is accepted as the normal systolic and diastolic blood pressure reading. The author remarks, however, that he has never seen a case such as this which showed all the phases in anything like the suggested normal proportion. An analysis of the blood pressure findings in a group of 769 soldiers during the twelfth week of training resulted as follows: (1) Comparison of the age groups showed that there was but little variation in the average readings; (2) the average systolic pressure was higher than in civil life, but it must be remembered that the tests were made at the end of a hard day's work; (3) the average diastolic pressure was more constant, not showing the same tendency to rise as the systolic; (4) the average pulse pressure was approximately 60 per cent. of the diastolic pressure; (5) the average period of the first phase was 20 per cent. of the pulse pressure; (6) the average period of each of the second and third phases was about 40 per cent. of the pulse pressure; (7) with the singular exception of age 25, ages 23 to 31 showed the highest percentage of men in whom all phases were present; (8) the extremes of pressure in each group were notable, indicating the wide range within which individuals vary, yet the average of each group was strikingly constant. In actual training it was found by experience that more could be expected from men between the ages of 21 and 31, and that those under 20 and over 35 required more careful handling. From these observations the author concludes that the most constant factor, the diastolic pressure, is for all ages somewhere between 70 and 90; that the systolic pressure should be about 50 or 60 per cent. higher than this; that the range of pressure between the two should be capable of differentiation into three different phases—the first, or first tonal, being 20 per cent. of the whole; the second, or murmur, being 40 per cent.; and the third, or second tonal, 40 per cent., which findings are characteristic of the fit man. A second group of 189 men was then analyzed; these men had all been invalided home from abroad, but none were suffering from organic heart trouble. Practically all showed, or had showed, evidence of autonomic disturbance of the

cardiovascular mechanism (D.A.H.). The features that were most marked in this group were: The very high percentage of the men who did not show all the phases and the greater instability of the diastolic pressure; in those who showed all the phases there was a remarkable variation in the relative proportion of same as compared with the first group; the best groups in this series, ages 29 and 36, compared most unfavorably with the worst, ages 37 and 39, in the first series. It is concluded therefore: (*a*) That the men who are less efficient than normal do not show the characteristic phases which prevail in the first series analyzed; (*b*) that those who are physically fit show these phases in the majority of readings; (*c*) that the result of this simple test is a factor worth considering in estimating the physical capacity of an individual. The practical application of this test takes but two minutes at most.

British Medical Journal.

December 21, 1918.

1. Excerpts from the FitzPatrick Lectures: The Early History of the Army Medical Service and the Naval Medical Service. Arnold Chaplin.
2. Bone Grafting in Gunshot Fractures of the Jaw. Wm. Billington, Arthur H. Parrott, and Harold Round.
3. Influenza: Its Cause and Prevention. W. Ford Robertson.
4. Blood Agglutinins in Meningococcal Attacks. I. Walker Hall.
5. Nitrous Oxide and Oxygen in Combination with Ether or C. E. Mixture for Nose and Throat Operations. H. Edmund G. Boyle.
6. Historical Account of Tonsillectomy. E. E. Violet Glover.
7. Operating to the Clock. John O'Conor.

2. Bone Grafting in Gunshot Fractures of the Jaw.—William Billington, Arthur H. Parrott, and Harold Round point out that successful treatment of compound fracture of the mandible involves (1) osseous union, (2) functional occlusion, (3) avoidance of disfigurement. It is essential that firm osseous union should be obtained, even at the expense of deformity, otherwise the power of mastication is gravely impaired. Where there is a gap between the bony fragments of more than half an inch, osseous union is rarely obtained unless the fragments are allowed to approximate at the expense of normal alignment, or a bone graft can be successfully introduced, and in cases where the gap is wide the only successful means of treatment is by a bone graft. This is also indicated in cases where there is overriding and malposition of osseous fragments, or where mobility of the fragments from muscular action cannot be prevented by mechanical means—for example, short posterior edentulous fragments. Bone grafting in fractures of the jaw from war wounds has presented such difficulties that at first the attempt was given up. The deformity resulting from allowing the fragments to approximate, and the difficulty of fitting dentures was so great, however, that further attempts were made and the authors describe a technique which they now employ with such success that the graft rarely fails to heal firmly. Preliminary preparation is prolonged and may last for many months. An *x*-ray examination is first made, after which patient is anesthetized and the wound explored. Foreign bodies, teeth in or adjacent to the fracture, and loose fragments are removed, larger fragments of bone replaced in as normal a position as possible, and soft tissues drawn together. Provision must be made for sufficient drainage and access to raw surfaces inside the mouth. Sepsis is apt to be persistent while the wound is healing, and further operations may be necessary for the removal of sequestra and drainage of pockets. Dribbling of saliva from the mouth should be prevented by plastic operations, and careful attention must be paid to the maintenance of the patient's physical fitness. After all wounds inside and outside the mouth have healed, from four to six weeks should elapse before the bone-grafting operation is performed. Immediately before the operation, all dental fixation splints are removed from the mouth and at operation a skilled anesthetist is essential. A curved incision is made in the neck beginning one inch behind the extremity of the posterior fragment and ending one inch in front of the end of the anterior fragment. The incision commences and finishes about half an inch above the line of the lower border of the jaw and in the neck runs about one inch below that line. It is only by carrying the incision well below the jaw and raising a flap that sufficient soft tissue to envelop the graft satisfactorily can be obtained. Great care has to be taken in splitting scar tissue to avoid opening into the mouth, an accident which necessitates postponement of the operation. The unsatisfactory bed provided by this scar tissue constitutes one of the difficulties of this operation. The incision is deepened by cutting upward and inward until the lower border of each fragment is reached. The soft tissues covering the outer surface of each fragment are then raised for an inch away from the gap and turned up in the flap. Ends of fragments and fibrous tissue are carefully cut away, and finally each fragment is beveled by cutting away a flake of bone from its outer surface with bone forceps. All bleeding is carefully arrested and the bone graft prepared. After many experiments, the iliac crest was finally selected as the site from which to take the graft. This bone is tough and can be cut with bone forceps without splitting. Further, a graft can easily be obtained of any length or breadth, and the natural contour is approximately that of the jaw. The graft should be taken preferably from the same side as the operation wound, so that patient may lie comfortably on the other side. An incision is made over the crest, commencing at the anterior superior spine and extending as far back as required. Muscles are separated on either side and pressed back by retractors. With a Horsley's hand saw a graft two inches longer than the gap to be filled is cut; if a more curved piece of bone is needed the graft is made to include the bone between the superior and inferior spines. After removal of the bone, the muscles are sewn together with catgut and the wounds closed. The ends of the graft are then beveled, the beveled areas lying on the prepared outer surfaces of the jaw fragments. In this way the graft overlaps the gap by an inch at each end, which has the following advantages: a broad line of bony contact between the graft and fragments is provided, with increased prospect of speedy firm osseous union, and there is practically no risk of separation by subsequent manipulations. Experience has shown that the presence of foreign bodies, such as plates, screws, etc., militates against healing. The graft is therefore kept in place simply by sewing the soft tissues closely over the graft and ends of fragments by hardened catgut, and is thus surrounded with living vascular tissue and dead spaces are abolished. No drainage is employed beyond that of leaving spaces between the skin sutures to allow of escape of serum. No attempt is made to reintroduce dental fixation splints until the wound is firmly healed and the compound fracture converted into a simple one, which is usually in about two weeks. The final dentures should not be fitted for four or, perhaps, six months.

Berliner klinische Wochenschrift.

November 11, 1918.

The Formation of Amputation Stumps for Voluntary Movement of the Arm Prostheses.—M. Borchardt offers a synthesis of the teachings derived from a long experience with the Sauerbruch-Staddler technique. The requisite conditions for the musculocutaneous canal formed in this operation are as follows: (1) The cutaneous tube must be composed of normal skin and placed sufficiently forward. (2) The sutures must be proximal as far as possible; union must be on the anterior aspect of the limb in order to avoid friction from the anterior branch of the prosthesis as far as possible. (3) The canal should be broad and short. (4) It should be perpendicular to the direction of muscular traction. (5) The canal should possess the greatest possible excursion when acted upon by the tunnelized muscles. In reference to these various desiderata, the writer shows what are the mistakes most frequently made in the technique of the operation. As to the formation of the cutaneous flap destined to tunnelize the muscles, he concludes that flaps made obliquely in relation to the axis of the limb are better for good implantation, on the one hand, on account of their nontransversal situation which already approaches the final transversal position, and on the other, on account of their semilongitudinal direction which assures a good vascularization of the pedicle. The excursion of the branches of the

prosthesis may attain eight centimeters for the biceps, while the triceps does not reach more than three centimeters. The complications and unsuccessful results (the reviewer has never seen a single case that could be called a really successful result among soldiers who had undergone this operation by Sauerbruch himself) are most commonly due to the following causes: (1) Partial necrosis of the distal end of the cutaneous tunnel; (2) Its total necrosis; (3) Inflammatory and suppurative processes within or in the neighborhood of the tunnel; (4) Persistent granulations in the tunnel; (5) Secondary sclerosis and occlusion of the tunnel and (6) Ulceration of the tunnel when the limb is used. Borchardt studies the precautions which are necessary to take in order to avoid these always possible complications. He does not approve of shortening the bones as this might hinder the fixation of the prosthesis. In high amputations, he proposes tunneling the pectoralis major as was carried out in a case of disarticulation of the shoulder, with, he says, a good result.

The Pathogenesis of Trophic Tissue Disturbances Following Lesions of the Nerves.—F. Breslauer defends the thesis that the trophic function of the nerves depends above all on their vasculonervous function. Some experimental work and some considerations on a subject of already rather old vintage, lead the writer to conclude that trophic disturbances are the result of the less of the vasodilating reflex function. They are usually accompanied by anesthesia.

Münchener medizinische Wochenschrift.

November 5, 1918.

Can Spontaneous Rupture of a Healthy Aorta Occur and How Does It Take Place?—F. Oppenheim studies this question in relation to a case in which the aorta was torn as the result of efforts at defecation, and ruptured into the pericardium. The patient had a glomerular nephritis. A most minute histologic examination did not reveal any changes in the aortic walls. Therefore, the rupture must have resulted from an internal hyperpressure. Experimental researches undertaken by the writer showed that the normal aorta, when submitted post mortem to an increasing hydrostatic pressure, ruptures at a point of election situated at its posterior aspect slightly above the sigmoid valves. But in comparing the necessary pressures for rupture of this vessel after death, to pressures which produce it in the living, it becomes evident that the required pressure is three or four times less in the latter. The writer gets around this difficulty by supposing that the aorta in the living is three or four times less resistant than in the cadaver, a supposition which, to say the least, is rather paradoxical and scarcely one to cause conviction to the scientific mind. It would appear most logical to suppose that Oppenheimer's patient possessed arterial changes which were not microscopically evident. As to predisposing factors of "spontaneous rupture," the writer first invokes the factors of hypertension, and afterward circumstances causing dilatation of the aorta at its origin, first of which in order of importance should be placed stenosis of the aortic isthmus.

Substitution of the Paralyzed Biceps by the Pectoralis Major.—G. Hohman, in a case of poliomyelitis which had resulted in paralysis and marked atrophy of the right arm, with laxity of the shoulder-joint and loss of all movement in the elbow, resorted to the following operation at one sitting: Scapulohumeral arthrodesis and fixation in abduction at an angle of 110°; a loop was formed by suturing certain tendons of the arm together (the writer's description is more than vague) and through this loop the tendon of the pectoralis was passed and sutured to that of the biceps which had been shortened by several sutures. It is quite impossible to determine from the writer's incomplete description whether or not he sutured the pectoralis to the block of flexor tendons. At the end of a fortnight the limb was mobilized and the following result obtained. By mobilization of the scapula a certain amount of extension of the arm could be made, while the forearm could execute energetic flexion. The arm could be used in eating and could execute little movements.

Deutsche medizinische Wochenschrift.

November 7, 1918.

The Effect of Natural and Artificial Carbonic Acid Gas Baths on Cardiac Subjects.—E. Weber describes a procedure which allows one to follow and estimate the progress made in the circulatory functions under the influence of this treatment, by means of plethysmographic charts.

The Specific Treatment of Frank Pneumonia.—C. Klieneberger recalls the fact that frank pneumonia ends in a sudden crisis of resolution at the time when the antipneumococcic opsonic index undergoes an ascension, a fact proved by many laboratory researches. This fact leads to the hope that a certain amount of success may be derived from passive immunization. To obtain this end the writer has resorted to a polyvalent serum and thinks that he has been able to note happy effects by this treatment. The article is written in a critical spirit and the writer remembers the ordinary benignity of the disease which is recovered from "in spite of any treatment." Treated with serum pneumonia seems to have a quicker evolution, while the drop in temperature takes place by lysis instead of the usual crisis.

Salvarsan-Silver.—Gennerich has obtained good results from the exhibition of this product and finds that it is less toxic and more efficacious than other salvarsan products. A treatment of two and a half or three weeks is enough to obtain abortive sterilization of a primary local syphilis in the seronegative phase. A primary seropositive syphilis is also cured in a short lapse of time, while in secondary lues many cases become seronegative in from three and a half to four weeks, so that any future treatment becomes unnecessary. Cases of older infection require a more prolonged treatment, which should be combined with the iodides rather than with Hg.

Wiener medizinische Wochenschrift.

October 9, 1918.

The Blind of Warfare.—L. Schmeichler offers a paper containing a certain number of case histories which enter into the domain of the psychology of the blind of warfare, and also in the domain of their social usefulness. The relations with this category of wounded should be those of affectionate cordiality, and at the same time combined with a certain amount of humor. Contact of the hand on the arm or shoulder of the blind subject at once establishes a psychic contact which facilitates the relations. The writer insists on the serious psychic shock at the beginning and therefore an optimistic prognosis should be given to these men. The ulterior failure to produce an improvement in their sight will allow the physician progressively to lead the patient to accept his unfortunate situation, but this should not be until the time comes for finding an employment which will offer a social situation of the subject. It is important that the blind should learn only one trade because the maximum of efficiency can only thus be obtained, and this efficiency will always be inferior to that of a man in possession of his vision.

Wiener medizinische Wochenschrift.

October 16, 1918.

Experiments with the Blind of Warfare.—L. Schmeidler states that the profession of musician or tuner is not to be advised for blind subjects having no former musical instruction. In Austria the blind are given a small house with a little piece of land. From the viewpoint of their pension, usually a little increased by that coming from a decoration, these men receive between 2,200 to 2,400 crowns. A law is about to be put through increasing this amount to from 3,000 to 3,200 crowns. (In Germany this pension is a little higher.)

Le Presse Médicale.

November 21, 1918.

Action of Organ Extracts and Autolysates.—Roger, who has worked for many years on this subject, con-

tinuing the original labors of Brown-Sequard and Bouchard, announces some generalizations, as follows: the least toxic of all extracts is muscle extract. To kill a rabbit by injecting this extract the amount necessary per kilo of weight is equal to 90-95 gms. muscle. The extract must also be made by the cold process for heat destroys some of the poison constituents. Liver extract is much more toxic than muscle, although still weakly active. At the other extreme the most toxic extract is one made from the lung. A dose equal to 5 or 6 gms. of solid extract will kill. Why should foreign protein show such differences of behavior? Is it a matter of physical chemistry, a difference in the size of the molecules in virtue of which more of the smaller sort reach the blood? There is another theory, that of tachysynthesis, in virtue of which the defensive substance which neutralizes the toxic protein in the blood adjusts itself more readily to one substance than another. The term tachysynthesis means literally rapid tolerance. If a weak extract of lung is injected into a vein the body quickly becomes accustomed to it. The normal fatal dose is supported and even doses 3 or 4 times as strong. Hence the stronger extracts lose their power by acquired tolerance. At the same time the large colloid molecules when injected subcutaneously may traverse with difficulty the cellular planes. If we compare them with glycogen the latter is arrested in the cells of the liver, where it undergoes hydration and a breaking up into smaller molecules, those of glycose. Proteins and neutral fats undergo a similar alteration. Tissue enzymes break up the large colloid molecules and in the intestine this act makes possible the absorption. In the substance of the tissues the process is one of autolysis. Here, as in ordinary digestion, large molecules are broken up into smaller. The study of the intravenous injection of autolysates should be of interest. The author soon learned that an organ subjected to autolysis is less toxic than an intact organ. After standing for a given length of time the autolyzed organ is less toxic by a very high ratio—from 1 to 16 to 1 to 77 in some material tested. But physiological activities now become obvious, as, for example, when an autolysate of lung tissue was seen to have an action on the bloodvessels somewhat resembling that of adrenaline. Sputum which contains albumin can be made to show hypotensive property but albumin-free sputum is inert in this respect. Sputum of consumptives always contains albumin and may have a marked hypotensive action.

Journal de Médecine de Bordeaux.

November, 1918.

Influenza in Bordeaux.—Arnozan writes succintly on this subject. Whence came the disease? From Switzerland through repatriated prisoners? From Spain, which is not far away? From the fighting front? No one can tell. Perhaps from all three. It seems certain that repatriates from Switzerland are partly responsible, because cases could be traced directly to them. A few cases were in evidence in June and in July the number augmented. But not until the end of September could the malady be regarded as epidemic. The time was ripe for closing schools and colleges before the malady could spread but this step was omitted. The annual opening of the educational institutions at this period seemed to give the disease a push. It broke out everywhere. Prophylactic efforts were at once set in motion and apparently to advantage. All was done which could diminish collecting and crowding on the part of the public. The death rate began to decline from the first week in November and at time of writing is low, but a recrudescence is possible. Is this epidemic the same that flourished thirty years ago? The older was more contagious, for hardly any escaped. The current epidemic has spared many citizens, but is more murderous. The type shows much difference, for cerebral symptoms and empyema, so common at present, were but little in evidence in 1890. Pfeiffer's bacillus, credited as the exciting cause in 1890, is now relegated to the position of a cause of secondary complications. The pneumococcus was not much spoken of in the older epidemic and was present only exceptionally. When bronchopneumonia appeared in 1890 it was always streptococcic. In the older experience the mask was not thought of, which speaks volumes for the more deadly quality of the present epidemic. We thought more of the possibility of aerial transmission and less of the mouth to mouth transmission in the old days. Now all of our prophylaxis centers about preventing this mouth to mouth contagion. The germ is not visible outside the body and despite apparent examples, air borne transmission has not been proven.

Le Progrès Médical.

November 30, 1918.

Conception of the Febrile State.—Bernheim states that in fever there are two leading phenomena, acceleration of pulse and rise of temperature. Neither alone can constitute fever because tachycardia is a general symptom and hyperthermia is a general symptom. A temporary rise of temperature is not a febrile phenomenon, for this rise must persist over a certain interval. This persistence is due to the presence of some pyrogenetic agency which is responsible for what we call the febrile movement. The latter has a definite range based on the normal thermogenesis of the body which results in a temperature of 37° C. The range is ordinarily from 39° to 41° C. The most common of the pyrogenetic agencies is a microorganism or its toxic secretions. While certain organisms are pyretogenic themselves others are not, the latter including the causes of cholera, whooping cough and syphilis. The latter, when they do excite fever, are associated with other bacteria which are pyretogenetic. There are numerous organisms which can exist in the body without causing fever until they are roused to pathogenicity. Here belong the pneumococcus and typhoid bacillus. In organisms of this type not the organism itself but the toxic secretion must constitute the pyretogenous principle. There are, however, true fevers which are not of microbian origin and here belong such phenomena as milk fever, fever of dentition and perhaps certain fevers of endocrinic origin. That certain drugs cause fever may be explained by latent microbism, and this doctrine can of course be thought of in connection with the physiological fevers just mentioned. The unknown poison of influenza arouses the latent microbism of clinical grippe as shown in pneumonia and septicemia. Our only rational treatment of fever is the use of antisera for we know of nothing else which could possibly neutralize the pyretogenic agents.

Hygiea.

October 31, 1918.

Case of Cardiospasm with Dilatation of the Esophagus.—Lindstrom reports the following: Patient, male, 43 years old, ill 6 years with stomach symptoms. For past three years voluminous and persistent vomiting. Marked emaciation, present weight 78 pounds. Obstruction at cardia and notable dilatation of the esophagus above. Treated by gastrostomy and feeding through the fistula. Recovery of general health but patient still unable to swallow food most of which sticks in the gullet. Treatment with sounds without result. Radical intervention as follows: temporary closure of fistula and incision along left costal margin. Marwedel's incision then gave access to cardia. No scar or other evidence of past ulcer. The author then went through the peritoneum and the cardia was mobilized for its whole circumference. The stenotic portion of the esophagus up to the dilatation was now exposed and dilated digitally up to the admission of three fingers. The finger was pushed up through the cardia and stenotic portion. A cardioplastic operation followed which involved the cardia proper and the formerly contracted esophagus. A thick sphincterlike muscle ring 3-4 cm. above the cardia required division. There was no postoperative reaction and on the next day patient was able to swallow water and semifluid food, as eggnogg. On the tenth day the sound was removed from the fistula the latter soon closing spontaneously. An x-ray picture taken two months later, showed that fluid and semisolid food passed readily through the gullet. There was no tendency to contraction, as the largest stomach sound readily entered the stomach.

Book Reviews.

THE UNSOUND MIND AND THE LAW. A Presentation of Forensic Psychiatry. By GEORGE W. JACOBY, M.D., author of "Child Training as an Exact Science," Fellow of the New York Academy of Medicine, member of the American Medical Association, American Neurological Association, and New York Neurological Society, Consulting Neurologist to the Hospital for Nervous Diseases, the German Hospital, the Beth Israel Hospital, the Red Cross Hospital, and the Infirmary for Women and Children in the City of New York, etc. Price, $3 net. New York: Funk & Wagnall Co., 1918.

DR. JACOBY has endeavored to meet the demand for a book which will bridge the chasm between the legal point of view and the medical one in dealing with abnormal offenders, and has succeeded to a certain extent. His chief error, *i.e.* the insistence upon a purely material basis for all mental disorder, does not affect the book's value for the lawyer, or even for the general practitioner. We do not see how the lawyer or physician can fail to derive much benefit from this book. An interesting feature is the inclusion of several actual cases where the determination of the mental state was a matter of difficulty with a careful analysis of these cases and a full opinion. The book as a whole is of convenient size and a handy reference book when legal difficulties threaten.

WAR NEUROSES. By JOHN T. MACCURDY, M.D., Psychiatric Institute, Ward's Island, New York; Lecturer on Medical Psychology, Cornell University Medical School, New York; with a preface by W. H. R. RIVERS. M.D. (Lond.); Fellow of St. John's College, Cambridge. Price, $2.50 net. Cambridge: At the University Press, 1918.

AN unexpected and alarming feature of the Great War was the large proportions of nervous and mental diseases in the casualty list. The condition known as "shell shock" was first a curiosity, next a recognized disease, and finally a problem and a menace. This volume is an effort at studying the problem and finding a remedy. The author approaches it from a psychological standpoint, which is the only really intelligent one. He believes that fatigue is the chief cause, acting upon a neurotic constitution. Many illustrative cases are given and the book is a valuable one, although limited in scope. The space given to prophylaxis, we believe, could be enlarged advantageously.

THE HUMAN MACHINE, AND INDUSTRIAL EFFICIENCY. By FREDERIC S. LEE, Ph.D., LL.D. Dalton Professor of Physiology in Columbia University; President of the American Physiological Society; Consulting Physiologist to the U. S. Public Health Service; Chairman of the Sub-Committee on Fatigue in Industrial Pursuits of the National Research Council; Executive Secretary of the Divisional Committee on Industrial Fatigue under the Advisory Commission of the Council of National Defense. With illustrations. Price, $1.10 net. New York: Longmans, Green & Co., 1918.

PSYCHOLOGY and physiology are beginning to take their merited place in economics. Manufacturers are beginning to realize that in their calculations they must take into account the human machine with its limitations and potentialities. Thus the Government in its press of war work found it advisable to give its clerks two recess periods during the day, besides the lunch hour. In this little book are discussed some of the factors which enter into industry, such as fatigue, capacity, night work, food and so on. The author has written an exceedingly instructive little book, one which can be read with profit by anyone who employs labor or is responsible for the health of workmen.

MENTAL DISEASES. A Handbook Dealing with Diagnosis and Classification. By WALTER VOSE GULICK, M.D., Assistant Superintendent, Western State Hospital, Fort Steilacoom, Washington. Illustrated. Price, $2.00 net. St. Louis: C. V. Mosby Co., 1918.

WE do not see how this book can be of any assistance to the physician. In 139 small pages the author has endeavored to discuss the whole field of mental disorder, quote cases, and give pictures of 35 patients. Naturally the book takes on the form of a compend, and a not too accurate one at that. One must have a wonderful gift of condensation to describe psychogenic neuroses, for example, in something like 700 words, but this author has attempted it. Defective states are given about 200 words. In short, the book impresses us as an effort to squeeze a quart into a pint pot—an impossible feat.

INTRODUCTION TO ORGANIC CHEMISTRY. By JOHN TAPPAN STODDARD, Professor of Chemistry in Smith College. Second Edition. Price, $1.50. Philadelphia: P. Blakiston's Son & Co.

THIS little book should prove serviceable to the beginner in organic chemistry. The author presents the subject very clearly, and avoids too much detail. Fundamental principles are presented, and the student is gradually led into the desirable habit of "thinking in chemistry." The book makes no pretence to be more than an "introduction"; and in conjunction with a modern text-book and laboratory work, it should smooth the student's path and make a pleasure of what so many find difficult and confusing. The book is well arranged and is of a handy size.

STUDIES FROM THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH. Reprints. Vol. XXVIII. New York, 1918.

THIS publication is a paper-bound collection of reprints which have appeared in various medical journals during 1917. The contents are classified under the headings of "Pathology and Bacteriology," "Physiology and Pharmacology," "Chemistry," "Experimental Surgery," "Experimental Biology," "Papers from the Hospital of the Rockefeller Institute," "Animal Pathology." These Studies appear serially at irregular intervals. The present volume comprises 661 pages, including an index of both authors and subjects. The name, date, number, and page of the journal in which each article originally appeared are printed above the title. The papers are accompanied by numerous cuts, charts, and plates. The range of subjects is wide, varying from pure research problems to topics of a very practical clinical character.

PRINCIPLES OF BACTERIOLOGY. By ARTHUR A. EISENBERG, A.B., M.D., Cleveland, Ohio; Director of Laboratories, St. Vincent's Charity Hospital; Demonstrator of Pathology, School of Medicine, Western Reserve University; Visiting Pathologist, St. John's Hospital; Visiting Pathologist, Lutheran Hospital; Fellow American Medical Association. Illustrated. Price. $1.75 net. St. Louis: C. V. Mosby Company, 1918.

A TEXT-BOOK for nurses is not easy to write successfully, for it must contain nearly as much information as is given to medical students, with the restrictions that the language must be as non-technical as possible. nothing essential must be overlooked, and the author must not assume any correlated knowledge in other branches. Dr. Eisenberg has written a manual of bacteriology which fulfills all these conditions, and hence is to be congratulated. The fundamentals of the subject are concisely and clearly presented, and in 187 small pages he has marshaled a vast amount of information. Indeed, the volume would not be out of place in the library of the general practitioner.

DISPENSARIES: Their Management and Development. A Book for Administrators, Public Health Workers, and All Interested in Better Medical Service for the People. By MICHAEL M. DAVIS, JR., Ph.D., Director of the Boston Dispensary, and ANDREW R. WARNER, M.D., Superintendent of Lakeside Hospital, Cleveland. Price, $2.25. New York: The Macmillan Company, 1918.

THIS monograph traces the history of the dispensary which culminates in the statistics of the dispensaries of the day as limited to the United States. Dispensary patients are next analyzed, as well as the medical and administrative organization and the social service factor. The technique of operating dispensaries, out-patient departments of hospitals, and other ambulatories is next given. The final section deals with the interrelations of dispensaries and practising physicians.

Society Reports.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held December 23, 1918.

EX-PRESIDENT DR. FREDERIC E. SONDERN IN THE CHAIR.

Committee to Consider Workingmen's Compensation.—Dr. E. ELIOT HARRIS presented a resolution to the effect that inasmuch as the New York State Association for Labor Legislation and the Merchants' Association had prepared a new bill amending the Workingmen's Compensation Law for presentation at the coming session of the Legislature, a copy of which had been submitted for the consideration of the Medical Society of the County of New York, a committee be appointed to consider this bill. This motion was carried and a committee appointed consisting of Dr. Eden V. Delphi, Dr. William S. Gottheil, Dr. Daniel S. Dougherty, the chairman of the Committee on Legislation ex-officio, and the Chairman of the Committee on Public Health ex-officio.

The Office of the Chief Medical Examiner; Its Relation to the Public, the District Attorney's Office and the Medical Profession.—Dr. CHARLES NORRIS read this paper, in which he stated that a legislative act, which became law April 4, 1915, established the office of Chief Medical Examiner and thereby abolished the office of coroner. The functions of the office were entirely investigatory, namely, the determination of the cause of death, a medicolegal investigation which might require the aid of refined bacteriological and pathological methods and familiarity with gross pathology which came only to those who had had a long and varied experience in this important field of practical medicine. A review of the sections of this act of the legislature showed that they determined when an autopsy was necessary and when a case might be closed on examination—and it also required that post-mortem records should be dictated on the spot to a stenographer. In the opinion of the speaker the law was admirably drawn up for effective work. Under this law the chief medical examiner might appoint and remove such deputies, assistant medical examiners, scientific experts, officers, and employees as might be provided for pursuant to law. In the past no decent provision for the chemical examination of the viscera of cases of known or suspected poisoning existed. The investigatory functions of the chemical laboratory of the Chief Medical Examiner's Office were of the greatest value in determining the cause of death in suspected cases of poisoning from alkaloids, metals, etc. The proper presentation of the evidence of poisons before the courts was a matter of the utmost importance in many cases of homicide, suicide, and abortion, and even in accidental cases of poisoning. In the past, for the want of proper legal presentation, many cases have been lost in the courts. Chemical examination of the organs, even in cases of poisoning, where there was suspected criminality, should be done in every case. This work had been done for the Medical Assistant of the District Attorney of New York County since this office was created, and previous to this time, for a few of the coroner's physicians who asked for this departmental courtesy, by the pathological department of Bellevue Hospital. During the recent gas epidemic the spectroscopic examination of the blood of cases of asphyxiation and various tests for carbon monoxide were performed by the assistant medical examiners and by the laboratory. The necessity had been recognized of preserving evidence for court presentation in cases of suspected homicide through gas asphyxia, and they had adopted the method which enabled them to do this. The duties to the public were in the main prompt service and courtesy, the issuance of death certificates, the performance of autopsies in accident cases to protect the civil rights of the relatives of the deceased in one case and in the other insistence on the performance of post mortems to protect private and hospital physicians. It was important that the medical examiners should testify only to matters of fact and evidence, not on opinion, except as it might be asked for on either side. Dr. Norris said it was his aim to have the office of medical examiner avoid the numerous errors of the past which necessitated re-examinations or so-called secondary or fresh autopsies which entailed exhumation in accident or homicide cases, at large and unnecessary expense.

In speaking of the relation of the office to the District Attorney, Dr. Norris stated that the office sent to the District Attorney the reports of deaths of all cases of homicides, suicides, cases of poisoning, and all suspicious cases. They included the chemical reports and any evidence indicating criminal negligence in accident cases and copies of the testimony taken under oath. The office, unlike the coroner's, held no inquests. This work was performed by the grand jury, the magistrates and the district attorney. The medical examiner and his assistant medical examiners might administer oaths, and take affidavits, proofs, and examinations as to any matter within the jurisdiction of the office. Recently in a hotel room a woman was overcome after cyanide disinfection of one of the rooms. An autopsy was made and evidence of cyanide poisoning was found by chemical tests. The agents of the disinfecting company in this case were, in the writer's opinion, distinctly at fault in allowing people to enter the room before it had been sufficiently ventilated. It was a function of the office to see that appropriate measures were taken to force companies to exercise more care. Steps were being taken to include chloroform among the articles which could not be dispensed without a physician's prescription. Dr. Gettler and the writer had been able to develop a method for the detection of salvarsan and its substitutes, and were able to state that this method was valuable in suspected cases. Briefly, the policy of the office was to bring out all the facts, medical, pathological, or chemical, and to present all such evidence in proper fashion, and at the same time to avoid the danger of looking at facts through the spectacles of theory.

The prosecuting branches of the office were in the hands of the District Attorney and the Police Department. It would be seen that there was grave and urgent reason for the separation of this office from the police and that of the District Attorney, and that this office should not be a bureau of these departments, but a separate department of medicolegal inquiry. For all practical purposes, however, the three departments must work hand in hand. The medical examiner's department, on the other hand, was subject to the jurisdiction of the Department of Health, which might, from time to time, make rules and regulations affixing the times of rendering, and defining the form of returns and reports to be made to said department by the office of the chief medical examiner. In all cases of death the office of the chief medical examiner was required to conform to such rules and regulations. The medical work of the office was performed by eleven assistant medical examiners. One of these was an acting deputy who helped the chief medical examiner at night. The Manhattan office in ten months had handled 5280 cases with four medical examiners; the Brooklyn office during the same period had handled 3322 with only two medical examiners. Dr. Norris then described the difficulties of performing the work with the limited amount of help and showed that the physicians received only $3,000 a year and about half of this was required to pay for their transportation in attending to their cases. Furthermore no provision was made for vacations, the medical examiners being on duty every day of the year. The speaker's point in bringing out the detail of the routine life of the examiners was to testify to their extreme good nature and the high sense of civic duty that they exhibited. While there was provision for autopsy work in Manhattan, in the other boroughs it was performed with the greatest difficulty. While the department was well equipped, or at least had made a good commencement in chemical and toxicological examinations of the cases coming under their observation, the same could not be said for what he termed the other scientific branches of the department, namely, the microscopical and bacteriological examinations. They were forced in the Borough of Manhattan to call upon the pathological department of Bellevue Hospital for aid in these examinations. In the last budget they had asked for the appointment of three pathologists and a laboratory assistant and a laboratory helper. This request was not granted. At the present time they had

no facilities for performing serological reactions. The condition might be accurately described as disgraceful. It was not possible to properly perform the work of this office in the Boroughs of Queens, Bronx, and Richmond, where autopsies were mostly held in undertaker's shops. The examiners in the offices had no way of improving themselves along the line of their work, yet to perform the work of the office properly the medical examiner must have high qualifications. It was impossible at the present time to obtain men properly qualified for the position of medical examiner. After describing the various qualifications which he had found were essential for the proper performance of the work, Dr. Norris called attention to the importance of the questions which confronted medicolegal inquiry. A matter of grave importance in the medicolegal and criminal investigation of cases of abortion and suspected abortion dying in the various municipal and private hospitals, and more especially in the various sanatoria and physicians' offices of the Greater City of New York, was that the attending gynecologists and surgeons and their respective staffs and internes were singularly unaware of their responsibility to the prosecuting authorities in regard to the preservation of the pathological material of such abortion, namely, the curettings and, in some cases, the uterus removed by hysterectomy. He felt that if the attention of the medical profession were called to this subject there would be a prompt improvement of this deplorable situation.

Dr. J. P. Davin asked what the expense of conducting the medical examiner's office was as compared with that of the coroner's office.

Dr. Norris replied that the last coroner's budget was $157,000, while that of the Medical Examiner was $90,000.

Dr. Davin expressed the opinion that there was no reason why the medical examiner should not have as much money with which to run his office as the coroner had had.

Dr. Norris said that the medical examiner would like to have as much or more than the coroner had had. He needed as much in order to run the office efficiently.

Dr. Davin recalled that he was the first physician in the city to call attention to the advisability of having a medical examiner instead of a coroner. He asked whether a doctor was expected to send in the curettings in a case of suspected criminal abortion. Some months ago a bulletin of the Department of Health had called attention to the fact that doctors should save curettings from cases of abortion and he had gained the impression from that article that if a doctor did not do so he was *particeps criminis*.

Dr. Norris stated that there was no law requiring a physician to send the curettings from a case of suspected criminal abortion to the office of the medical examiner, but it was advisable for the physician to save such curettings in case they should be called for.

Two Hundred and Fifty Major Operations Under Local Anesthesia.—Dr. Joseph Wiener read this paper. (See page 135.)

Dr. Martin W. Ware said he felt a little awkward in opening the discussion, because he thought it would be made much simpler for him if he had had predecessors and then he could merely have confirmed everything they said. He had been associated with Dr. Wiener and could substantiate everything he had said. He would not have the impression left that this was an exploitation of any one drug, as apothesine, for his experience had been with novocain and he had obtained just as brilliant results with that drug. He recalled that twenty years ago he had listened to a discussion before this society, when one of the members who was still with them had said that there was no such thing as local anesthesia, that one always found that the patient cowered under the operation, and that idea had a considerable following. To express this idea the expression "anesthesia dolorosa" was coined, which implied that local anesthesia was always accompanied by a great deal of pain. The success of local anesthesia depended upon the suffusion of the anesthetic agent through the tissues and particularly upon the infiltration of the various planes. At the slightest indication of pain on the part of the patient one should not be diffident, but should inject more of the anesthetic solution just as one would push ether to get the patient under the anesthetic. Dr. Wiener's remarks were of interest in connection with what had been done in the war area. He regretted that Dr. Gibson was not here to report on the operative work done under local anesthesia in the war zone. Dr. Cushing likewise had achieved great victories in performing operations on the head and brain under local anesthesia, and in lung surgery the largest operations were performed under local anesthesia by blocking off the nerve supply to the operative area as the nerves emerged from the spinal cord. When this was done the lung itself was very amenable to operative procedures. Dr. Wiener had omitted to mention the point that was a stumbling block to the more general use of local anesthesia. A patient often came into the hospital thinking that the visiting surgeon was going to perform the operation; when he was under the general anesthetic the house surgeon might operate without the patient being any the wiser, but if the patient was given a local anesthetic the visiting surgeon might have to perform the operation himself, and at this the house surgeon demurred because he was not getting his quota of operations. This was a stumbling block in the way of carrying out local anesthesia properly. Dr. Ware again confirmed all that Dr. Wiener had said and added that the idea could no longer be held that local anesthesia was only a resort in emergencies; its application was just as broad as that of general anesthesia.

Dr. John H. Branth expressed the opinion that local anesthesia should be applied much oftener in surgical operations, especially where the outer tissues of the body were concerned. He related an experience he had had some twenty-five or thirty years ago, when he was troubled with an intense toothache and could not reach a dentist. He applied cocaine to the hollow of the tooth, but without relief. He then used a hypodermic needle. Owing to the awkward angle it broke off. He removed the fragment and with a new needle introduced another dose of cocaine at a greater slant. He then applied the forceps and pulled the tooth, a painless extraction. However, he suffered the toxic effects of the cocaine. Later he visited instrument stores to buy an angular needle, but no such needle was known at the time. He then devised one which was put on the market. Rocking the tooth loosened the pericementum. As a rule dentists did not *pull* teeth, but in the hurry necessary under nitrous oxide anesthesia, they broke out the tooth by fracturing the alveolar process. His procedure removed the tooth clean from the socket, and no ulceration or sloughing followed. The tooth cavity was closed in a few days. He had not succeeded in persuading dentists to adopt this plan. Dr. Branth related an instance in which he had performed a difficult extraction in cases upon which several dentists had refused to make the attempt by the use of cocaine anesthesia. The proper anesthesia by a solution of cocaine was induced by infiltration with internal pressure in the tissues, which was brought about by very dilute mixtures, so weak indeed that one might think it pure water, though it was very bitter to the taste. He took a small crystal of cocaine, like one of granulated sugar, about double the quanitity of eucaine on the point of a penknife, and half a wine glass of warm sterile water. This he injected with a long needle. Anesthesia was complete within a few seconds. The solution was made fresh for each case. By such a solution the speaker had removed not long ago a large cancerous growth from the neck, which was of such a size that it interfered with respiration and deglutition. This patient wished for two weeks of life in which to adjust his financial affairs. He had been treated with *x*-ray. He lived two months from the date of the operation. He was supposed to have tobacco heart and therefore local anesthesia was the only resort. After being on the operating table an hour and a half he got up and walked up one flight of stairs to his room in the hospital. His heart became regular at once after the removal of the tumor, the irregularity having no doubt been caused by pressure on the pneumogastric and sympathetic nerves. Under general anesthesia this patient would have had a very small chance of surviving the operation. Later the cancerous affection attacked the carotid artery and the patient really died from hemorrhage. The chief trick in the cocaine anesthesia was that the tissues were infiltrated to the

extent of internal pressure—ballooning. The tissues would turn white, becoming anemic, and the operator could see with his eye the field unobscured by blood. The extremely diluted solutions appeared safe, while the concentrated mixtures were fraught with danger. In circumcision he put a rubber band around the penis to prevent the cocaine from escaping to the body or trunk. The deaths resulting from cocaine injections reported in the medical literature all followed the use of the customary 4 to 10 per cent. solutions. Dr. Branth described his own experience during an operation for direct hernia which Dr. Bodine performed on him some two years ago. He said that the preliminaries, such as scrubbing the surface, washing with alcohol and ether, and finally painting with iodine, produced a glow and burning of the surface, so that he could not distinguish the cutting of the knife. His senses were at such a high pitch that he could hear (perhaps it was imagination) the passage of the knife, as though the skin were thick like sole-leather; he felt that something was being done on his abdomen, but there was surely the absence of pain during the operation.

Dr. Samuel Floersheim described his experience with local anesthesia from the standpoint of the patient as well as that of the surgeon. He stated that he came before the society in the threefold rôle of a doctor who had been operated on for appendicitis under local anesthesia, a doctor who had talked to his patients the morning following the operation, and a witness regarding the painlessness of the operation. The opening of the abdomen was entirely painless. In delivering the appendix and in doing the ligating the appendix on its mesentery there was slight pain, but none when the appendix was cut and none when the abdomen was sewed up. The operation had taken thirty to thirty-five minutes and he felt no further pain when he was put back to bed. He had a good night's rest following the operation and a good day, but the following night he had some gas pain, which was probably due to the fact that he was not prepared for the operation and had eaten quite heartily the day before. He sat up between the second and third day and the fourth day walked about the room, going home on the sixth day. If he should have appendicitis again he should choose to be operated on under local anesthesia. As Dr. Wiener had said they usually gave one-half grain of morphine before the operation, but as he had a dislike for morphine he desired to avoid taking it. Finally the nurse injected one-quarter of a grain in the left thigh and the slight discomfort that he experienced he attributed to the effects of the morphine rather than to the operation. Since that time he had worked with Dr. Wiener on a number of cases and felt sure that these patients were very comfortable and that they were more frightened than hurt. The speaker then reported a case to illustrate how extensive an operation could be performed under local anesthesia. This patient was a woman 62 years of age, operated on last September. When the speaker first saw her she had been vomiting for four days and refused to have anything done but to take a little medicine. Examination showed that she had what appeared to be an annular carcinoma of the rectum. She was persuaded to submit to an operation for artificial anus under local anesthesia. An incision was made, through the left rectus muscle which finally reached from the umbilicus to the sympysis pubes. On opening the abdomen it was found that the patient had a large double multilocular mass involving the sigmoid. When this mass was delivered, it was found that there were three mases occluding the sigmoid and that a portion of the same mass involved the cecum to which it was firmly attached and most difficult to separate from, and followed the course of the ascending, transverse, and descending colon, and was bound by two bands around the sigmoid as well as being attached in many places to the great omentum. Finally the entire mass was dissected loose and found to be ten or eleven inches in diameter. The growth was reported to be a pseudomucinous cyst of a rare variety, which was non-malignant. The abdomen was closed without drainage and the patient said she felt very well. The next day her bowels moved easily, painlessly and without medication, she passed much flatus and within six or seven days she was up. In ten or twelve days she was performing some light duties. This operation was performed in the patient's home, in a tenement kitchen, as patient refused nearly every suggestion advanced and absolutely refused to leave her home even under pain of the most serious outcome.

Dr. Samuel C. Gant said he had heard many papers on local anesthesia but this was the most direct and practical he had yet listened to. The method of employing local anesthesia was very simple but for some reason general surgeons did not employ it. He seventeen years ago reported before this Society a very large number of abdominal and anorectal operations, including colostomies, appendicostomies, and colopexies performed under local anesthesia. Perfect technique was essential to the production of complete local anesthesia and the average surgeon failed to develop it. One feature he had observed in his rectal work was that hemorrhage seldom followed local anesthesia operations. In hundreds of rectal operations he had not had a hemorrhage and this he attributed to local anesthesia, since there was no vomiting or straining as after ether which often caused dangerous bleeding. He employed one-eighth of one per cent. eucaine which never failed to produce complete anesthesia within ten seconds when infiltration was properly made. It was a question whether in ten years from now we would not laugh at a surgeon who used general anesthesia in many types of operation in which it was now employed. Anesthesia was painlessly produced by injecting the solution between the skin layers and afterwards in the deeper tissues until they turned white which indicated anesthesia. Many surgeons had asked him whether his fees were as large for local as for general anesthesia operations and he said they were larger.

Dr. H. R. Conway Gibbons stated that he had been interested in cocaine anesthesia ever since it was first introduced into this country, as it was in old Bellevue Hospital Medical College by Dr. Charles Stedman Bull acting for Dr. Henry B. Noyes, Professor of Ophthalmology in that school, who was abroad for his health which had been overwrought through a most exacting practice, both private and public, as well as his teaching. Dr. Noyes had written to Dr. Bull of a young medical man's observations through his experiments of chewing coca leaves which anesthetized his tongue, first on one side and then on the other, depending upon which he kept the chewed leaves in contact, and he observed a like effect on the buccal mucous membranes. It was then but a step for this patient experimenter to test the active principle of the leaves—the alkaloid cocaine—which was in time tried on the mucous membrane of the eye with a delightful anesthesia of the parts, making them insensitive even to cutting. The speaker's brother, Dr. P. J. Gibbons of this city, was a student at Bellevue at the time and communicated with him at once at Pittston, Penna., where he was actively engaged in practising general surgery, and the eye, nose and throat as a specialty. On the day following the speaker removed painlessly under the influence of cocaine a piece of steel that was embedded through the cornea and into the iris of a young man, John J. Patten, a machinist, who afterward was Park Commissioner of this city. This began his experience with cocaine which he used freely in nose and throat surgery. It was used especially in urethral surgery, however. Dr. Otis had asked the speaker over and over again to write a paper on his experience, much of which he knew about, as did his successor, the late William K. Otis. He regarded but few operations as belonging to the category of capital or major operations; on the contrary, he believed that the teaching of Dr. Hayes Agnew's method of defined or layer dissection, the anatomical "Keys to Operation" by Frank Hastings Hamilton by knife cutting methods, and the scissors method of dissection taught and demonstrated by Thomas Addis Emmet and Jenks of Detroit, had relegated to the dead past any such term as "capital" or "major" operations and he thought these terms no longer possessed the old time hoodoo effect in class room lore. Whatever else of the mysterious seemed to hover about the classical quotation "capital" or "major" operation in brain or spinal surgery was dethroned by the late Dr. Frank Hartley and his assistants in the New York Hospital in the introduction of the electrical engine as perfected by Dr. Charles McBurney, while Dr. Percy Watson of Jersey City and Dr. John A. Wyeth of

New York had made amputation of the hip quite a simple affair. Dr. Carl Koller of New York was the discoverer of cocaine anesthesia in eye surgery, and he had often expressed himself as very sorry for this discovery because of the misery it had occasioned through its irregular use, much of which irregularity had been, and perhaps still was, due to the careless method of the members of the medical profession in handling and prescribing this useful drug.

Dr. WIENER, in closing, expressed his gratitude to those who had discussed the paper and emphasized the fact that in many instances the life of the patient depended upon the kind of an anesthetic employed. He was perfectly in accord with Dr. Ware in not wishing to leave the impression that apothesine was the only drug that produced a satisfactory local anesthesia. Novocain was most excellent: he did not claim that apothesine was better than novocain, but it was equally as good, was made in this country, and the supply was unlimited. In the light of his experience the action of the two drugs was identical. Cocaine had been brought up in the discussion. He did not use cocaine and one could not do the work he had described with cocaine as it could not be given in such large amounts. He had given apothesine in doses of 10, 12, or 13 grains without unpleasant results. As a preliminary he used morphine, giving one-half a grain in two doses, and this he considered a very essential part of the procedure. If a patient asked to be operated on without this preliminary dose of morphine he demurred. At first he was afraid of using too much morphine, but with the exception of Dr. Floersheim, and a girl of fourteen years, all of his patients had received the one-half grain before the operation. In these two instances one-quarter of a grain was administered. The one-half grain was given in two doses of one-quarter grain each at an interval of forty-five minutes. The interval was important because if a patient had an idiosyncrasy for morphine it would be discovered before the large dose was given. In order to use local anesthesia successfully one must have experience with it. Braun, in a work published in 1914, had three or four pages on appendicitis, in which he advised strongly against local anesthesia, yet the speaker in this paper had reported 115 cases of appendicitis operated on painlessly by local anesthesia. With the mathematical precision of the German mind Braun had devised needles of different lengths by which to reach each layer of the abdominal wall, and when he failed of success by this method he made a sweeping condemnation of local anesthesia; he used no anesthesia in the mesenterolium. Dr. Floersheim had referred to paleness and faintness during the operation. The paleness was almost regularly present, and whether it was due to the morphine or the adrenalin he was unable to say. He had neglected to mention that he gave one c.c. of pituitary extract (subcutaneously, never intravenously) on the day after the operation to prevent tympanites. This was followed a half hour later by a high enema. After this treatment, in almost every case gas was passed within twenty-four hours; this was important for the comfort of the patient and the prevention of complications. His oldest patient was a woman 91 years of age who was operated on for strangulated hernia. It was difficult to make her believe that the operation was completed as she experienced no pain. She lived two years afterward. This was no unusual experience, as many of the patients left the table perfectly comfortable and laughing and joking. The patients operated on under local anesthesia were evidently perfectly satisfied as they sent others who chose this form of anesthesia in preference to general anesthesia. When he went into a private family to operate by means of local anesthesia he always took an anesthetist to adminster a general anesthetic if it should be necessary, but this had never occurred. He had also found that he could get a satisfactory anesthesia with a weaker solution than the one generally used. In two instances he had operated for appendicitis after using one-third of one per cent. apothesine. The only difference this change in the technique made was that he waited a little longer after giving the injection before cutting. Dr. Gant had expressed wonder that more surgeons did not use local anesthesia. This subject was brought up before the New York Surgical Society and the discussion showed that the use of local anesthesia imposed a greater strain on the surgeon. Some of the men stated that they were exhausted after operating on a patient under local anesthesia. The objection was also made that it was more tedious. It did take a few minutes longer but it was well worth while. He agreed with Dr. Gant that local anesthesia was the anesthetic method of the future.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, Held March 14, 1918.

DR. HERBERT M. WILCOX IN THE CHAIR.

Bronchiectasis Secondary to Obstruction of the Bronchi by Tuberculous Lymph Nodes.—Dr. WALTER LESTER CARR reported this case and presented the specimen and microscopic slides. He stated that the patient was a female infant, 1½ years old, born in this country, of Italian parents. No history was obtainable. On admission the child weighed 13 pounds 7½ ounces. The child was quiet and apathetic, the head large and square and the fontanelles closed. The mucous membrane of the nose was swollen and showed a few crusts. The child had eight incisors and four molar teeth, the upper incisors being broken close to the gums. The mucous membrane of the mouth was pale. The tongue was not coated. The pharynx was injected and the tonsils enlarged. The chest showed a rachitic rosary with depression at the lower part of the sternum. Examination of the lungs showed the percussion note normal anteriorly; posteriorly there was a slight dulness of the lungs at both bases. On auscultation coarse mucous râles were heard in the lower part of the lungs both anteriorly and posteriorly. The râles were very coarse on coughing and on deep inspiration. The voice sounds were not changed. These signs gradually increased. The percussion note posteriorly over both lungs became more dull as far as the anterior axillary line and from the scapula to the spine. Dry, coarse râles were heard all over the bases, also fine crepitations and mucous râles. The bronchial voice and bronchial elements increased more on the left side. Dry crackling râles were heard in the right lung anteriorly at the base. Examination of the heart showed the point of maximum intensity in the fifth intercostal space, 5 cm. from the midsternal line. The right border was in the fifth intercostal space, 2 cm. from the midsternal line. The sounds were of poor quality, the first sound being muffled and the second slurring. No distinct murmur was heard, although there was a suggestive systolic thrill at the apex. The liver was 3 cm. below the costal margin. The spleen was not palpable, but later became enlarged. The lymph nodes were palpable in the groin and in the axilla. The urine was negative. The temperature on admission was 99.5 deg. F., with variations of a degree and a half every day; it was often subnormal. Child lost in weight and then gained, only to lose again. The tuberculin skin test was positive. The *x*-ray plate of the chest showed a shadow at the base of the left lung, with peribronchial thickening at the hilum. The right side was not so well defined.

Dr. JOHN LARKIN said that he had not heard Dr. Carr's preliminary remarks, but he would like to say something from the standpoint of the pathologist in relation to atalectasis, not only in reference to the condition in children, but also in adults. He recalled this case very well clinically. A tentative diagnosis of tuberculosis was made, although the child was examined by Dr. Carr and the physicians of his staff, who found no definite manifestations of tuberculosis. In general adenopathy, other nodes, the cervical or the inguinal, were involved, but one could not make out any general condition of lymphatic involvement. There was no involvement of the abdominal lymphatics, so the diagnosis of "probable tuberculosis" was only a tentative one. There were pulmonary signs which pointed to obstruction in the lower bronchi, and the fact that the child suffered more from pressure symptoms would seem to lead to the diagnosis of obstruction of the bronchi rather than to general lymphatic involvement. When

the case came to autopsy the conditions found were those described by Dr. Carr. It was very common for the pediatrician to observe a condition of general adenopathy, sometimes giving rise even to sudden death, and from this specimen one might get a good idea of why death occurred in such cases. There was a slow obstruction of the bronchi, more commonly of the lower bronchi, either finally causing a complete obstruction, or else setting up a pneumonic process that eventually ended in death. When one came to study the pathological anatomy he found that it was not of the acute type, but represented rather a process of repair. From the specimen one got an idea of the great amount of obstruction, and noticed that there was a considerable amount of repair going on, or an attempt on the part of the body to protect itself, and the repair was most marked when the specimen was examined microscopically. There was no general adenopathy, except the lymph nodes at the bronchi were sufficiently enlarged to cause pressure at the hilus. If one wanted to trace out the anatomical relations of the lymphatics to the bronchi and to the lungs he would see that there were two sets of lymphatics, one going to the bronchial tree, and the other to the visceral pleura. In this case the cross section of the lymphatic nodes showed that no great amount of caseation had occurred, but there was very marked hyperplasia. There were present all the features of a bronchiectatic process going on in a slow but systematic manner, and a rather symmetrical arrangement of the lymph nodes around the bronchi; these had gradually enlarged, causing a slow constriction which had resulted in a tremendous amount of dilatation of the bronchi. Both lungs showed ordinary bronchiectasis and areas of lobular pneumonia. The mucous membrane lining the bronchi was perfectly preserved, and there had been no destruction of the epithelium. A considerable distance from the bronchi there was a condition of peribronchial pneumonia, in some areas leading to a confluent lobular pneumonia. The lung showed no tuberculous process, nor did the other viscera, the tuberculous involvement being confined to the region near the hilus. Where there was partial obstruction by a foreign body or pressure by bronchial lymph nodes, we had a secondary condition which led ultimately to bronchiectasis. While the child might apparently recover from the lung process, a chronic pulmonary condition would persist, accompanied by a condition of bronchiectasis, and such individuals were always chronic invalids. In the adult there were other conditions analogous to those found in the child and, while these might not be interesting to the pediatrician, it might not be amiss to relate that in the adult there might be a similar condition, due to pressure on the bronchi, either pressure by a foreign body, or from a bronchial growth at the bifurcation of the bronchi. One might get pressure from a mediastinal growth. This we saw in lymphatic conditions, as in the leucemia of Hodgkin's disease. Again we might have pressure caused by an aneurysm. It might not, however, have reached that degree where we would have connective tissue processes going on in the lung itself. It was well to keep in mind these forms of obstruction caused by an adenopathy unassociated with tuberculosis which might cause an ordinary bronchiectasis, with or without interstitial changes in the lungs. In making a diagnosis in a case of this kind it was well not to limit oneself to a consideration of the physical signs alone, but to direct one's attention to the general systemic condition to which the children were subjected.

Dr. CARR said he had presented this report because they had examined the child and found it difficult to say how far the lungs were tuberculous. This case was not one for operation, but it brought up the question whether in somewhat similar cases operation might be considered advisable, that was whether it would be better to remove portions of the ribs or to let the patient go on to death. Certainly medical treatment was of very little help in these cases. This child was fed Walker-Gordon milk, kept out of doors on a balcony, and everything was done in the way of hygienic treatment without success, so that if surgery had anything to offer it was worth while giving it a trial, as had been advocated for tuberculosis of the lungs and also for bronchiectasis.

The Methods Used in Conducting a Class for Undernourished Children.—Dr. CHARLES HENDEE SMITH gave a talk on this subject which he illustrated with lantern slides. He stated that at least 10 per cent. of the children in the schools of New York City were undernourished; in some schools the percentage rose to 30 per cent., It therefore behooved us to do something. The formation of nutrition classes was one of the means adopted to meet this problem. The nutrition class at Bellevue was started on November 1, 1916. The class or group method, was the only means by which large numbers of children could be treated by a single physician. The class for undernourished children suggested nothing new so far as the principle was concerned. The methods that had been applied to the nutrition classes had been worked out in the tuberculosis and other classes at the Vanderbilt Clinic at St. Luke's Hospital and elsewhere. The class methods had been employed by Dr. William Emerson of Boston, and much credit was due him for having called attention to this important subject. The undernourished children coming under his care had come from the hospitals or the general clinic. A large part had come from school nurses. Every child five pounds or more under weight for his age had been accepted. There had been 250 or 275 children in the classes, and in addition a large number of other children had been examined who had been eligible for various reasons. Of these 180 remained as active members of the class. The parent or some adult member of the family was required to attend the class and to receive instruction, at the first few visits at least. This, however, was not a hard and fast rule, and no child was debarred because a parent could not accompany him to the class. When a child entered the class his general history was recorded, including the diet he had been receiving, the time he slept, the length of time spent out-of-doors, etc. A complete physical examination was made. A social worker got the social and economic facts having a bearing on the case and that might have a direct relation to the condition of malnutrition in the child. A printed slip giving instructions in hygiene and a diet list were given the mother. In their first diet lists some of the more expensive articles of food occupied too prominent a position; these had been changed and in their stead were placed cheaper articles having an equal nutritional value. They had a food exhibit of artificial foods showing the day's ration arranged in the form of three meals. By quickly changing the plates they showed how one article might be substituted for another of equal caloric value. This graphic demonstration served to impress the facts on the mother's mind. It also served to emphasize the importance of properly selected, well cooked and well served food. Nearly all of the portions represented 100 calories of the various articles of food, but they did not say much about calories in attempting to teach these ignorant people, as they had found it better to show them definite meals arranged in amounts proper for a child. With more intelligent classes of people it was perfectly easy to give the teaching on the basis of the caloric value of foods. Dr. Smith said they gave their class instruction by means of class talks to the mothers, by using wall charts, and showing them what made a child gain in weight and what made him lose. They had a weight chart for every individual child and a collective weight chart showing the weight curves of every child in the class. There were also sheets for home records, and each child was supposed to keep this record showing just what he had eaten, how many hours he had slept, how much time he had spent out-of-doors and exercising, when his bowels had moved, etc. They used for this the sheet they had found successful in their cardiac cases. At first the child returned each week to be weighed and examined; later he came only once in two weeks if he was progressing favorably. The interval between visits was gradually lengthened as the child approached a normal weight for his age. By this class method the child had his attention directed to the faults of others and profited by them, and a spirit of competition was aroused which could be used with advantage. They had found it a help to offer prizes and to stick green and gilt stars on the weight charts in order to stimulate competition. The question might be asked whether this method had been found worth while and

what were the results. They were all agreed that the past winter had been a most unfavorable time for conducting such an experiment on account of the high cost of living. They had had to equip and organize the clinic and also to devise methods as they had gone along. Of 51 boys and 50 girls who had been under observation over six months the average of the entire class was 1.4, the expected gain. Sixty-three had done better than the average, having gained 1.7 times the expected gain; 24 had gained at the average rate; 23 had gained less than the average. The best record was five times the expected gain. The causes of malnutrition in these children might be divided into organic and hygienic. Of the former, latent or chronic absorption from diseased tonsils or bad teeth, obstructed nasal breathing, and various other maladies were the cause. Of the hygienic causes the chief was insufficient and improper food, insufficient exercise, air and sleep, uncleanliness, and economic reasons. For this whole group of children the average family income was $12.40 per month per person. The 63 children who did well were from families in which the weekly income was less than $12.00. In a number of instances it was found that the children coming from families whose incomes were less than $12.00 per week did better than those coming from families in which the income was more than $12.00 a week, so that the malnutrition in these children seemed to be not so much a matter of income as of lack of knowledge as to what constituted a suitable diet. Of the 23 children who did least well, however, 17 had an income of about $8.00 per month per person in the family. Dr. Smith said that when he came to judge of malnutrition he found that we had no standard that served as a guide. In using the Dunfermline scale a great deal depended upon the personal equation of the examiner. Basing a judgment on a comparison of weight to height was very misleading and gave no guide as to the degree of malnutrition if a child was under height for his age. A child might be both under weight and under height and at the same time he might have the correct weight for his height, and yet be underweight for his age and really undernourished. The younger children did not do as well as the older ones in making up weight.

The Chlorotic Type of Anemia in Infants and Children.—Dr. HERMAN SCHWARZ presented this paper, the purpose of which was to show that a type of anemia existed in infants and occasionally in older children in which the blood picture corresponded to that of chlorosis in adults, and that this form of anemia responded marvelously to the administration of iron. Only those forms of infantile anemia were considered which produced a blood picture similar to that in adults. The work of Bung and his associates, especially Abderhalden, had shown that a diet containing very little iron could produce in young animals a blood very similar to that of chlorosis; in older animals and adults, under similar conditions, this form of anemia was not produced. The clinical features of this form of anemia in infants and children were not necessarily distinctive; it required a blood count and a hemoglobin determination in order to discover its presence. Iron medication frequently produced the same brilliant results as it did in the chlorosis of adults. It was surprising how little this simple or perhaps essential anemia was described in our text books on children considering the frequency with which it was found. In order to illustrate this frequency it was only necessary to state that within a few months the writer had been able to collect 40 cases. Of these 40 cases 14 were discovered earlier than three months, 29 were seen before the first year, and three as late as the eighth year. Of the 29 cases occurring under one year, there was no doubt in his mind that the condition existed a longer or shorter time before it was discovered. Very often the appearance of the child does not lead one to suspect its presence. In 18 of the 40 cases blood examinations were not made until the children had been under observation weeks or months. Most probably these cases began in early infancy and did not become apparent until the children were between twelve and sixteen months old. In 23 of the cases the pallor was first noticed between the first and second years. From an analysis of this series of cases it soon became apparent that this form of anemia occurred in premature children, in twins, and in those who had a rather stormy feeding history during the first three months of life. In cases with such a history, although without any appearance of pallor, examination of the blood often showed this type of anemia. Of 28 cases in which a history of the feeding for the first three months was obtained 14 had the breast alone, 10 had the breast and bottle, and four had the bottle alone. The feeding in the older children was in most of the cases a very rational one, being fairly mixed, although in a few cases the condition seemed to be definitely in connection with the feeding. In their series of cases, 28 were boys and 12 girls. This was the reverse of that found by Monat and did not coincide with the chlorosis of adults which almost never occurred in the male. Constipation was not a factor. At times there was a family history of chlorosis or other forms of anemia, although this was not usually the case. There were no special symptoms, though at times there was loss of appetite or capricious appetite; rarely constipation. Intestinal derangement was not a common feature. Clinical examination showed that these children presented one of two types. They were either premature, congenitally weak and usually underweight, or they had a good panniculus adiposis and were well fed and happy. Pallor was in some cases marked, in others hardly discernible. Apart from the general types nothing was characteristic. Systolic murmurs were present in only three of the entire series. The spleen was rarely felt. Examination of the blood in these cases, as seen in the tables, showed that the hemoglobin greatly diminished but the red blood cell count rarely fell below three million and was frequently between four and five million. There was a great disproportion between the number of red blood cells and the hemoglobin. The index was always less than one, and usually between 0.4 and 0.6. The leucocyte count ranged between six and ten thousand, with a differential count presenting no deviation from the normal. A tendency to lymphocytosis is noted at times but this is difficult to judge accurately on account of the tender age of some of the children. The red cells occasionally show poikilocytosis and anisocytosis. Nucleated red cells were rarely found. Blood platelets range between two hundred and three hundred thousand. The blood volume was normal in five cases estimated by means of Epstein's method. A review of the literature on this subject showed that the iron balance had something to do with the hemoglobin without doubt, but just how much was unknown. The etiology of this type of anemia in infants was still obscure. A perusal of the histories showed that the prematures, the congenitally weak, twins, those born with low birth weights and those having difficulty with nursing hygiene during the first few months, had a predisposition for this form of anemia and developed it with great regularity. The author had been able to prevent this anemia in prematures and twins by the regular and early administration of iron and cod liver oil. Constitutional dyscrasias, such as the exudative diathesis, neuropathic tendencies, etc., seem to play but a small part in this type of anemia. Gastro-intestinal conditions and dietetic errors might be factors, as seen in two of these cases, but when one observed the good general condition one was forced to acknowledge that there was some other factor present in addition to the diet. In the treatment of these cases large doses of iron seem necessary, and it had been his custom to give no less than ten grains of saccharated carbonate of iron, three times a day, to a very young infant; fifteen grains, three times a day, in the second year, and later, usually five grains of the unsaccharated carbonate of iron, three times a day. Once the hemoglobin reached the normal the iron might safely be stopped, and the anemia usually did not recur unless extraneous infections, grippe, etc., occurred, which often caused a relapse. In some instances he had only given iron without any change in diet, and had had the same good results. On the other hand, the changing of the diet without iron had frequently failed to increase the hemoglobin.

Blood Transfusion (Citrate Method) in Hemophilia Neonatorum.—Dr. RICHARD LEWISOHN read this paper, which was accompanied by a cinematographic demonstration. He said that one of the most gratifying fields for the use of blood transfusion was in the treatment of bleeding in new-born infants, so-called hemophilia

neonatorum. This name was not a very appropriate one because these infants were not hemophiliacs in the true sense of the word. True hemophilia usually occurred as a family disease and was never permanently cured by blood transfusion. On the other hand, the abnormality of the composition of the blood, which caused bleeding in the new-born, was absolutely cured by a single transfusion; and these individuals grew up as perfectly normal individuals, not showing any tendency to bleeding in later life. The real cause for bleeding in these new-born infants was not really known. It might be assumed from a theoretical point of view that among different bloods available (father, mother and other relatives, professional donors) the mother's blood would be absolutely contraindicated for the cure of the disease. The whole intrauterine existence of the fetus was based on the mother's blood. In might seem a very logical conclusion to use any other blood in preference to that of the mother. Such an assumption, however, was not warranted by the facts. It had been proven without doubt in a great many cases that the mother's blood was just as efficient as that of any other donor. Evidently some substance of the mother's blood, as calcium, prothrombin, thrombokinase, was not transmitted to the placenta. The mother should be used as the donor in every case of this type for the following reason: Cherry and Langrock had shown that the mother's blood could be used safely without hemolytic tests for the new-born infant whereas the blood of the father and other blood relatives required a careful test to prevent hemolysis and agglutination. This observation was of the greatest practical importance because it was almost impossible to obtain sufficient blood from the baby for the necessary tests. Furthermore, these cases were extremely urgent, and with the mother always available valuable time was saved. Dr. Lewisohn said his personal experience comprised eight cases, six of which were permanently cured by a single transfusion. The method employed was the citrate method previously described in a series of papers. The mixture of the blood with a minute amount of sodium citrate (0.2 per cent.) prevented coagulation of the blood during the transfer from donor to recipient. The use of the citrate method in children was followed by no reaction or chill in any of the cases in this group. The citrate method was far superior to any other method of blood transfusion in the treatment of hemophilia neonatorum on account of its flexibility. These infants were usually brought to the hospital on the second day after birth. A member of the house staff was sent to the patient's home and returned with 100 c.c. of citrated blood taken from the mother. A superficial arm vein in the elbow region of the baby was then exposed by a very small incision. The blood heated to body temperature by immersion in warm water was introduced through a fine cannula. In using this method it was unnecessary to expose the external jugular vein or to introduce a cannula into the longitudinal sinus. The writer's records showed that in a number of cases transfusion stopped the bleeding immediately and permanently in cases in which the previous injection of serum had not effected any diminution of the bleeding. Serum and intramuscular injections of blood might be tried, as they seemed to stop the hemorrhage in a certain number of cases, but if the bleeding recurred blood transfusion should be immediately resorted to.

Dr. Oscar M. Schloss asked Dr. Schwarz by what method the hemoglobin was determined and what he took as the normal standard. For a color index to be of real significance these facts must be known. The hemoglobinometers in ordinary clinical use were not of great accuracy, and at present the method of Palmer or that of Van Slyke were the ones of choice. The instruments in ordinary use were calibrated for adults and the percentage readings would not give an accurate color index for children as the hemoglobin of children was much lower than that of adults. Williamson, using the spectrophotometer, found that at certain ages the normal hemoglobin content varied from 14 to 10.5 grams per 100 c.c. of blood. With such a wide variation in normal infants it was difficult to determine the color index accurately even with the use of a satisfactory method of determination. Dr. Schloss recalled that a few years ago he advocated the use of intramuscular injections of whole blood in the treatment of hemorrhage in the new-born. He believed that in the milder cases this method was of value. At that time direct transfusions only were used, and only two cases had been reported in which transfusion was done in new-born infants. The simple technic or citrate transfusion as developed by Dr. Lewisohn was, in his opinion, the method of choice in all the severer cases.

Dr. Edward D. Peterson stated that his experience had been with unmodified blood, but since he had seen Dr. Lewisohn's method he had used the citrated method largely in adults, but he had not had a case of hemophilia neonatorum on which to try the citrated method. He did not believe there was a great deal of choice between the methods. Dr. Peterson said he believed we could divide these cases into two groups, the purpuras and the true hemophilias, and in either of these blood therapy was effective. The whole blood was a simple way of meeting the condition, and if that failed then transfusion might be done. Dr. Peterson said that in his opinion the whole blood was better than the serum.

Dr. J. Finley Bell said that he had had the opportunity of testing the various salts of iron. He had a case of chylous ascites and made observations as to the excretion of iron through the abdominal lymphatics; the iron reached the blood through that channel. Ovo-ferrin and other preparations of iron were administered and then an examination of the chylous fluid made a week later. After the administration of the ovo-ferrin and other preparations there was no increase in the iron content of the chyle, but after the administration of the ferric salts there was an increase in the iron content. The old doctors who administered the acid salts of iron were doing the right thing, though they were not able to give a scientific reason for it.

Dr. May G. Wilson reported that the results that they had obtained in their nutrition work at Cornell had been somewhat similar to those described by Dr. Smith. Even if one got a gain of only 1.7 per cent. above the expected gain, that was no reason for feeling discouraged. The improved nutrition of these children might be seen not only by their gain in weight but by the fact that they were doing their school work better and were eating and sleeping better. The work had brought out evidence that the children were improved in many ways.

Dr. John L. Kantor described the work being done by the Bowling Green Association, in which he had been particularly interested. This locality afforded certain unusual conditions; it was shut off from the rest of the city by the financial district, the houses were very old and the sanitary conditions bad, so that one found here probably the worst slums in the city. The population was composed mostly of Syrians, some Slavs, Italians, and Irish. They had in connection with the neighborhood work a medical center which was established in response to the need for such a center, which was demonstrated as a result of school inspection. They had used this agency as a sort of clearing house for children and had tried to coordinate a number of agencies. The work of this center was not merely medical but it was social and economic. Their work had in one respect been a little more encouraging than the work cited by Dr. Smith in that most of the children had gained rather than lost as the result of vacations. They had co-operated with a home in the country where cardiac cases were taken. The question of classification was very important, and one was rather surprised that Dr. Emerson should have selected the normal weight for height instead of for age as a standard. The latter method was not so complicated as one might suppose from the diagram shown by Dr. Smith, as they did not handle the overweight cases. They only dealt with the slim and underweight children. The parents in their neighborhood were of little help to them as they did not understand the English language and hence most of the work had to be done with the children alone. Of the children coming under their care about 78 per cent. had gained 1.6 times their expected weight. By the Dunfermline scale classes One and Two were ruled out, and they only dealt with classes Three and Four. Those belonging to class Three were better than 15 per cent. under-

weight and all the fourth class were worse than 15 per cent. underweight. There was another point which deserved attention and that was that if a child got a little money he immediately converted it into candy. It was difficult to see how much could be done to improve the nutrition of these children unless one could prevent the candy habit. We might do quite as much good by abolishing the candy shops as by abolishing saloons where alcoholic beverages were sold.

Dr. JOSEPH LOSEE stated that he had seen many of the type of cases which Dr. Lewisohn discussed at the New York Lying-In Hospital, where Dr. John E. Welch first made use of the human serum treatment for this type of case. They were still using the serum at the hospital and had very good results, but occasionally the bleeding was not checked by very large amounts of serum, and transfusion would be more beneficial both as a therapeutic agent and to supply the volume lost. The best classification of the hemorrhagic diseases had been made by Hurwitz of the University of California. He suggested that in hemophilia and the hemorrhages of the new-born there was an absence or marked deficiency in the prothrombin in the blood. He advised transfusion of blood as the radical therapeutic agent. He also recommended the use of whole blood and fresh blood serum subcutaneously. He stated that the old serum was practically of no account, for the thrombin which was present in the fresh serum had been converted into metathrombin, which had the opposite effect to that which was desired. He had endeavored to transfuse these infants by exposing the superficial veins in both the arm and the leg. but had been unsuccessful and came here this evening to witness its demonstration, but was much disappointed to find that Dr. Lewisohn had demonstrated his method of transfusion on the adult and not on the new-born. For the past two years the superior longitudinal sinus had been the route used by some for intravenous medication. This seemed to be rather a courageous step on the part of the operator, and the speaker had confined his attempts to the cadaver. Here he found it very simple to perforate the wall of the sinus, even at the posterior angle of the anterior fontanelle where it was the deepest. At the hospital they had been using the Lindeman method for transfusions in the adult with good results, but in the new-born, on account of the small size of the veins, it would be necessary to inject the blood more slowly than in the adult, and he felt sure that the citrated blood could be more easily handled. Dr. Losee asked Dr. Lewisohn to demonstrate the cannula which he used in the veins of the new-born, for he was not yet convinced that it was an easy procedure.

Dr. SCHWARZ, in closing his part of the discussion, said he realized how difficult it was to classify children from the nutritional standpoint. When he read that 40 per cent. of the children in New York were undernourished he had his doubts. We must learn to differentiate between undernutrition, malnutrition, and deficient nutrition. This subject should be studied more thoroughly, and physicians should get more definite ideas with reference to it before bringing it before the public. In reply to Dr. Schloss' question, Dr. Schwarz said they had used the method of Kütner for the determination of the hemoglobin. The work of Bunge left no doubt that there was less hemoglobin in the blood of premature babies and twins. The question of the lactation period had a great deal to do with anemia. Animals with a long lactation period had a large amount of reserve iron in the liver.

Their observation was that woman's milk contained more iron than cow's milk. The large deposit of iron in the liver was necessary to tide the child over the period during which he was dependent upon milk for his nourishment. The whole question was very puzzling.

Dr. CHARLES HENDEE SMITH said he was very sceptical about the Dunfermline scale at first and was quite surprised in charting weights to find that the undernourished children fell quite readily into two groups. There was a distinct group just a little underweight, about five or ten pounds, and another group ten or fifteen or twenty pounds underweight. After considering the whole problem it seemed that the best way of dealing with it was to have these nutrition classes. We had had the problem of infant mortality in the past and the milk stations and feeding classes had helped to solve that. Now we had the nutrition problem, and the nutrition classes were the best means of attacking it. A nutrition class should be started in connection with every hospital and dispensary and perhaps in every public school.

Dr. LEWISOHN said the only reason he did not use the longitudinal sinus was because it was so easy to use the arm vein. He had been surprised to find how large these arm veins were in infants. With a little compression by the hand one could find the vein easily and introduce a fine cannula without any difficulty.

Stated Meeting Held December 12, 1918.

Dr. HERBERT B. WILCOX IN THE CHAIR.

Intestinal Disturbances in Children Depending on Mechanical Agencies. Lantern Demonstration.—Dr. CHARLES GILMORE KERLEY made this presentation. He said that the most difficult cases that came to him—those presenting the hardest problems for solution—were cases of persistent gastrointestinal derangement in the child after the period of infancy up to adolescence. The usual procedures of examination of gastric contents, stools, and the urine failed in many instances to supply the information which was necessary for a successful management of the patient. With the idea of shedding additional light on difficult diagnostic and therapeutic problems, he began several years ago to make *x*-ray studies of all cases that promised to be or were difficult. In a series of fifty-seven cases, ranging in age from eighteen months to two years, he had had the benefit of an *x*-ray examination. With three exceptions, all these examinations were made by Dr. Le Wald at St. Luke's Hospital. The conditions found in the stomach series were dilatation, ptosis, pyloric spasm, pyloric obstruction (organic), and hypertonicity. Types of all these were shown in the slides. In the study of the stomach and small intestine a mixture of bismuth, one part, to eight parts of farina or cream of wheat gruel was fed to the child, and the radiogram taken at intervals subsequently. For the study of the large intestine a barium mixture was introduced into the lower bowel and after reverse peristalsis had carried the medium through the large intestine to the cecum, the radiogram was taken. The symptomatology of the stomach cases consisted in stomach pain (moderate or extreme colic), vomiting at intervals, rumination, cribbing, accumulation of gas (moderate or excessive), habitual loss of appetite, convulsions, chronic urticaria, secondary anemia, and failure to grow. The intestinal abnormalities included the following: Dilatation of the colon, localized sacculations of the colon, ptosis of the colon, adhesions of the colon, sacculations of the cecum, sacculations of the sigmoid, dilatation of the sigmoid, dilatation of the rectum, rectal prolapse, and abdominal tuberculosis. The intestinal symptomatology included abdominal distension, chronic constipation, chronic diarrhea, intestinal colic, interval vomiting, persistent slight elevation of temperature, secondary anemia, developmental defects (physical), and mental irritability. With dilatation and sacculations of the sigmoid one was very apt to find derangements of peristalsis in the stomach which sometimes amounted to dystalsis; the peristalsis did not begin at the cardic end of the stomach and proceed rhythmically, and there resulted a pylorospasm.

Dr. MAX EINHORN said that although he had not had much experience in the diseases of children, he treated them occasionally, and he felt that these conditions as seen in children were similar to the conditions seen in older people. Abnormalities in the position of the stomach and intestines were apt to cause various troubles not always of the same nature in older people. In enteroptosis there might be prolapse of the colon, stomach, kidneys, etc., that did not present any symptoms at all, but the majority of these people showed some diseased conditions. Many were very thin; many were constipated, and some had membranous colitis. That showed that the position and mechanical disturbance of the intestinal organs was apt to produce symptoms but not necessarily the

same in each case. Some would show dilatation of the stomach and still have good motor function, the organ being empty in the morning, when fasting, and perhaps one would find an abnormality if the *x*-ray were taken. But if there was a considerable retention of food present, one would almost always find severe symptoms. In diagnosing these conditions one took into consideration not only the position and size of the stomach, but also the motor function. Whenever the stomach did not empty there was a severe condition behind it. In speaking of diagnosis, Dr. Einhorn said that the *x*-ray helped a great deal as it showed delay and retention; delay was also shown in the bowels, but in many instances this might be found without the *x*-ray, if one washed out the stomach five or six hours after a meal. In grown people it was of the greatest importance to ascertain the condition of the fasting stomach, that was in the morning before breakfast. If the stomach was found to be empty at that time these patients got along very well with appropriate diet and care, but if the stomach did not empty by morning the food decomposed and that meant very severe trouble. How this was in infancy he could not say, but he thought the main point was whether the stomach was empty in the morning, at least in the older children.

Congenital Hypertrophic Stenosis. A Manifestation of the Hypertonic Infant.—Dr. SIDNEY V. HAAS read this paper in which he reviewed a recent communication in which he had described under the title of the "Hypertonic Infant," a syndrome made up of hypertonicity of the skeletal muscles and a tendency to spasm of the unstriated muscular system accompanied by psychic and physical irritation. The cardinal symptoms of this condition were vomiting, often projectile in type, crying, insomnia, constipation, underweight, occasional cyanotic cold extremities and subnormal temperature. These symptoms were relieved by atropine. The conclusion that the etiological factor was a disturbance of the vegetative nervous system seemed justified. Included among these cases were a number of straightforward cases of pylorospasm, in two of which operation had been advised. All, without exception, cleared up under the use of atropine. Up to the time of the publication of the above paper and since, no case with a complete and absolute stenosis of the pylorus had come under the writer's notice, until the case which he now described. This baby was first seen on April 25, 1918, when five days old. The labor was normal, there was no asphyxia, and the child weighed eight and one-half pounds. Physical examination was negative except for vomiting, which occurred before the child was put to the breast. All the usual attempts had been made to improve the child's condition without avail. The infant cried constantly and was emaciating rapidly. There had been no food stools, no gas had passed per rectum, and there had been no urination. The abdomen showed distinct peristaltic waves, and in the region of the pylorus a small mass could be felt. The stools were greenish black mucus containing bile, their character not having changed since the meconium was expelled. The diagnosis of hypertrophic pyloric stenosis was undoubted with the single reservation of the remote possibility of a congenital atresia of the duodenum. The treatment instituted was feeding five minutes every two and one-half hours preceded by the administration of one drop of a 1/1000 solution of atropine sulphate in one dram of water, to be increased daily by one drop at each feeding until the physiological effects were observed. The first dose was administered at 4 P.M. The 6 o'clock feeding was retained better than any previous feeding, and the crying, which had been constant, was diminished; during the next forty-eight hours projectile vomiting occurred only three or four times in twenty-four hours. Forty-two hours after the atropine was begun the first trace of milk stool was noticed. From this time the child made a gradual recovery. The weight on April 28 was six pounds twelve ounces and on Aug. 1 it was eleven pounds three ounces. Three weeks previous to this date the atropine had been discontinued. The maximum amount of atropine administered was six drops seven times daily. Dr. Haas reviewed a case of hypertrophic pyloric stenosis reported by B. K. Rachford in which the onset occurred when the child was three weeks old. At the age of ten weeks the child was operated on by the Rammstedt method, after which it made an excellent recovery. At operation a tumor 2 cm. long by 1 cm. thick and of cartilaginous hardness was found. At the age of seven months the child died. The autopsy report stated that this child undoubtedly died as the result of an unusually enlarged thymus (65 grams). Upon examination the pyloric orifice was found normally dilated and the pyloric mass which was distinctly seen at the previous operation had disappeared. From this case the writers concluded that if the pyloric sphincter was so cut as to leave the pyloric orifice patulous and prevent muscular spasm of these fibers, the pyloric tumor disappeared entirely and this within a few months. Sudden death in these cases was due to enlarged thymus. Sudden death followed successful operations and sometimes occurred during medical treatment.

Dr. MAX EINHORN related that ten years ago, when he began to enter the duodenum with the duodenal bucket and thread, he had an idea that it might be possible by this means to stretch the pylorus. At that time he had a case of persistent vomiting in a child six months old, and after careful examination found that there was retention six hours after the ingestion of food. He tried to see if he could enter the duodenum by giving the child a small olive with the thread. The introduction of the olive in children was very easy; it might be given with the breast or milk bottle, but one must know the length of the thread from the lips to the duodenum, and one must be sure that the thread was long enough to reach to the duodenum. The olive was left in for six hours and then pulled out, and if one found bile on it he knew that it had been in the duodenum. Following this procedure, and using olives of different sizes, one could learn the degree of patency of the pylorus; if the olive had passed into the duodenum there would be a little resistance when it was withdrawn, but if it was only in the stomach it came out easily and there was no bile on it. Dr. Einhorn recalled one case in a little boy three or four weeks old in whom the pylorus was stretched in this way, who was now grown and had had no further trouble, and he had had several quite similar cases. He also recalled two instances in which the children were too far gone at the time of the stretching and both died. He said he only mentioned these cases to show how near death these patients often were when one was called in to do something. He felt quite sure that if stretching the pylorus were tried by pediatrists they would find that in some instances they would meet with great success. Whether he was dealing with a pylorospasm or a stenosis in these cases it was difficult to say, but stretching was useful in benign strictures in grown persons. This procedure did not harm, and if it was not successful the child could be turned over to the surgeon. He was of the opinion, however, that the child should first be given the benefit of reaching the duodenum and trying to widen the pylorus in this way. He did not think atropine relaxed the spasm in each case, though it might do some good. He thought a warning should be sounded against the use of atropine for a long time, for he had seen symptoms due to the prolonged use of this drug. If there was too much acidity the patient might not improve. He recalled a case of spasm of the pylorus that did not respond to atropine. This patient was cured by stretching. He was sure conditions were found in infants and children similar to those encountered in older people.

Dr. JOHN DOUGLAS stated that ten or twelve years ago he had heard a discussion as to the relative value of medical and surgical treatment of hypertrophic pyloric stenosis and even at that time the history of a considerable number of cases treated by surgical means compared with cases treated by medical means was decidedly in favor of those treated surgically, and that was by the old method of gastroenterostomy. He felt sure that the majority of pediatrists would agree that by means of the Rammstedt operation this mortality had been very much lessened, and that this procedure was much to be preferred, because in treating a child with atropine there was danger of carrying it along until it had reached such a stage that it could

not be helped by surgery. The mortality in these cases with the Rammstedt operation was very small if operation was performed early. It might be that some cases were entirely due to spasm and that these would be helped by atropine, but anyone who had cut through the thick gristle and knew how careful one must be not to cut entirely through the mucous membrane had observed that there was a distinct difference in the thickness and in the actual amount of tissue and that no amount of simple contraction could make the wall so absolutely thick and hard. Dr. Douglas then referred to another point, namely, that a considerable number of cases of moderate true hypertrophy of the pylorus also had spasm and this permitted a little of the stomach contents to pass through at times. When there was a spasm on top of the hypertrophy, the spasm might be relieved by atropine, and if the hypertrophy was not too great the stomach contents might pass through. It seemed to him, however, that to advocate the treatment of true hypertrophy by atropine was very dangerous teaching. He could not help but feel that the Rammstedt operation was less dangerous than one-twenty-fourth of a grain of atropine daily in an infant a few weeks old.

Dr. L. E. LaFetra expressed himself as in hearty accord for the most part with the remarks Dr. Douglas had just made. If we thought carefully over our cases we must recognize that even when hypertrophy was present there was nearly always more or less spasm which frequently was sufficient to complete the stenosis. In those cases that were relieved by atropine, the spasm, whether the whole or only the partial cause of the stenosis, was relieved sufficiently to allow food to pass through to the duodenum. In reference to Dr. Douglas' adverse comment on the probable delay caused by the use of atropine, he would say that the modern pediatrist was well aware that the operation to be successful must be performed before the baby had lost its vitality. Only two or three days were necessary for a satisfactory test of the atropine treatment. It must be emphasized once more that the presence of a peristaltic wave or a hard stool did not necessarily indicate either hypertrophy or operation. It was the function of the pylorus that was important, and this must be judged by the amount of stomach residue, the character of the stools, the weight of the baby, and its general condition. In closing, Dr. LaFetra thanked Dr. Haas for having pursued the topic of atropine treatment and for having brought it to the attention of the profession. It was a most important method and would relieve those cases in which spasm was the chief factor in the condition. With regard to the case reported by Dr. Haas, he regretted, however, that he should have to disagree with his diagnosis; the baby was probably suffering from pylorospasm.

Dr. Charles Gilmore Kerley stated that he had used atropine with very satisfactory results in a good many cases. He hoped to report this at a later date. In only one case had the dosage of one drop of the 1/1000 mixture caused trouble. In this instance he was obliged to reduce the dose to one-half drop. He did not believe, however, that atropine could have any effect whatever on a case of true hypertrophic stenosis. From his experience he would not have the courage after a child had lost a couple of pounds to delay operation, for the reason that the longer operation was postponed in these cases the greater was the danger to the child. He still believed that early operation was the only means of saving these cases; by early operation he meant before the case had become a grave surgical risk. In a series of cases reported before the American Pediatric Society last May he had a mortality of 15 per cent. In three of the fatal cases he was convinced that death would not have occurred if surgical intervention had not been deferred until too late, and that was the risk incurred when these cases were treated too long by medical means.

Dr. Haas, in closing, said that personally he had seen the good results of dilatation in these cases carried out by Dr. Einhorn's method or by the duodenal catheter. This would seem to afford additional evidence that agencies other than operation might accomplish a cure. As to the fears Dr. Einhorn expressed regarding the prolonged use of atropine, he might say that he had been using atropine for three years and used it for eight or nine months continuously without bad results. One baby had been receiving four drops in five feedings over a considerable period of time, and another child from time to time must have atropine to allay irritability and had taken it over long periods. He had repeatedly given atropine for months without any apparent ill effects. Dr. Douglas was quite right in saying that anyone who had seen the condition present in hypertrophic stenosis ought to apply for surgical aid. This was his belief before he knew as much about atropine as he did to-day. He had tried atropine in many cases of pylorospasm and always with complete relief of the symptoms. The largest dose of atropine given was one-sixteenth of a grain in twenty-four hours. Dr. LaFetra had disagreed with the diagnosis of the case and Dr. Kerley said he could not understand the disappearance of the tumor. A review of Dr. Rachford's case cited in the paper would explain this point. Regarding the dosage of atropine, if there was flushing that need give no concern; it was when the child grew pale that there was danger. Fever and flushing disappeared promptly when atropine was discontinued. It took one hundred years to discover the proper use of digitalis, and it might take another one hundred years before we learned to use atropine properly. There was no benefit to be derived from atropine until an adequate dose was reached. As a rule, two drops at a feeding did not effect a clearing up of the symptoms. Dr. Kerley spoke of a child that could not stand one drop at a feeding; this did occur but as a rule children in which this condition was present stood large doses of atropine well. Dr. Haas said that while he would not detract in any way from the surgical work which had been carried on so brilliantly in this line, he wished to call attention to the fact that it did not take a week to find out whether the child was improving under the use of atropine. One could usually find out within forty-eight hours by the use of atropine whether the case was a surgical one or not.

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Nerve Control and How to Gain It, by H. Addington Bruce. 303 pages. Price, $1.00. Published by Funk & Wagnalls Company, New York and London.

Autotherapy, by Charles H. Duncan, M.D. 349 pages. Illustrated. Price, $5.00. Published by Dr. Charles H. Duncan, 2612 Broadway, New York.

Massage and the Swedish Movements, by Kurre W. Ostrom. 188 pages. Illustrated. Price, $1.00. Published by P. Blakiston's Son & Co., Philadelphia, Pa.

Genito-Urinary Diseases and Syphilis, by Charles S. Hirch, M.D. 334 pages. Illustrated. Price, $1.50. Published by P. Blakiston's Son & Co.

Paper Work of the Medical Department of the U. S. Army, by Ralph W. Webster. 531 pages. Illustrated. Price, $5.00. Published by P. Blakiston's Son & Co., Philadelphia.

Transactions of the American Otological Society. 612 pages. Illustrated. Published by the Society.

Report of the Surgeon General of U. S. Army. 722 pages. Published by Government Printing Office, Washington.

A Compend of Pharmacy, by F. E. Stewart, M.D., Ph.G., Phar.D. 185 pages. Price, $1.50. Published by P. Blakiston's Son & Co., Philadelphia, Pa.

Dietetics for Nurses, by Fairfax T. Proudfit. 429 pages. Price, $2.25. Published by The Macmillan Company, New York.

Annual Report of the Surgeon General of the Public Health Service of the United States. 373 pages. Published by the Government Printing Office, Washington.

Miscellany.

Petrograd Under the Bolsheviki.—in the *Presse Médicale* for November 11, Marcou writes at length on this subject. The author is the executive of the French Hospital of that city and has practised there for 17 years. The war was never popular there, and the revolution of March, 1917, he says, was purely for the purpose of bringing it to a close. The soldiers and workers were veritable mutineers against warfare. The results were anarchy and desertion at the front, anarchy and sabotage in the shops, and *jacquerie* in the country. Theorists and philosophers certainly had no part in this revolution. The soldiers did not propose to be killed longer for a cause they did not understand, while the artisans wished the highest pay for the shortest hours. The peasantry went into the movement for land and pillage. The author does not regard the Russian mob as different from the mobs of other countries, but the inhibitions are weaker. The well-known physiologist Pavloff took this view in stating that there was lack of equilibrium between dynamics and inhibition among his compatriots. The revolution began at Petrograd and spread over Russia; but one thing miscalculated, for after this movement was under way no one worked at all.

Socialism is said to imply organization of industry and proper distribution of wealth, but since March, 1917, industrial Russia had ceased to produce wealth and peasants did not even sow their fields. The town stopped making tools for the peasant and the latter ceased to produce food. The Bolsheviki wished to monopolize foodstuffs, but the rurals would not furnish the latter. Instead they sold what they had in small lots to smugglers at exorbitant rates. Red guards about the towns held up all food packages. The dole of food to the townsmen, always at high prices, did not amount to more than 100 calories a day a head. The balance could only be bought as contraband of the smugglers. The latter calling was most hazardous, for after the smuggler had paid the peasant a fancy price the Red guard was apt to seize the food. Bread went up in price 700 per cent., potatoes 300 per cent., etc. Famine was the natural result, and famine not due to crop failure but to causes wholly artificial. Ninety per cent. of all food consumed was smuggled, for despite the hostility of the Bolsheviki they had to allow enough food to make their own tenure safe. People with money did not starve, which shows that smuggling was successful. The Bolsheviki naturally confiscated enough for their own private needs. The medical men, who were given some leeway in regard to their sick patients, abused the privilege at times. Young children suffered greatly but older ones and adolescents much less, the latter being able to utilize food articles of the smoked herring type. Adults up to the age of 40 years were very thin but managed to thrive fairly. Adults over 40, on the other hand, were much worse off, and looked not only emaciated but prematurely aged. Their normal resistance to poisons seemed greatly lowered and the author treated many phases of food intoxication which the more robust and youthful did not develop. The edema of inanition was seen in epidemic incidence and attacked the cardiorenal subject rapidly. The hospitals were crowded with these patients, who chiefly died as cardiac or uremic. Typhus became epidemic and on account of the number of mild and atypical forms was often impossible to recognize. Hence serodiagnosis was resorted to with some success, although the theory underlying it seems defective. Grippe with pneumonic complications prevailed as never before. Dysentery and scorbutus did not develop, an omission difficult to understand. For six months past, Marcou says, the people have not known how they have got along.

The author thought, at the time of his writing, that there were evidences that the false beliefs which made possible this state of affairs were dying out and that common sense would replace them. Food was coming in without smuggling but at prohibitive prices. In the towns, armed workers ordered the peasant to supply food at a maximum price. The latter had reacted by destroying their cereals, preferring this course to accepting questionable money. They had no objection to bartering for tools and commodities. On the whole, the outlook is poor, and the author holds that the menace can end only with the complete suppression of Germany's policy in the East, for this policy not only started the trouble but has maintained it.

Recent Spanish-American Investigations Into Leprosy.—Chabas publishes a long article on this subject in the *Cronica Medico-Quirurgica* for last July. The malady has existed in Spain since the time of Phenician and Greek colonization. The earliest asylum for lepers goes back to 1067 and at one time there were 30 in the Asturias. There was a body of physicians appointed by the Catholic monarchs known as *alealdes de lepra.* The disappearance of lepra as a pandemic naturally did away with these repressive measures, which in more modern times are being revived, presumably because of the discovery of Hansen's bacillus in 1878. At that period Vidal, Catalayud, and especially Castellano, recently deceased at an advanced age, began to labor in this field. The medical geography of Spain as concerns leprosy has been exhaustively studied, in spite of difficulties and opposition. Within the past few years these studies seem to have culminated in a special series of articles. Professor Peyri of Barcelona has been at work for seventeen years on the bacteriology of this affection and has recently published some important conclusions, such as on the variable virulence of bacilli, and the conditions of viability. Other Spanish bacteriologists have also made valuable discoveries in regard to laboratory technique including inoculation of animals. The hematology, especially in regard to the positive Wassermann reactions, has received attention in both Spain and Argentina. Much work has been recently done on the subject of insect transmission, and Hansen's bacilli have been found in bedbugs and house flies, while both the flea and mosquito have been accused of transmission on clinical evidence. Evidences of direct contagion, on the other hand, are not convincing in comparison with the data which point to some sort of mediate contagion. In regard to hereditary transmission leprosy never descends as such, but abortion and bearing of inferior children are commonly observed in leprous women.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 95, No. 5.
Whole No. 2517.

NEW YORK, FEBRUARY 1, 1919.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

MEDICAL *VERSUS* SURGICAL TREATMENT OF CANCER.

BY L. DUNCAN BULKLEY, M.D.,

NEW YORK.

IF the statistics which have been repeatedly presented are correct, and they can be readily proved; if the statements in regard to laboratory researches are authentic, and they can be verified by literature, and if the affirmations of the writer here and elsewhere as to results obtained by medical treatment are credible and believed, serious attention should be paid to "the real cancer problem" as presented in previous publications.* In regard to no other disease have the profession and the laity been so blind as they have been in regard to cancer. But from journalistic literature and personal communications it would seem that the medical portion of the profession is beginning to see matters in their right light, and the day dawns brighter for the elimination of the fearful morbidity and mortality of cancer.

What are we to conclude from our studies on cancer, as represented in previous writings? Is the cancer problem solved completely? By no means. It has only begun to be solved, but there have been indicated the lines along which the best prospects are offered. For it is evident that surgery alone has had its day and has failed. Much more observation and study are needed, both in the laboratory and on patients, but along lines quite different from those heretofore followed. The microscope has revealed about all that is possible in regard to the histological characters of the diseased tissue and the morphological elements of the blood. It is refreshing to observe in the report of the Research Laboratory of the Memorial Hospital, signed by Dr. Ewing, that "The extension of research to clinical questions made possible by the increased endowment has not restricted the laboratory studies, but on the contrary, has greatly added to their number and importance. The main topics being investigated include the influence of diets upon cancer in lower animals, the chemical changes in the blood and in tumor tissue, etc." It would be well if it had been added "also in patients in the earlier and later stages of cancer"—but this will undoubtedly follow and unquestionably will be rich in results.

What are we to think of the facts and figures which have been presented from time to time? Can they be ignored? For they have never been refuted in print or in open discussion, athough abundant opportunity has been offered in many medical societies, and the challenge is still open. With the marvelous diminution in the death rate from tuberculosis under rational treatment, can we refuse to apply the same, properly devised, to cancer, whose mortality has risen so alarmingly under the treatment thus far given to it? Can it be anything but a wilful ignorance to ignore this line of effort?

In preceding writings the medical aspect of cancer has been presented in almost every possible light, repeating necessarily much that has appeared in the two volumes on cancer referred to above. Its connection with diet has been developed statistically, experimentally and clinically. The metabolic changes constantly observed in patients with early and late cancer have been recorded, as also the definite changes in the blood. What is lacking to carry a conviction which shall result in a general change of view, as to its systemic or constitutional character, in place of a purely local nature of the disease? Constant new development of cancerous lesions after surgical removal, metastases, or development of the disease in internal organs, and the later phenomena ending in death, all surely point to something more than a local disease. Malignant primary disease in deep organs, the brain, pancreas, kidney, liver, certainly cannot be accounted for by local injury.

The thesis or theory of a systemic or constitutional origin of malignant as well as non-malignant growths is fully sustained by all that is summed up in the one word nutrition. We know that wrong nutrition accounts for tuberculosis, rickets, obesity and many complaints, and we know that nutrition depends upon the food and drink taken; and we know that nutrition accounts for the marvelous results obtained in tuberculosis, in spite of the continued presence of tubercle bacilli. We know, further, that good or bad nutrition depends also upon the proper or improper action of one or more of the various internal organs, and is also influenced by nervous conditions. What reasonable objection can be raised to the assumption that cancer is also due to errors of nutrition? If the latter is true, it follows naturally that the exactly proper food and drink, together with correct action of all the internal organs, will prevent and cure cancer.

In the first volume above mentioned it was remarked that "The test of everything lies in the results obtained. Theories, discussions, and arguments are all unavailing unless results show their truth." This phrase was repeated with more force in the second volume. It is now four years since those words were first written, and they can now be repeated again with still greater confidence. For these and former years of further observation and

*"Cancer, Its Cause and Treatment." Vols. I and II. Hoeber, New York, 1915, 1917.

treatment of patients with cancer have abundantly demonstrated the correctness of the thoughts presented, while the study of literature has served only to confirm the views which have been held, and on which practice has been based for thirty and more years.

In some few reviews of the previous volumes criticism was made that the diagnosis of the cases reported was made on clinical grounds only, and was not established by the microscope. In answer to this it may be said that in virtually all the cases recorded then or now the diagnosis had been made previously or confirmed by one or more surgeons, who had urged, and in some instances arranged for immediate operation. Also it is well known that biopsy before operation is universally condemned, and it would be particularly dangerous in cases which underwent only medical treatment. Further, it is to be remembered that of the vast number of cases operated on the diagnosis before operation is almost invariably clinical.

Reference and further report may be made concerning some of the cases reported previously as illustrating and impressing what can be done for cancer by non-surgical measures.

In the first volume eight cases of cancer of the breast were reported from among many others, two of whom were followed, remaining perfectly well sixteen years after first beginning treatment. The second two cases had been watched and continued perfectly well for nine years under medical treatment alone; that was four years ago, and traced recently, they remain still well, thirteen years after being first seen. The next three patients had inoperative recurrent cancer, one of whom showed most remarkable gain during her stay of four months and a half in the New York Skin and Cancer Hospital, the details of which were fully reported. One of the cases, in private practice, was watched almost sixteen months, and when lost sight of, that she might take *x*-rays nearer her home in the country, a very large share of the cutaneous nodules had disappeared, she had lived comfortably and without pain, and the disease which would have carried her off long before had certainly in a measure been checked. The last case was described as showing how much could be done even in a most hopeless condition. The lady for two years had neglected a diseased breast, until it was increased to the size of half a large melon, hard and immovable, with some superficial ulceration and with enormous axillary and supraclavicular glands and profound cachexia; the trouble had been revealed to no one until the day before her visit, when a physician and surgeon pronounced it hopeless. For seven months under careful treatment she lived comfortably, the breast softening very greatly, and diminishing to about the size of the other, and the glandular swellings becoming about one-half the size. She passed peacefully away with exhaustion and pulmonary edema, about seven months after being first seen, without having taken a particle of morphine or other hypnotic. In all my cases, even in recurrent cancer, it has so rarely been necessary to use these that I can recall hardly any instance where they were employed; when under full dietetic and medicinal treatment the element of pain is almost negligible. Opiates check the secretions and excretions and retard metabolism, and in my experience increase the tendency to an extension of the carcinosis.

In the second volume nine more cases of malignant neoplasm were reported, in which results of this line of treatment were shown. One was a very remarkable case of sarcoma of the upper jaw, recurrent after operation. The final result of this was a plastic operation to cover the large ulcerative opening which had completely healed in about four months, during which time she had gained from 89½ to 130 pounds, which latter was 10 pounds more than she had ever weighed before. The thick skin graft to cover the opening took at once perfectly, and she remains well two years since I reported the case.

Six cases of cancer of the breast were recorded, three primary and non-operative, and two of recurrent cancer, one of whom had been submitted to four operations, and the last case one with an immense ulcerative mass of the right side of the chest, which was transferred to my medical service in the hospital by the surgeons as being absolutely inoperable. This last patient made a splendid fight for about a year, gaining in flesh, with a blood count raised to 4,110,000, and sleeping well without the opiate she had previously taken. The case was a very difficult one, as the kidneys refused to excrete anywhere near the proper amount of solids required, and she passed away easily a year after entering my service.

Of the other two cases of post-operative cancer of the breast, I may report that the one who had had four operations (Case IV) did remarkably well for a while, although when first seen there was a large ulcerating surface over the site of former operations on the left side, with axillary glands enlarged and a greatly swollen left arm. Five months later she wrote that she felt very well, and "friends think that there cannot be much the matter with me." She made occasional trips from a distant town until about eight months from the first visit, when she fell and broke her hip; treatment was then interfered with for some time, and she began to go down and passed away about a year after I first saw her. The other recurrent case where both breasts had been removed two years previously had a great development of cutaneous nodules on both sides of the chest, forming a veritable "cancer en cuirasse." She was treated in my out-patient cancer clinic of the hospital, and when I presented her at my lecture clinic about four months later her condition was so changed that there was hardly a trace of the nodules on passing the hand over the surface. She had been working hard all the time, and had had no pain since soon after beginning the treatment. She disappeared soon after that and I could not trace her.

Of the three primary cases, non-operative, in private practice, two seem to have recovered, and the other (Case I) made a most wonderful fight under very adverse circumstances, working very hard and with much family sickness and death. She had a hard mass in the left breast, attached to the skin and with enlarged axillary glands, and had been given six months to live by a surgeon of prominence, if not operated on. The improvement in her general condition and the mass in the breast seemed

so good, after the first few months that it seemed as if the disease would yield entirely; she had been to Chicago and back by auto, slept perfectly, had no pain and felt perfectly well. Ten months after her first visit she had a very severe attack of grip, being in bed three weeks in another city, and this with many weeks' neglect of treatment set her back, and she was lost sight of about fourteen months after she had been given six months to live, having taken no opiate.

The other two cases were most satisfactory. One of them, whose breast tumor was diagnosed as cancer by at least four medical men, one of them a prominent surgeon, remained absolutely free from trouble when examined five and a half years after her first call. The other patient (Case II) was reported as perfectly well and free from any breast trouble two years after being first seen, and she had been confined of a healthy child two years ago and was examined on Sept. 23, 1918, more than four years after her first visit; there was no trace of the breast tumor, and she was in excellent health.

Two cases of cancer of the uterus were there reported; both had recovered, as evidenced by the careful examinations of several physicians and surgeons. One of them (Case VII) has been under my constant observation and treatment during these two years, traveling many times from a far-distant city, and is in as perfect health as could be desired, still weighing more than she did at first, walking much, and a recent examination reports that both of these cases are "free from any evidence of disease."

In the second volume was given a list of the cases of malignant disease upon which the studies were based, and it is not necessary to refer to these again, nor to detail others of the cases similar to those already reported. Reference will therefore be made to those seen in the two years since its publication, and only those in private practice will be counted, as hospital cases are not nearly as satisfactory as those among the more educated classes in private practice.

A considerable number of these patients were seen only in consultation or a single time, and a number of them have been treated only for a short period, too short to report definitely concerning them. But there were 21 who were treated sufficiently long to observe distinct improvement, as recorded in their histories. When we recall the ordinary course of cancer, and that when not improving patients constantly get worse, we cannot ignore a steady gain. And in the light of the cases previously mentioned, we must realize that when one improves and goes up hill in regard to the disease and in general health continuously, one is not likely to go down hill at the same time; and moreover, if the same conditions and treatment are faithfully persisted in long enough, there is reason to expect that the final result will be favorable, as it has been in so many instances during the many years past.

During the last two years, since my second volume was published, I find case histories more or less complete of 107 new cases of malignant disease affecting different locations. Of these, 42 cases were of cutaneous epithelioma, which latter are excluded from our present study, as are also a number of cases of suspected cancer and non-malignant tumors. Of the remaining 65 cases there were 39 patients with cancer of the breast, 3 of the uterus, 5 of the stomach, 2 of the rectum, 1 of the bladder, 1 of the kidney, 2 of the prostate, 5 of the buccal cavity, 1 of the axilla and 6 of sarcoma, 3 of which were in the buccal cavity.

These cases were seen in all stages of the disease, 27 were recurrent after from one to three operations and 38 were primary cases. With hardly an exception, I believe all the latter had been seen by other medical men, who had made the clinical diagnosis of cancer, and many had been strenuously urged by surgeons of repute to have an immediate operation as the only hope of saving life. I have elsewhere mentioned the universal belief among the best men that to attempt to take a section for microscopic examination is extremely dangerous in surgical cases, and it would be almost fatal in those treated medically. Many of the recurrent cases have experienced the greatest benefit from the line of treatment advocated in these volumes, as indicated in some of those previously reported and in those to be given. In some instances life has been prolonged far beyond that expected and prognosticated by the surgeon, and with a measure of comfort often most gratifying. As far as I have learned there have been six deaths, but there were probably many more, as a number of those seen in consultation were far advanced. Brief mention may be made of some interesting points in connection with certain primary and secondary cases.

Cancer of the Breast.—The average age of these 39 patients was just 47, the youngest 27 and the oldest 85; twenty of them were between 40 and 50 years of age when first seen. There were 22 married and 17 single. In 24 cases the left breast was affected, in 10 the right breast, both breasts in 3 cases and unrecorded in one case. The duration of the disease before observation varied from a week or two in one instance to six years in one lady aged 59, who had never been operated on; the average was about a year and a half, but there were a number of the primary cases who came quite early, and in them naturally there were the best results. Of these breast cases 19 were recurrent after from one to three operations or *x*-ray or radium, and 20 were primary, who had never been operated on. I must first mention one very interesting case treated in the medical clinic for cancer in the hospital.

Case I.—Mrs. S. J., aged thirty-three, first noticed a lump in the right breast two months previous to her visit, February 28, 1917. This steadily increased until seen, when it was fully an inch and a half in either direction, in about the median line above the nipple, with sharp rather hard edges, and a small palpable gland in the axilla; she had been having sharp pains radiating from the breast to the axilla. To confirm the diagnosis I called in the surgeon in attendance, who at once recognized it as carcinoma and strongly urged an immediate removal as the only hope, my assistants also agreeing as to the diagnosis. She was extremely constipated, the mouth dry, and the saliva acid. She was placed on the usual dietary and medicinal treatment, and in two weeks it was recorded that she felt better than for a year. The lump was materially smaller, though the edges were sharp and nodular. There was no pain, except on extreme exertion, and she was doing her housework and caring for two children. She was faithful to treatment, generally coming every week, and six months later it was recorded that the lump had markedly diminished, being about an inch in diameter and very shallow, and with absolutely no pain. Six

months later still practically nothing could be felt. About a year or more after her first visit three physicians were told that she had had a breast tumor, and all of them, feeling the breasts, decided that it must have been in the left breast instead of the right, as there was a slight chronic mastitis there. She had been pregnant and gave birth to a dead-born child. When seen recently, nearly two years after the first call, there was nothing to be felt in the right breast, but still a little chronic mastitis in the left, and a fourth physician decided that the cancer must have been in the left breast.

One of my assistants recently reported to me a very similar case, where the lump had disappeared under medical treatment and after a year the same mistake was made by a doctor examining both breasts who decided wrongly as to which breast had been affected.

Case II.—Miss C. M. S., aged thirty-five, seen first January 15, 1917. Six months before she had a severe blow in the right breast which soon enlarged and was painful; it had been poulticed and iodex applied. When first seen there was a lump, the size of an English walnut, quite well defined, and with darting pain; no axillary glands were felt, though small enlargements developed two months later as she had neglected the treatment given. After a few weeks of rigid treatment the breast was softer, with some pain and drawn feeling. Two months later the right breast felt almost the same as the left, though there was still a sharp margin in one place. When last seen, about eighteen months after the first, the right breast was normal, but a little mastitis caking existed in the left breast, and she had had some little feeling in both breasts during menstruation. This was a difficult case to handle, as she had much care, work, and trouble keeping a boarding house, with her mother sick at times. She had much gastric disturbance and was much constipated before treatment.

Case III.—Miss G. D., aged forty-five, was under treatment for eczema, which had about disappeared, when on January 22, 1917, she called attention to a lump in the left breast which had existed for six months or more. It was just above the nipple, the size of an egg, with sharp edges and some adherence to the skin, with some glandular enlargement, and sharp pain occasionally. This patient has been under frequent observation and constant treatment now for almost two years, and while the lump has not wholly disappeared, it is not one-half the size, is softer, and without the sharp edges, and the glands can hardly be felt; there is rarely any pain, except after much exertion. She keeps her color and weight well, and has been active as an attendant upon an elderly lady. There is every reason to believe that the absorbing process will go on, as she is very faithful to treatment, and that ultimately the trouble will disappear entirely.

Case IV:—Mrs. G. K. L., aged fifty-nine, received a slight blow on the inner upper quadrant of the left breast and immediately felt a peculiar sensation, which passed off, and the lump was not noticed until four years ago. Since then the breast has felt heavy and gradually the mass increased in size, until it was about 3½ inches in diameter, hard and characteristic, when first seen, with some enlarged glands in the axilla. She had been under a partial "green card" diet for a year. Being placed on very strict diet, with medication, at the end of three months the tumor had diminished more than one-half in size and was much softer, as verified by another physician. She had gained 4 pounds from the first, with good color, and felt better than she had for a long time.

Case V.—Miss L. M., aged fifty-five, a recent case, presents points of interest. Fourteen months before her visit, November 4, 1918, she noticed a small lump in the right breast, which had been kept secret until a week previously. It was painful from the first, the pain increasing as the mass grew, until of late it had caused many sleepless nights. When first seen there was a large tumor, 2 or 3 inches in diameter, in the inner upper segment, near the nipple, with a purplish-red protruding area an inch in diameter, ready to ulcerate. The whole breast was tense, and the axillary glands were enlarged and painful on handling; there was no supraclavicular adenopathy. The almost immediate relief to many symptoms from a strict vegetarian diet, according to the "green card" previously referred to, and appropriate medical treatment, was surprising. In a week the tenseness of the breast had materially lessened and the pain was decidedly less. After ten days the lump was less hard and the axillary glands less prominent. A week later the purplish color had almost gone, ichthyol having been applied frequently from the first, and the axillary glands had diminished one-third or more, as verified by a physician who watched the case with me. While the final result of such a large tumor cannot be surely foretold, if improvement should be arrested I might have the offending mass removed by the Strobel chemical extirpation, as was done in the case next to be mentioned. This avoids severing blood-vessels and lymphatics, which are sealed by the caustic, and the process is not commonly followed by the recurrence so common after removal by the knife.

Case VI.—Mrs. L. H., aged thirty-six, came under observation and treatment September 20, 1918. She had had two children, one twelve years of age, who had been nursed three months, and one child six years old. She had much milk in the left breast, but the nipple was sore for two weeks and the baby was weaned. Her mother had died of malignant disease of the bladder at the age of fifty-five. Fourteen months previous to her visit she had first noticed a lump in the left breast, the size of a marble, which had increased gradually, but was supposed to be doing well under vegetable diet and various medications, until she had a severe blow on that breast two months before coming for treatment; since that time it had increased rather rapidly, with shooting paints extending from the left arm. When first seen there was a large hard mass in the upper outer segment of the left breast, 2 or 3 inches in diameter, adherent to the skin, with a moderately reddened area an inch or so in diameter. The saliva was acid and the urinary excretion insufficient in its solid ingredients. Under active dietary and other treatment it was recorded one month later that the breast was less swollen and less red, but that she still had considerable pain the previous week, during the menstrual period, and that the axillary adenopathy seemed more pronounced, and one or two enlarged supraclavicular glands were found a week later. She had, however, done well physically, had gained in flesh a little, had good color, slept well without pain, but had some darting pains in the daytime.

In view of the size of the tumor and her general nervous condition, and the extreme tediousness of its medical removal, I decided that it would be wiser to have the breast removed by local caustic treatment, as I have had a number of my cases so treated at the New York Skin and Cancer Hospital by Dr. Strobel, with good results. The process was begun on October 31, the last application of the plaster being made on November 9. On account of the difficulty in reaching and removing the enlarged axillary glands skin-grafting was not done until November 26, when there was still some sloughing to take place in the axilla. The grafts took perfectly over the breast area, giving a smooth, healthy surface, leaving still some raw space in the axilla to be treated later. The slough there finally separated on December 9, and skin-grafting was done December 13 and took well.

One or two cases may be mentioned to illustrate what can be done for patients where the disease has recurred after one or more surgical removals.

Case VII.—Miss H. K., aged forty-five, first seen December 17, 1917, had noticed a lump in the right breast in April, 1915; this was removed surgically within three months, with a good axillary operation the following July 14. About the middle of June, 1917, she noticed a lump in the left breast, in the outer lower segment. When seen there was a mass the size of an egg, hard, with some irregular nodosities; the glands along the pectoral muscle were enlarged, with some doubtful axillary adenopathy. She was always constipated and the saliva was acid; the menopause had not yet occurred. Placed on a strict diet and medication, she has

been very faithful, though living in a distant city, and coming to New York many times up to the present. The tumor is materially smaller and softer, and no adenopathy can be detected. When we consider what would ordinarily happen in such a case in a year and contrast her present condition, when she says that she "feels very well indeed," there is certainly reason to believe in the internal relations of cancer.

Case VIII.—Mrs. B. E., aged forty-nine, had the right breast removed, by a very complete axillary operation for adenocarcinoma, by one of the leading surgeons in New York, on September 27, 1916. She had never thought of the breast until five or six weeks before the operation, the tumor beginning the size of a walnut and growing rapidly in extent, with glandular enlargement. Four months after the operation, January 30, 1917, she came under observation and treatment with recurrence in the axilla, a swollen arm, paining and aching, and some areas of tenderness. She had long had persistent constipation, depending on cathartics all the time; she had borne three children, twenty-one, twenty, and thirteen years of age; the menses had ceased five years. For two years she has been a most faithful patient, coming almost weekly from a neighboring town, except during the summers, when she was far away and wrote occasionally. The course of this case has been interesting but not satisfactory, showing how deeply seated is the constitutional error which first manifests itself in a single lesion in the breast, and that the early and perfect removal of this could not arrest its progress.

During these nearly two years, with complete and careful carrying out of all dietary and medicinal measures, there have been repeated manifestations of the cancerous dyscrasia, in the way of cutaneous nodules and erythematous patches, with also axillary and supraclavicular adenopathy, and latterly bone involvement in the sternum, and cough, indicating internal adenopathy. But, on the other hand, without this constant and faithful treatment the disease would undoubtedly have had a lethal ending long ago. Moreover, until quite recently she has had no pain to speak of and has never taken a narcotic, and has been active and with a good color. For the last few months she has had much anxiety in regard to her two sons, who are at the front in France, which has had a manifest effect on the disease. During the treatment she has had many applications of the *x*-ray to glandular enlargements, and also latterly radium emanation insertion in some of them and radium to the sternal lesion by a most competent operator. Although the total results have not yet been satisfactory, there is hope that with the nervous strain removed by the shortly expected return of her sons from the war she may respond better to further treatment.

Latterly, however, the cough and shortness of breath increased, and on November 29, 72 ounces of fluid were drawn from the pleura. This exhausted her, as I learned by letter from her husband in a distant town, and matters look serious. He added, however, "I am fully convinced that you added considerably to her life, in comfort and length of days."

Cancer of the Uterus.—Three cases of cancer of the uterus were recorded, one of which was seen only once in consultation, very far advanced and under large doses of morphine for months. The other two, totally inoperable and ultimately fatal, exhibited in a striking manner the great value of proper medical treatment.

Case IX.—Mrs. N. R. M., aged fifty-five, was first seen December 27, 1917. She had been examined by Dr. John G. Clark of Philadelphia and others, with the diagnosis of inoperable cancer, with not over six months to live. There was a "great ragged crater, extending back to the rectum and forward almost into the bladder, and laterally to the pelvic walls." She was then examined by one of the surgeons of the New York Skin and Cancer Hospital, where she was treated, with confirmation of the condition, and a very hopeless prognosis was given of but few months to live. She had two children, thirty-five and thirty years of age, and the menses were normal up to their cessation three years ago, but nine months ago she had a profuse watery vaginal discharge and occasional bleedings since, with pain over the pubis. On entering the hospital she had an offensive bloody discharge. She had been habitually constipated and the saliva was found to be very acid.

She was treated, as were the other uterine cases already favorably reported, dietetically and medically, and with a vaginal douche of very hot water, 1 pint, containing half a teaspoonful of carbolic acid and two of borax, thrown in deeply and strongly with a Davidson's syringe, night and morning, and later also at noon. Within about a month there was a marked improvement in her looks and feelings. The douche came away clear, with no blood, only a little cloudy with a few shreds, and with no odor. The urine, which had been scanty, increased to quite a normal amount and character, and the saliva became neutral; she slept well most of the time, without much pain in the pubic region. She was given, in addition, capsules of the pyrophosphate of iron and her color, weight, and vigor improved, so that, in the light of the other cases, it seemed as though she would pull through. But the dullness above the pubis slowly increased, with bowel obstruction and tympanites, the urine became scanty and albuminous, with swollen legs and feet, and other signs of serious kidney involvement. The blood, which had been fairly normal, showed great degeneration, with only 50 per cent. hemoglobin, 1,350,000 erythrocytes, 13,000 leucocytes, of these 70 per cent. polynuclear, 5 large mononuclear, 50 small mononuclear, 4 transitional, and 1 eosinophile. She finally passed peacefully away in coma on August 16, without requiring or having taken a particle of morphine or other hypnotic, except a small dose of chloral and bromide occasionally at night when sleepless. She had some sciatic pain which was helped by the free use of a coal-tar analgesic.

When we consider the course of the disease in this patient, with her constant hopefulness and comfort during these eight months instead of six months or less, as compared with the agony often suffered, especially in cases recurrent after operation and the amount of morphine often taken, there is certainly reason for believing in the value of the proper constitutional treatment of cancer. With the enormous infiltration of the abdominal viscera and the great ulceration, the case was, of course, hopeless from the beginning.

Case X.—Mrs. T. F. V., aged sixty-four, first noticed bleeding from the vagina three months before her first visit, November 23, 1917. She had had pain in the back a little while before, and some bleeding every two weeks and for a day or two at a time. She had not felt well since June and had lost 20 pounds, weighing 107 when first seen. She had been examined by a surgeon two weeks before coming from Maine and pronounced to have inoperable uterine cancer. She was examined here by a gynecologist, who found extensive cauliflower ulceration of the cervix, with the uterus of great size. She had had six children, thirty-eight to twenty-eight years of age, and the menses had ceased twenty years ago. She was always constipated, the urine had always been scanty, and the saliva was very acid. The urine was of a low specific gravity, contained a moderate amount of albumin, and the urea low. Under careful dietetic and medical treatment, with the same vaginal douche as in the preceding case, she improved greatly, gained 2½ pounds in weight, and "felt like a different person," within a month, coming frequently to the office. She had relatively little pain, never requiring an opiate, and two months from the first it was recorded that she "felt freer from pain during the preceding week than for weeks or months." The douche came clear and without blood. The urine continued of low specific gravity, but occasionally without albumin, and the saliva continued very acid. Two weeks later she had a strange attack, with suppression of urine, and she became somewhat irrational and was moved to the hospital, as she could not be well cared for in a boarding house. This condition continued for a while,

but two weeks later she was perfectly rational and wanted to go to her home in Maine; she said she had no pain. She was taken home and died peacefully twenty-five hours after reaching there, on March 21, 1918. She thus lived almost four months in comparative comfort, not taking a particle of morphine or other hypnotic, and died without pain, sleeping peacefully, as reported by letter. The case was, of course, hopeless from the beginning.

Cancer of the Stomach.—Five cases were recorded, all males, aged 65, 58, 56, 44 and 43, but only one of them was treated; one was seen only once in consultation, far advanced, who died not long afterwards; two were seen only once, and one by correspondence.

Case XI.—W. B., aged fifty-six, had been sickly and not working for a year before his first visit, August 30, 1916, and had seen many physicians and surgeons, all of whom diagnosed the trouble as cancer of the stomach. He had had pain in the epigastrium for a long time, with swelling and hardness. On examination there was dullness on percussion over the pyloric region, and a mass could be felt. He had long been constipated, with coated tongue, and was very weak, having lost many pounds. Placed on a rigid diet and strict regulations as to mastication and living, with medication, he improved greatly, looking and feeling much better at the few visits he made from another city. Seven months later I learned from his brother-in-law, who had brought him, that the patient was very well and was working again. I realize that the diagnosis is very difficult in these cases and that he may not have had real cancer, but his whole appearance and the clinical symptoms, with his cancerous cachexia, loss of weight, etc., indicated the probable correctness of the diagnosis made by several medical men, and the results were certainly most satisfactory.

Cancer of the Rectum.—Two cases were recorded, one in a woman aged 55, and the other in a man aged 42, the latter only being treated. The former had had an artificial anus made, and subsequently intestinal anastomosis for inoperable cancer of the rectum, and was seen only once.

Case XII.—Mr. R. G., aged forty-two, came for treatment June 13, 1917. Two and a half years before he had had an operation for ulcer of the stomach, and had had no trouble until November, 1916, when he was given Russian oil for obstinate constipation. About a month before his visit he was seen by a surgeon of prominence, who diagnosed cancer of the rectum, verified by microscopic findings, and advised an operation, which he refused. When seen he was rather thin and haggard, having lost a good many pounds, pulse 92 and poor, tongue badly coated. His sleep was disturbed by having to get up three or four times for small, thready bowel movements, of which he had from twelve to fifteen in twenty-four hours. On examination there were no external signs of disease, and digital examination revealed little, the disease being higher up. Under dietary and other treatment the bowel movements were soon reduced to four in the twenty-four hours, one of them at night, but still watery and generally with some blood, but no pain. Six months later he was often having formed movements of good size, and had been better in every way the preceding month than for a year, with only slight pain in the rectum occasionally. There was still a little blood passed, although on April 12, after an absence of a month, it was recorded that there was no blood in the passages. When last seen, nearly a year from the first visit, he was in about the same condition; he had been steadily at work in a dry goods house all the time while under treatment. In view of the unsatisfactory results commonly obtained by operation, and the distressing condition of the patient after colostomy, the results in this case may be considered satisfactory.

Cancer of the Prostate.—Two cases were seen, aged 74 and 54; the first one was seen only once.

Case XIII.—B. S., aged fifty-four, had long had enlarged prostate, with frequent urination day and night. He had lost flesh, especially during the six months preceding his first visit, October 26, 1917. He had then an earthy, cachectic look, was thin and depressed. On examination by a surgeon the prostate was enlarged and the inguinal glands on both sides were greatly affected, forming great masses visible to the eye, there being no lesions on the penis. Under the "green card" diet and medication there was a very great change in a few weeks. The patient felt and looked very much better. The glands in the groins had subsided very noticeably, and shortly after they had quite disappeared, the cachexia was gone, and he had not an ache or a pain. He was lost sight of, and although written to did not respond. As in cancer of the stomach, a clinical diagnosis is often difficult, but such a result is certainly preferable to surgical interference, with all its uncertainties. A notice in the daily papers recently stated that he had died very suddenly.

Cancer of the Kidney.—One case has been under my constant care for two years and the results illustrate well the value of continued constitutional treatment.

Case XIV.—Mr. H. H. B., aged fifty-five, has been indisposed for a year, his color was bad, and work difficult to accomplish. On August 25, 1916, he passed blood in the urine, and the next day red blood, and also coagulated, with much pain in the back. The x-ray was said to show nothing, nor cystoscopy, except blood from the right kidney. This latter was removed on September 1, in another city, and found to be enlarged four times in size, weighing over 2 pounds, and shown to be cancerous microscopically. He made a good recovery and had no pain while in bed three weeks, but on walking had pain in the left side, increasing toward afternoon and rendering life miserable up to his coming under treatment January 30, 1917. The pain generally ceased on lying down at night. He weighed 173½ pounds, was a large eater of meat and was very fond of milk and eggs. He had never had any restriction of diet, nor directions or other treatment of any kind, only the operation.

Under strict vegetarian diet and varied treatment at frequent consultations, with voluminous notes, he has for two years been able to do his work, has gained 14½ pounds in weight, and for long periods has been free from pain, although there are times when he has pain over the left kidney. Recent letters show that he was "doing normal work" and "stands well the hardest strain," "felt better than for years," and "never had so good a color or circulation." The urine has been watched, measured daily all the time, and frequently analyzed volumetrically, and has commonly averaged over 50 ounces daily; the various ingredients are generally about normal, except that the urea is low, owing to the vegetarian diet. He has been, and I believe will be, very faithful to treatment, which has certainly prolonged his life and usefulness, and given great comfort and ease. How long it will be necessary to continue active treatment it is difficult to say; a relapse to his former method of living and entire neglect of protective treatment might naturally be expected to induce again a serious involvement of the remaining kidney. He has, of course, never taken a particle of morphine or other hypnotic, the pains occurring at times being largely relieved by the frequent use of a coal-tar analgesic.

Cancer of the Bladder.—One case of this has been under prolonged treatment with eminently satisfactory results.

Case XV.—Mr. G. W. H., aged sixty-eight, had been under my care for a number of years, for various difficulties, when on March 27, 1914, he brought two specimens of urine with clots of blood and a considerable amount of albumin in the evening sample, and was seen the next day. There had been no especial pain in the back, nor on passing urine, which had cleared since. Three days later he was again passing blood and was feeling weak, and thought he had lost 2 pounds in weight. He had to urinate every two hours, twice at night; the blood appeared mainly at the end of the urination. Blood pressure 160, systolic. On April 2 he was

cystoscoped by Dr. A. R. Stevens. The bladder mucosa was found to be normal, except near the left urethral orifice. Just above this there was a small, nodular, well defined, sessile mass, with small blood-vessels over its surface, pretty typical of carcinoma of the bladder wall. Radical excision was advised, or else fulguration. Declining these very positively, he was treated medically for a month, when he yielded, and on May 7 Dr. Stevens treated the lesion by fulguration, which was repeated on May 22. On August 5 there was some recurrence seen, in a slight crescentic mass, which was destroyed by high frequency current, with again a slight operation on August 10. On October 22 he was cystoscoped and no sign of recurrence was seen, only a scar. On February 23, 1915, there was a small regrowth, not one-half former size, which was treated with the high frequency current, and again slightly on March 2. He has been repeatedly cystoscoped since that date, up to the present time, by three urologists, and there are no signs of recurrence now nearly five years from the first symptoms observed.

The patient has been under constant medical treatment, with strict diet all this time, for various troubles attending high blood pressure, which has reached 200 systolic, but is commonly kept under control to about 150 systolic and 80 diastolic. On December 22, 1916, Dr. Stevens found a "large, elastic prostate (not carcinoma), which, however, seemed to cause no special symptoms until December 7, 1917, when blood clots were found in the urine, which have continued to appear much of the time ever since; these clots show only blood and fibrin, and no evidence of new growth tissue, as reported by Dr. Jessup. On repeated cystoscopic examinations no trace of the original or any other trouble in the bladder has been found, but "an adenomatous hypertrophy of the prostate and a slight bleeding from the prostate portion of the urethra." This was confirmed by two other urologists. During all this time under strict regimen and varied medication he has maintained his usual health, color, and weight, and pursued his usual business.

Cancer of the Buccal Cavity.—Five cases were observed, four males, aged 47, 48, 59 and 72, and one female aged 44; of these two were of the right upper jaw (not sarcoma), two of the tongue, and one of the tonsil. There were also three cases of sarcoma, two of the left upper jaw and one of the right lower jaw, besides three other cases of sarcoma located elsewhere. The cases of carcinoma of the jaw were seen only in consultation. One was a terrific post-operative case for which little or nothing could be done. The sarcoma cases were also seen in consultation, and one was advised to see Dr. Janeway for radium treatment. The woman with cancer of the tongue was seen once in consultation, the other case, though rather recent, and also the one with cancer of the tonsil are worthy of mention.

Case XVI.—Mr. K. M. A., aged fifty-nine, seen September 11, 1918, first noticed an irritation of the right side of the tongue, from a broken tooth, in May; and on May 11 it was operated on, with a knife and healed so that he went to work on May 20, with no pain for three weeks. It then began to ulcerate and a knife was again used and it was cauterized on August 5, and he left the hospital August 11, five weeks before his visit; since that time the trouble has been increasing rapidly, until when first seen the tongue was enormous, filling the buccal cavity, with a large ulcerative, hard patch, an inch and more on the side, with sharp edges; the submaxillary glands were very large, hard, and matted together, and the case was considered wholly inoperable by the surgeons whom he had seen. He had always smoked much, but took little alcohol, coffee, or tea. The saliva was very acid, the urine contained much indican, also oxalates and phosphates.

Being placed on the "green card" diet, with absolutely no smoking, alcohol, coffee, or tea, and with the mixture of acetate of potassa, nux vomica, cascara, and extract of rumex, the improvement began almost at once. He also used a mouth wash of a saturated solution of bicarbonate of soda, diluted one half, held in the mouth some minutes, a quarter of an hour before and also after taking food. He could take only liquid food, having great difficulty in swallowing.

By the end of three months the change was most remarkable. The ulceration had ceased at the side of the tongue, which had greatly diminished in size, though still hard. He swallowed much better, the jaws opened much wider and he could chew some, and the glands beneath the jaw were smaller and less adherent and movable, as was verified by two physicians. He remarked the "great improvement" in his condition and his wife said "the change from the first is marvelous." He still complained of some pain in the neck, running up to the head, but he has never taken any morphine or anodyne. When seen later, very recently, the improvement was still more marked. It is, of course, too early to claim a cure, but with continued proper treatment, of various kinds, there is every reason to believe that the progress toward that end will continue. This case illustrates well the harm from curetting and cauterization, which stimulated an ordinary slight ulcerative process from a rough tooth into a malignant disease.

Case XVII.—Mr. F. F., aged seventy-two, came under observation and treatment on October 2, 1918. For three months he had felt a pressure of something wrong on the ride side of the throat, and on September 3 had had some sort of an operation from within, the nature of which could not be determined. He had seen many physicians and surgeons, who advised a complete operation from the outside, which was refused. A Wassermann test had been made and found negative. On examination the right tonsil was found to be the seat of an ulcerative process. half an inch or more in diameter, very hard to the feel, with sharply defined hard edges, and considerable inflammatory action of the surrounding parts, reaching over almost to the left tonsil. The glands beneath the right jaw were greatly enlarged, the size of a large walnut, but rather movable. The saliva was very acid. He had been in the habit of taking beer twice daily, and smoking, which, of course, were stopped. Placed on a rigid vegetarian diet, with the same mixture as in many other cases, and the soda gargle, held in the throat a good while before and after each meal, he began to improve from the first. Within two months the ulceration had about ceased and much of the adjoining inflammatory action subsided. The hardness had largely disappeared, though the edge was still hard. He remarked, "I feel all right and have nothing to complain of." The gland in the neck had diminished to the size of a small almond. A little later it was recorded that there was still slight marginal hardness, but superficial, in the diseased area, the gland was still smaller and freely movable, and he said that he felt "perfectly well," "find no complaint of any kind."

In this article and in the volumes above referred to are recorded over thirty cases of cancer, among many others, in which the benefit of a properly regulated medical treatment was clearly manifest. Some of the earlier breast cases had been followed from 13 to 16 years, remaining perfectly well without operation; others were well from three to five years, and the two uterine cases reported in the second volume remain for almost three years with no recurrence, being still under treatment. The more recent cases have shown such steady improvement that it can hardly be doubted that, if they remain still faithful to treatment, they will ultimately recover. The fatal cases were mostly post-operative, but they also exhibited strikingly the benefits from this treatment in prolongation of life with great comfort. As far as I can learn from my notes none of the patients required or received any anodyne from soon after the time that they began treatment. When all this is compared with the ordinary course of cancer cases it does seem

that we are on the right track concerning the treatment of cancer.

It is not claimed that the goal has been reached, or that the details of this line of treatment are complete. Laboratory and clinical study on the blood plasma, as well as on the secretions and excretions, will undoubtedly elaborate more perfectly the best plan of dietary and other treatment, and as other observers follow this plan of treatment there will doubtless be found a gradual reduction in the mortality of cancer greater even than has occurred in New York City during the first half of 1918. It is surely to be hoped that as "the real cancer problem" is fully solved there will be, under proper constitutional treatment, the same lowering of mortality that has occurred in tuberculosis under wise medical treatment. And as correct views of living prevail, the morbidity of cancer will decrease with its mortality.

531 Madison Avenue.

OXYGEN TENSION IN ITS RELATION TO THE MENINGOCOCCUS.*

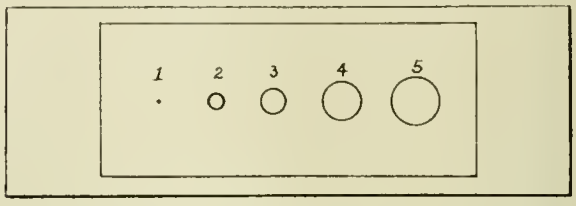
By First Lieut. J. H. St. John,
Medical Corps, U. S. Army.

Wherry and Oliver[1] found that certain organisms, particularly the gonococcus, were adapted to growth in an atmosphere of reduced oxygen tension. Cohen and Markle,[2] in an article on the effect of reduced oxygen tension on the growth of the meningococcus, called attention to their findings of better growths resulting when this organism was cultured in connection with the *Bacillus subtilis*. Cohen, in a recent article,[3] again reports favorably on the method, and suggests that the subject be investigated. Since the method of culturing the meningococcus in an atmosphere of reduced oxygen tension promised a means of uncovering more carriers than are ordinarily found, and because of its probable practical application in diagnosis, it was deemed of moment to undertake cultural tests in an effort to determine its value and practical application.

In these tests the sources of our cultures were: (1) Chronic carriers of the meningococcus; (2) stock cultures; (3) spinal fluids. In the first instances two men in isolation at Washington Barracks, D. C., were selected as being representative of this group. One (Fullam) yielded a Parameningococcus and the other (Graves) gave a regular (normal) type meningococcus. From both men positive cultures were invariably obtained. The stock cultures used were old strains of type, regular and para, furnished by the Rockefeller Institute. Spinal fluid strains were not used after the third transplant.

Stock cultures gave so profuse a growth under the usual conditions that it was difficult to form an opinion as to the value of the experiments. Spinal fluids were not obtainable in the number desired, and therefore the chief value of this report centers in the results obtained from the experiments conducted with the chronic carriers.

The method of utilizing the carriers was as follows: The nasopharynx was swabbed in the usual manner and the swabs carefully cleared of their charge in a very small quantity of broth. Two small loopfuls were streaked across the surface of laked rabbit blood agar plates. The medium used in the experiments was all from the same lot, and poured in a manner to insure as near as possible a uniform thickness. The plates were compared at the end of eighteen hours' incubation and the selected isolated colonies used in the comparison tests were later subjected to the routine tests for the identification of the meningococcus. In the method of comparison we took into consideration the general impression conveyed by the growth, the depth of the colonies, and their diameter as compared to a scale made on a glass slide as per diagram:



In order to obtain a working basis it was thought best to undertake a few general experiments. Therefore, the inoculated plates made from the nasopharyngeal secretion were cultured in an atmosphere of reduced tension obtained by: (1) Replacing the air in desiccators by (*a*) hydrogen, (*b*) carbon dioxide; (2) (*a*) reducing the oxygen content by growing in sealed chambers along with plates of *B. subtilis*, (*b*) pyrogallate method; and (3) reducing the actual air content by means of the vacuum pump.

From these preliminary comparative experiments it was concluded that better growths resulted, though not invariably, by growing with *B. subtilis*, and by partially replacing the air content of the desiccators with hydrogen. The carbon dioxide replacement method appeared to inhibit growth when more than 50 per cent. of the air content had been displaced. The medium exposed to an atmosphere partially composed of this gas assumed a methæmoglobin hue, probably due to a change in the reaction of the medium, resulting from the absorption of an impurity carried over from the generator. Reduction in the actual air content by means of the vacuum pump did not improve the growth.

It was noticed on plates giving better growths, particularly in connection with *B. subtilis*, that a considerable amount of moisture collected on the surface of the medium. Since it was known that moisture was an especially favorable factor in the production of good growths of the meningococcus it was thought that perhaps its presence might partly explain the better growths resulting on the plates incubated in closed chambers. It was therefore decided to conduct experiments with the separate methods of reducing oxygen tension, and add to our control, plates incubated in a sealed desiccator to which a little water had been added in order to saturate the contained atmosphere, and thus prevent surface evaporation. A report on these experiments follows:

Partial Displacement With Hydrogen.—Method: Hydrogen generated in a Kipp apparatus was allowed to partly replace the air in Novy jars in which plates containing the meningococcus material had been placed for 5, 10, 15, and 20 minutes. At

*From the Department of Pathology, Army Medical School, Washington, D. C. Published by permission of the Surgeon General, U. S. Army.

the end of eighteen hours' incubation the oxygen content was determined and the growths compared. The following table is taken from our notes as typifying our results:

	Carriers—Fullam.	Carriers—Graves.	Determination of oxygen content.
B. subtilis	4	4	3.8%
Air plates	2½	3½	
Moisture	4	3½	
Replacement with hydrogen for:			
5 minutes	3	3	15.6%
10 minutes	4	4	13.1%
15 minutes	2	2	4.2%
20 minutes	2	2½	1.2%

The numerals in the above table represent the diameter of the colonies as compared to the scale previously described. The general impression received was that the moisture plates were as good as the best growths obtained, and although good growths were obtained in the open they were inferior to the *B. subtilis*, moisture, and hydrogen plates when not more than 50 per cent. of the oxygen content of the latter had been displaced.

Reduction by Means of the Bacillus Subtilis.—The method consisted in filling desiccators with freshly inoculated plates of *B. subtilis* and meningococcus material in varying proportions, sealing tightly, incubating, and at the end of eighteen hours determining the oxygen content.

The following table may give some idea of our findings:

	O_2 14.1 Per Cent.	O_2 5.4 Per Cent.	Air.	Moisture
Fullam	3	3	3	3
Graves	3	4	4 few	5

Although very little difference existed in the diameter of the colonies selected, the general appearance, number and depth of the colonies led to the conclusion that plates grown with *B. subtilis* and by the moisture method were better than plates grown in the open.

Reduction of the Air Content.—The method used was to reduce the atmospheric pressure in desiccators, in varying degrees, and measuring the degree of vacuum before and after incubation. The following table is self-explanatory:

Incubation—Before.	Incubation—After.	Incubation—Average.	Appearance of plate.	Size of selected colony.
24½"	23½"	24"	R. 60, no growth.	
			Fullam, growth.	Very small.
			Graves, growth.	Very small
14½"	13½"	13"	R. 60, good growth	2
			Fullam, growth	Very small.
			Graves, growth.	Very small.
8"	6"	7"	R. 60, good growth.	2
			Fullam, good growth.	1
			Graves, good growth.	2
20½"	21½"	..	R. 60, luxuriant growth.	2
			Fullam, luxuriant growth.	2½
			Graves, luxuriant growth.	2
Air plates.			R. 60, luxuriant growth.	2
			Fullam, luxuriant growth.	2½
			Graves, luxuriant growth.	2
Moisture plates.			R. 60, very luxuriant growth.	2
			Fullam, very luxuriant gr'th.	3
			Graves, very luxuriant gr'th.	3

From experiments conducted along this line it was concluded that varying dgerees of vacuum did not favor the growth of the meningococcus, but in fact there was even a noticeable tendency for the vacuum to retard growth. When the vacuum was lost during incubation the growths were much better.

Partial Absorption of Oxygen by the Pyrogallate Method.—The test plates were placed in desiccators containing, in separate dishes, solutions of sodium hydroxide and pyrogallic acid in varying proportions. After sealing the desiccators the solutions were allowed to mix. After eighteen hours' incubation the oxygen content was determined and the growths compared. The following table is typical of our findings:

	O_2 9.5 Per Cent.	O_2 15.3 Per Cent.	Moisture.	Air
Fullam	1-2	No growth	3	1-3
Graves	2-3	No growth	4	3-4

The colonies developing under the pyrogallate method were noticeably weak. The moisture plates were better than the air plates.

In addition to the above comparison tests several spinal fluids were subjected to comparative studies, using all the above methods at the same time. While it appeared that the methods of growing in connection with the *R. subtilis*, and by partly replacing the air content with hydrogen, gave better growths than either in the open or moisture chambers, our series is as yet too small to allow us to draw definite conclusions as to the value of the different methods when culturing spinal fluids.

During our experiments we received several cultures that had not been transplanted more than two or three times. They were subjected to the following: On one-half of a plate the culture was streaked, and on the other half *B. subtilis* was heavily inoculated. The petri dish was sealed with paraffin. Controls were made by sealing a plate inoculated with the meningococcus, and also by culturing in the usual manner. In every instance tests made in this manner gave better growths in the sealed chambers with or without the association of the *B. subtilis*.

In a review of the growths obtained by the moisture method and the ordinary manner of cultivating the organism, the following table is given:

Date.	Graves—Moisture.	Graves—Air.	Fullam—Moisture.	Fullam—Air.
August 2, 1918.	3	3	2	2
August 3, 1918	3½	3½	4	2½
August 4, 1918	3	2	1	2
August 6, 1918	3	3	1½	N.G
August 13, 1918	5–6	4	4–5	2½
August 11, 1918	4–5	3	3	3
August 10, 1918	2½	2	2½	2
August 12, 1918	1	3	3	3
August 11, 1918	5	4	4	3

The general impression recorded, with few exceptions, was that plates grown by the moisture method were much better than those grown in the open.

Summary and Conclusion.—A reduction of the oxygen content in varying degrees by means of the pyrogallate method did not favor the growth of the meningococcus. Reduction by replacement with hydrogen when the determined oxygen was not less than 10 per cent. did yield good growths, but not materially better than the moisture controls. Better growths resulting from an association with the *B. subtilis* were without regard to the oxygen content—a 4 per cent. oxygen content giving as good results as a 15 per cent. content. It seems likely that an organism delicately susceptible to the oxygen content would show some variation in growth within this wide range. A comparison of the *B. subtilis* and hydrogen methods shows that when the oxygen determination of the latter was 4 per cent. a poor growth resulted, while a 4 per cent. content of the former gave a very good growth. A 15 per cent. content, however, in both methods did yield better growths. It is apparent, therefore, that hydrogen in per cent. great enough to cause a reduc-

tion in oxygen content to 4 per cent. exerts an inhibiting influence on the growth of the meningococcus, and for this reason it cannot be fairly compared to results obtained with the *B. subtilis* method.

It would therefore appear, especially in the light of moisture controls, that the oxygen tension factor is of minor importance. Provisionally accepting this conclusion, one must turn to other factors for an explanation of the better growths resulting under the conditions attending a reduced oxygen tension. It is a matter of common observation that the meningococcus is especially sensitive to the degree of moisture and reaction of the medium on which it is cultivated, and it is probable that the explanation of good growths when the oxygen tension method is employed, will be found in one or both of these factors. When cultures of the meningococcus are developed in an association with *B. subtilis* the attending conditions cause a collection of moisture on the meningococcus medium. This is especially noticeable when compared with a control in air. That the moisture factor should be taken into consideration when experiments of this nature are undertaken is readily appreciated when moisture controls are set up in the manner previously described. Apparently, from the literature on the subject of oxygen tension, especially in several recent articles, the moisture factor has not been given the prominence it deserves.

The reaction of the meningococcus medium may be favorably influenced by certain gases evolved by the growing *B. subtilis*, but this consideration is also minimized by comparison with moisture controls.

In conclusion it is suggested that the retention of moisture in the media used for the cultivation of the meningococcus is probably a more important factor than the oxygen content of the incubation atmosphere. It is not necessary, however, to cultivate the meningococcus in closed containers, as the same end result is obtained by giving more consideration to the water content of the media and to the prevention of surface evaporation during incubation. This latter may be accomplished by exposing the incubator air to large surfaces of water placed in shallow pans. This simple procedure has been adopted by the Army Medical School, and better cultural results are obtained.

REFERENCES.

1. Wherry, W. B., and Oliver, W. W.: *Jour. Infect. Dis.*, 1916, XIX, 288; 1917, XX, 28.
2. Cohen, M. B., and Markle, L.: *Jour. A. M. A.*, 1916, LXVII, 1302.
3. Cohen, M. B.: *Jour. A. M. A.*, 1918, LXX, 1999.

No More Wassermann Reactions.—It is said that the Société de Biologie has officially done away with the expression "Wassermann Reaction," which is to be known only as the Sigma Reaction. No reason is given for this change.—*Pathologia.*

Ration of German Prisoners in France.—Ramond and Petit give this is as follows: 600 gms. good bread; 87 gms. fresh meat; 1 kilo potatoes; 140 gms. dried legumes; 30 gms. green legumes; 80 gms. rice; 10 gms. fats. In Austria the French prisoners were properly fed but in Germany the ration was deplorable.—*La Presse Médicale.*

RELATING TO THE POSSIBILITY OF PROTEIN SPLIT PRODUCT POISONS BEING FORMED IN MARKET MILK.

By J. M. W. KITCHEN, M.D., M.S.,

EAST ORANGE, N. J.

Long before our present ideas were acquired as to the presence of split product poisons in proteins, I thought that there were poisonous matters formed in milk and accumulated in that fluid as the result of the secretions or excretions of the proliferated infections of milk bacteria. I was chairman of a special committee of the Essex County (N. J.) Medical Society appointed to inquire into the milk situation in Essex County. The late Dr. Henry L. Coit, who is justly entitled to be considered the father of the clean milk movement, was a member of my committee. I told him of my belief in the matter, and asked him to devote himself to the investigation of that phase of the subject. He said he did not believe in it; and as far as I know, did not do any work in that direction, and probably died holding the belief that so far as bacteria had a damaging effect on bottle-fed infants, it was due to the direct influence of the bacteria on the body of the individual. It is an interesting reminiscence that during my student days, which were coincident with those of Dr. Henry D. Chapin and Dr. L. Emmett Holt, and during my work in the pathological laboratory under Drs. Delafield and Pruden, Dr. Coit called at the laboratory to talk over the matter with Dr. Pruden. Dr. Pruden told him that the laboratory had just found its first tuberculous germ in milk, and I understand, turned Dr. Coit over to Dr. Rowland G. Freeman to go into the matter. Most of those I have mentioned have been interested in milk ever since. My old belief held was largely based on the observation that babies in the tenement-house districts did not seem to be much damaged by dirty milk during the winter season when fermentations in milk were at least much restricted; that large accumulations of bacteria would occur in milk that was held at temperatures even much below 50°F.; and that all milk and butter appeared to be contaminated with putrefactive matters. In those days nothing was known, that was generally recognized, of the up-to-date theories relating to these matters. While admitting that specific diseased conditions are caused by and after the invasion of the body by bacteria of the pathogenic types, I hold to my previous conviction that some poisons are formed by germs which proliferate in milk. I even think that milk acids are harmful under special conditions. The observations of 100 years or more have shown innumerable instances of poisoning from decaying organic animal proteins and vegetable matters. When we consider that all protein molecules are apparently synthetic groups that may under disruption, form poison groups, and that milk bacteria synthetically build up and store poison-producing groups from the non-living milk menstruum, we at least have reason for suspecting in this day that what I believed in years past as to the formation of poisons in market milk was underestimated.

How far do late studies and investigations support my belief? It is fair at the start to acknowledge our lack of exact knowledge as to various phases of the subject, and that my special interest in the matter has been that of seeking to evolve a practical plan of operations for applying methods in the production, treatment and distribution of milk, cream and butter, that will secure public supplies of absolutely safe and wholesome milk of high edible quality. In seeking that aim I have taken the "bull by the horns," so to speak, and acted on the theory that as a matter of mere prudence, everything should be done that would be likely in every practical way to render those food products absolutely safe and entirely wholesome, all of which results are easily practically possible. Nevertheless, it is a matter of satisfaction to have sound theories back of our beliefs and practices:

What We Know of This Matter.—1. We know that poisonous matters are produced in some animal and vegetable substances.

2. We are certain that bacteria in some way are sometimes a considerable factor in contaminating milk with more or less poisonous products.

3. We know that a considerable number of milk-borne bacteria are etiological factions in producing specific diseases, and we know that some of the bacteria in milk produce poisonous matters.

4. We know that all bacteria have specific groups in their protein molecules that under certain cleavage conditions will be changed into poisons. We know that bacteria, such as the colon bacillus which does not excrete poisons, if disrupted, dried, and ground, are virulently poisonous, even in minute quantities.

5. We know that such apparently harmless bacteria, under certain disruptive conditions may transmit poisonous matters by diffusion to liquids, which then become virulently poisonous under certain conditions, as by injection.

6. We know that these specifically prepared poisons will kill animals in a time ranging from a few minutes up much longer periods.

7. To know that practically all milk is contaminated more or less with volatile diffusive protein ferment products that are generated in the cow; and that the sebaceous glands of the cow's hide evolve putrefactive matters that are diffused into the milk at the moment of the production of the milk.

8. We know that all milk becomes more or less infected with various types of bacteria at the time of drawing of the milk, some of which are accidental and unforeseen, and some unpreventable.

9. We know that the ordinarily practised methods of pasteurization do not destroy all of the bacteria in milk, including practically all types. We know that undestroyed bacteria or their spores will proliferate and increase in enormous numbers at temperatures at which milk is usually held before and after its pasteurization, and during its distribution and holding at the house of the consumer.

10. We know that milk under all ordinary methods of commercial handling may be subject to infections from the pouring surface of the container, or by working through or passing the peripheral edges of the cardboard seal.

11. We know that in primary infections, bacteria of some types proliferate in prodigious numbers at temperatures much below the temperatures that are usually applied in preserving milk.

12. We know that milk up to a certain time—usually five or six hours after its production—has some constituent matter in it which prevents the proliferation of the primary infections, and we know that the production of acids in milk counteracts or prevents a proliferation of bacteria other than those of the acid-forming types.

13. We know that fermentative processes proceed with such slowness at temperatures below 35°F. and above 120°. that accumulations of protein split poisons in any food are of negligible moment during the usual period of several days elapsing in the transportation and distribution of dead food products.

14. We know that the process of hermetically sealing a food product prevents its infection and oxidization.

15. We know that in addition to hermetically sealing, complete sterilization of a canned moist food in one way or another is essential to the prolonged preservation of a healthful character in that food.

16. We know that a temperature lower than 20°F. is required in butter to prevent its chemical and biological degradation during a long period of its holding.

There are other pertaining matters that we know, that might be related; but the citation of these sixteen facts is sufficient for the purpose of this communication.

The following are some other possible facts which are as yet not determined with certainty:

1. That when the body is invaded by a so-called foreign protein, the normal cells of the body elaborate a counteractive ferment. This is claimed to be a biological law.

2. It is thought that all living cells elaborate ferments that destroy and consume extracellular proteins.

3. It is thought that foreign bacterial invaders of the body excrete matters that may mutually damage both the invaders and the cells that are invaded.

4. It is thought that all bacterial growths are strictly proteins.

5. It is thought that a protein poison is not a toxin.

6. It is thought that a sensitization contributed by a protein matter is not due to a toxic poison in the system.

7. It is thought that the poisonous principles in all the infections are the same.

8. It is thought that some disrupting process is necessary in liberating the poisons that are in proteins.

9. It is thought that the natural process of senility or decay may be such an influence.

10. It is thought that the heat of pasteurization or of incomplete sterilization may be such an influence—a matter of importance in cases where large bacterial contents exist.

11. It is thought that the formation of ferments

by the younger and more active bacteria may cause the dissolution of the older bacterial growths.

12. It is thought that animal blood has germicidal properties for a time at least, and which are assumably due to ozonized oxygen.

13. It is thought that proteins are destroyed during digestion, in the intestines, in the blood, and in the cell.

14. It is thought that proteins not completely digested may, because of that fact, and under other alimentary influences, such as a surfeit of ingested proteins, become disrupted into poisonous groups which act in a poisonous way in the alimentary tract and through general circulatory diffusion.

15. It is thought that the body may be trained to tolerate, and perhaps acquire immunity to all poisons, as is unquestionably more or less the case with nicotine, opium, and some other narcotic organic and non-organic poisons.

16. Inasmuch as it is known that babies require a certain prolonged stage of preparedness in becoming used to cow's milk as a food, it is thought that they may at least acquire some tolerance of poisons formed in milk before its consumption.

17. It is reasonable to conclude that non-living constituents in milk, especially its protein constituents, through the metabolic influence of living germinal upbuilding actions in milk become combinedly changed into molecules that under certain conditions are destructively changed into poisons.

18. The disruption of bacteria may be effected by chemical influence or by the fermentative action of enzymes; and a large amount of poison may be produced from a very small amount of protein substance.

19. The protein poisons quickly destroy life in animals in relatively small doses, and hence it must be assumed that, in nonlethal doses they are capable of exerting a menacing action against the healthful activities of animal life, especially in repeated small doses.

20. Any bacterium is a pathogenic entity when it grows in a medium that has not the power of preventing the growth of bacteria.

21. A preventive power against bacterial proliferation may be: adverse temperature influence, chemical action, or antagonistic ferment influence.

22. While some authorities hold that some living cells may be antagonistically stimulated to produce ferments that will prevent the growth of poison-forming invading bacteria, this protective action does not pertain to non-living forms of matter, such as the menstruum of milk.

23. While milk gains immunity against the growth of some forms of bacterial life through the formation of acids produced in the proliferation of some acid-forming types, if through temperature influence that acidulous immunizing power is not effected, it is obvious that there is a free field for the formation of bacteria and spores of the non-acid-forming types.

24. In breast-feeding, and in the consumption of fresh milk, there is conveyed into the alimentary tract of the individual, a protective, if not immunizing constituent in the milk consumed, that is not conveyed in milk that has lost the protective power.

25. All forms of life undergo senile degradation and disruption, including milk bacteria, with consequent decay unless preservatively influenced.

It appears reasonable to conclude that whether protein split poisons are formed in milk or not, infants and others not protectively immunized against the direct action of destructive changes in market milk, or the poisonous products of destructive changes, should in particular be protected against all such possible poisonous influences. There is no evidence in hand going to show that a moderate pasteurizing heat, will destroy formed ferment products, although it may be effective in driving off some volatile ferment products of a putrefactive character.

So far as cheese is concerned, in which deadly poisons may be formed, it may be assumed that usually the counteractive influences of ferment and digestive changes, and the formation of counteractive harmless types, protects this food from the formation of protein poisons; but we as yet know too little as to this matter to be able to make any definite statement.

It is submitted that with such absolute knowledge as we have, and with other information which seems to be sound, if we thoughtfully consider the subject herein briefly summarized, we are warranted in arriving at the conclusion that not only should milk be obtained from healthy cattle in as clean and uninfected a manner as possible; but that fermentations in it of *all* kinds that are not strictly protective in character and effectuated from a sterilized milk basis, should be *entirely* prevented; that all fresh infections should be prevented; and all possible removable volatile putrefactive constituents should be eliminated from the milk. Yet such protection is *not* fully practised today.

The subject matter here summarized is, of course, only a brief statement excerpted from some of the many highly interesting and elaborate pertinent presentations that may now be found in scientific literature.

In view of the probability that a large part of the protein molecules in the milk that is consumed, are completely destroyed, and that any formed liberated poisons of disrupted molecules are usually also destroyed in the formation of the diffusible peptones under the action of the acid gastric and the alkaline pancreatic, and other digestice juices; it seems probable that there is a greater chance for the liberation of the protein poisons and their accumulation in a market milk held three days before its consumption, as well as for the transmission to the milk of poisons that may be produced in the cow; than for the production and non-destruction of those poisons in the alimentary tract of the consumer. Nevertheless, it is urged that the fewer protein bacteria that gain entrance to the milk and that are developed in the milk, and introduced into the alimentary canal, the better it will be for the consumer. It seems as if there ought to be enough home produced ferments in the individual's body

to secure the digestion of reasonably adequate amounts of milk without calling on the aid of foreign milk bacteria to provide digestive ferments. Neither is there any need of developing an immunizing power against poisons in the body, whether milk poisons or those of tuberculosis, typhoid, scarlet fever, anthrax, pneumonia, et al, if it is a relatively easy matter to prevent the effects of such poisons through a prohibitive course of action against the production of the poisons and their direct or indirect consumption. Modern civilization increasedly necessitates the consumption of cow's milk and milk products.

The public milk and butter supply is *not* good enough, so long as menacing defects are present or suspected. Protein poisons in food take a higher toll on life than alcohol. Here is one evil needing correction that the Red Cross workers can take up now that the menace of autocracy is well in hand.

94 Prospect Street.

DEATHS BY POISONS IN COOK COUNTY, ILLINOIS, DURING THE PERIOD 1905-1917.*

By WILLIAM D. McNALLY, A.B.,

CHICAGO, ILL.

CHEMIST TO THE CORONER OF COOK COUNTY.

During a period of thirteen years, seventy-four different kinds of poisons were instrumental in causing the death of 2,118 persons. The manner in which the records of the coroner's office were kept prior to 1905 made it very difficult to determine the number of deaths caused by poisons and the nature of the poison. After this date, the records are more complete, but the poison has not always been specifically determined, being designated under the very general heading "Irritant" or "Corrosive" poison. There are also undoubtedly many cases in which drug habit is a contributing factor in causing death, but as this is not always easy to determine, other causes for death are frequently found in the records. Statistics are not available in the coroners' offices of other counties for determining the deaths by poisons and the character of the poison, with the exception of perhaps one or two populous counties. The literature contains references to legal reports, medical, pharmaceutical, and chemical journals, which refer only to special cases, which present points of exceptional scientific interest ,or where the case may have caused undue publicity during the court procedure. Many cases of non-fatal accidental poisonings escape record entirely.

The deaths from carbon monoxide now exceed those from any other poison.' In Cook County our records have shown a steady increase in deaths by such asphyxiation, with the one exception of 1917, when there was a decided drop in the number of cases of suicide. This probably was due to the fact that there were fewer idle people, due to the prosperity brought about by the war conditions. The total number of gas cases for 1916, 501, constitutes nearly 8 per cent. of the entire number of coroner's cases, taking fourth place in numerical order, of different forms of death for the year. Carbon monoxide from domestic gas supply, furnaces, defective stoves, water heaters, smoke of burning buildings claims 4,394 deaths, which is more than double the total of all other poisons combined. In Table No. 1 I have included the total gas asphyxiation cases for the thirteen years from 1905 to 1917 inclusive.

*From the Chemical Laboratory of the Coroner's office, Cook County, Illinois, and the Department of Materia Medica and Toxicology, Rush Medical College.

Table No. 1.—Total Gas Asphyxiation Cases for the Thirteen Years from 1905 to 1918 Inclusive.

Asphyxiation by Gas.	Accidental.	Undetermined.	Industrial.	Water Heaters.	Suicide.	Homicide.	Totals.
1905	59	55	.....	.....	83	7	204
1906	87	36	.....	.....	59	5	187
1907	76	61	.....	.....	74	1	212
1908	85	75	.....	.....	115	3	278
1909	102	81	.....	.....	107	12	302
1910	127	65	10	4	116	7	329
1911	103	66	4	7	115	2	297
1912	110	61	11	10	153	9	354
1913	148	64	.....	1	163	3	379
1914	103	78	3	3	200	5	392
1915	126	93	5	17	242	6	489
1916	160	92	6	6	219	18	501
1917	167	85	10	3	193	12	470
Total	1453	912	49	51	1839	90	4394

In this table, the cases are counted from December 1 to the following December 1, the fiscal year for the coroner's office.

The industrial gas cases and those by water heaters were included with the "accidental" and "undetermined" up to the year 1910.

The popularity of different poisons as an agency for the destruction of life, has varied from time to time. Phenol (carbolic acid) was a very popular poison until the druggist was prohibited by the State Law from selling this poison in a greater strength than 33 1/3 per cent. phenol.

During the thirteen years, statistics show that phenol caused the deaths of 781 people, of which 714 were suicides, 41 accidental, and 26 undetermined. The number of men destroying their lives by this poison was twice that of the number of women during the same period. Table No. 2 shows 545 men, 232 women and four children met death by this agency. The excruciating pains and burns usually caused by phenol would seem to be sufficient to bar its use by people bent upon self-destruction.

Mercuric chloride caused 110 deaths, 87 of which were suicides, 17 accidental, and six undetermined. Seventy-five of these deaths occurred in the last five years. Referring to Table No. 2, it is shown that deaths by mercuric chloride increased each year from 1912 on, the increase being two or three times the number of the years preceding 1912. Impetus was given to this poison by the publicity given to a case of poisoning of a banker in Macon, Ga., who took mercuric chloride tablets by mistake for aspirin. In some cases of this poison, the tablets are claimed to have been taken by mistake for aspirin or lithia tablets, an eror which could be remedied if manufacturers prepared toxitabellæ hydrargyri chloridi corrosivi, as directed in the Ninth Revision of the U. S. Pharmacopœia, or manufactured the tablets in an irregular shape to be dispensed in a porcupine bottle, which would warn the individual that he was handling a dangerous drug.

Cyanides caused 102 deaths, of which 93 were suicides, one murder, three accidental, and five undetermined. Men used this poison more than eight times as often as women. Table No. 2 shows 91

TABLE No. 2—SHOWING KINDS OF POISONS AND DEATHS, 1905-1917 INCLUSIVE

	1905.							1906.							1907.							1908.							1909.							1910						
	Total.	Suicide.	Murder.	Accidental.	Undetermined.	Male.	Female.	Total.	Suicide.	Murder.	Accidental.	Undetermined.	Male.	Female.	Total.	Suicide.	Murder.	Accidental.	Undetermined.	Male.	Female.	Total.	Suicide.	Murder.	Accidental.	Undetermined.	Male.	Female.	Total.	Suicide.	Murder.	Accidental.	Undetermined.	Male.	Female.	Total.	Suicide.	Murder.	Accidental.	Undetermined.	Male.	Female.
Acetanilid																																									
Alcohol															1					1		1					1								3			2	1	2	1	2			2		2
Alkaloid (unknown)																																									
Ammonia	1			1		1																																			
Arsenic	4	3	1			1	3	1		1					1	9	2	7			4	5							7	7				6	1	6	4	2		4	
Auto polish																							2	2				1	1													
Atropine																							1			1		1														
Belladonna																																				1				1		
Benzene																																									
Bronze																																									
Bromoform																																									
Cantharides (Spanish fly)																																									
Carbon tetrachloride																																									
Caustic																																				1			1		
Chloral hydrate	1	1				1									1					1	1	1					1	1							1				1	1
Chloroform	8	5		2	1	6	2	5			5		2		3	5	1		3	1	2	3	8	3		5		8		12	3		9		6	6	8	1		6	1	4
Cocaine	1			1		1		1			1		1																							1			1		
Codeine																																									
Creolene																																									
Cresol, compound solution (lysol)	1				1	1		1			1				1								3	3					3	2	1		1		2		1	1			
Cresoline																																									
Creosote																																									
Corrosive	2	2				2										2	1		1		2		2	1		1		1	5	3		1	1	1	4	2	2				
Ether								1			1			*		2			2		1	1	1			1		1	3			3		3		9			8	1	4
Ethyl bromide																																				1			1		
Formaldehyde (formalin)																																									
Gasoline																													1			1		1							
Gelsemium																																									
Heroin																																									
Hoffman's Drops	1			1			1																																		
Hydrochloric acid (muriatic acid)	5	3		2		3	2	5	3		2		1	4									2	1		1		1	1			1		1		1	1			1
Hydrocyanic acid (prussic acid)	1			1			1								2	2				2																				
Iodine								1	1					1																												
Irritant poisons	17	9		5	3	7	†8	30	13	1	8	8	13	17	18	12		5	1	12	6	30	14	1	4	11	16	13 *	24	12		3	9	20	4	30	19		4	7	21
Laudanum								1	1					1																						2	1		1		2
Lead																													1			1		1		3	1		2		3
Lye	1			1			1	1			1			*	1				1		1																				
Mercuric chloride (bichloride of mercury)	3	3				1	2								1	1				1		3	2		1		1	2	1	1			1		6	5		1		3
Mercury, blue ointment																																									
Mercury, quick silver																																				1			1		
Morphine meconate																																									
Morphine	12	3		9		9	*2								2	1			1	2		9	4		4	1	5	4	6	2		2	2	2	4	2	1			1	1
Mushrooms																																									
Narcotic	25	12	1	5	7	11	14	19	10		3	6	8	11	11	6			5	9	2								7	2		1	4	4	3	12	6	1	2	3	9
Nicotine																																									
Nitric acid																																				1			1		
Nitrous oxide gas																													1			1		1							
Nitroglycerin																																									
Oil of cedar																																									
Oil of pennyroyal	1	1					1																																		
Oil of wintergreen																																									
Opium								1			1		1									2			1	1	2		4	2		2		3	1*	2	1	1		2	
Oxalic acid																																									
Paris green	7	5		1	1	3	4	2	2				1	1	2	1		1		2		7	7				4	3	2	2				1	1	2	2				1
Phenol (carbolic acid)	57	56		1		36	21	64	53		8	3	46	18	76	72		2	2	59	17	71	65		5	1	51	20	67	62		4	1	46	21	87	73		8	6	65
Phosphorus														*	3			2	1	2	1																			
Potassium chlorate (chlorate of potash)	1				1		1																													1			1		1
Potassium cyanide	3	2		1		3		2	2				2		2	2				2		4	4				2	2	2	2			2		3	3				3
Ptomaine								1			1		1		2			2		1	1	1			1		1		4			1	3	4		2			2		2
Rough on rats	2	2				1	1	4	4					4	5	5				2	3	7	6	1			3	4							1	1				1
Sleeping powders																																									
Sodium borate (borax)																																									
Stovaine																																				1			1		1
Stramonium-datura																																									
Strophanthus																													1				1	1							
Strychnine	2			2			*1	4	2		2		1	†1	2			2		1	1								3			3		1	*1	5	2		3		3
Sulphuric acid																													1	1				1							
Turpentine																																									
Unknown poison	1				1	1									1			1			1	4	1		1	2	2	1	1			1		2			2		1
Vermifuge																																									
Veronal																																									
Wood alcohol	2			1	1	1	1								2	1		1		1	1	2	2					2	1	1			1		5			4	1	4
Wormwood																																									
Zinc chloride															1	1					1																				

Total, 2,118.—Suicide, 1,396; murder, 26; accidental, 486; undetermined, 210; male, 1,303; female, 784; children, 31.

TABLE No. 2—SHOWING KINDS OF POISONS AND DEATHS, 1905-1917 INCLUSIVE

1911						1912.						1913.						1914.						1915						1916.						1917.												
Suicide.	Murder.	Accidental.	Undetermined.	Male.	Female.	Total.	Suicide.	Murder.	Accidental.	Undetermined.	Male.	Female.	Total.	Suicide.	Murder.	Accidental.	Undetermined.	Male.	Female.	Total.	Suicide.	Murder.	Accidental.	Undetermined.	Male.	Female.	Total.	Suicide.	Murder.	Accidental.	Undetermined.	Male.	Female.	Total.	Suicide.	Murder.	Accidental.	Undetermined.	Male.	Female.	Total.	Suicide.	Murder.	Accidental.	Undetermined.	Male.	Female.	Children.
..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	2	1	..	1	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	..	..	..	2	2	4	3	..	1	..	4	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	6	4	..	2	..	4	2	1	1	..	..	..	..	..	..	2	3	3	1	..	..	..	..	3	7	4	2	1	..	1	6	56	39	13	4	..	28	28	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3	..	..	2	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..
..	..	2	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	1	1	..
..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	1	..	..	1	..	..	1	..	1
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

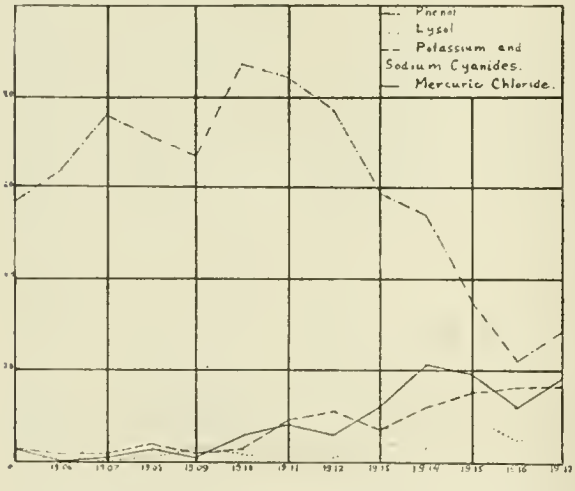
men and 11 women met death by this chemical compound. The verdict rendered at inquests by coroner's jury usually reads "death was due to potassium cyanide," although of over 45 cases investigated, I have found only three cases where the potassium salt had been used. The cyanide of commerce and that dispensed in drug stores is nearly all the sodium salt containing only a small amount of potassium. Prior to 1911 only a few cases of cyanide of potassium were recorded, but the number gradually increased until the maximum number of 16 was reached in 1916. In 1917 cases of cyanide poisoning dropped to half that number.

Our records show that morphine caused 93 deaths, 30 of which were suicides, two murders, 41 accidental, and 20 undetermined, a greater number of men dying from this poison than women. As previously mentioned, other causes for death are frequently found in the records where the drug habit is a contributing factor, the evidence being insufficient for the coroner's jury to determine that morphine was the primary instrument.

Twenty-four of the seventy-four poisons enumerated in Table No. 2 caused only one death each. An unusual case of poisoning was that of sodium borate (borax) mistaken for pancake flour by a cook in a boarding house, which caused the death of one and the serious illness of several people.

The arsenicals used were Paris green, arsenic trioxide, "rough on rats," and Fowler's solution, 5 c.c. of the latter causing the death of a child. Arsenic caused 56 deaths, Paris green 55, rough on rats 38.

Fig. No. 1.



Blyth[2] records during ten years ending December, 1903, that 11,035 died from poisons or poisonous vapors in England and Wales. Deaths from phenol, 1904, outnumbered that of any other poison, with opiate 1655, lead 926, chloroform 862, mineral acid 680, cyanides 535, strychnine 244, arsenic 211. Paris green poisoning is peculiar to the United States, where the use of the poison as a vermicide is very general. In France phosphorus is an agent most frequently employed in criminal poisonings. In Germany and Austria, poisons by the cyanides are exceeded in number only by illuminating gas and mineral acid. In Finland, carbon monoxide, strychnine, and the mineral poisons are the poisons most frequently used. In India arsenic leads all other poisons.

Table No. 3.

	1916.	1915.	1914.	1913.	1912.	Annual Average 1906-10.	Annual Average 1901-05.
Suicide total	10,162	11,216	10,933	9,988	9,656	7,584	4,548
By poison	2,016	2,481	3,000	2,824	2,788	2,281	1,549
By asphyxiation	1,458	1,584	1,419	1,262	1,199	785	365
Accidental or undefined:							
Food	720	639	689	657	573	1,655*	1,412*
Other acute poisonings	1,285	1,280	1,538	1,453	1,348	.....	....

*Food and acute poisonings.

In Table No. 3 the total number of suicides in the registration area[3] shows a gradual increase in the total number of suicides until 1916, when the number decreased 1,054. The number of deaths due to asphyxiation gradually increased, as has already been noted in Cook County.[1] The suicides by poison increased until 1914, when the number reached 3,000, dropping to 2,016 in 1916.

Table No. 4.—Death Rate Per 100,000 Population for Registration Area.

	1916.	1915.	1914.	1913.	1906-10.	1901-05.
Suicide by poison	2.8	3.7	4.5	4.5	4.8	4.7
Suicide by asphyxiation	2.0	2.4	2.2	2.0	1.7	1.1
Accidental or undefined:						
Poisoning by food	1.0	0.9	1.0	1.0	3.5	4.3
Other acute poisonings	1.8	1.9	2.3	2.3		

Table No. 4 shows a gradual decrease in suicides from 4.7 per 100,000 in 1901 to 2.8 per 100,000 in 1916, with a gradual increase in the number of asphyxiations until 1916, when the rate drops 0.4 per 100,000. This decrease in suicides from all causes in the Cook County records has been noticed and attributed, as before mentioned, to the fact that we have fewer idle people due to war conditions.

REFERENCES.

1. McNally: *Journal of the A. M. A.*, 1917, Vol. LXIX, 1586.
2. Blyth: Poisons, Their Effects and Detection, 1916, 31.
3. Mortality Statistics for 1916, Department of Commerce, Bureau of the Census, Seventeenth Annual Report.

THE MIND AND ITS ABNORMALITIES.

By B. LEMCHEN, M.D.,
CHICAGO, ILL.
PHYSICIAN, CHICAGO STATE HOSPITAL.

It must be understood that the mind is not an object, and it cannot be treated as such. The mind is a force somewhat like electricity. The force is propagated in the cells of the body, and it follows definite chemical, physical and biological laws which must first be mastered. Without it a clear comprehension of its activities is impossible. While great advances have been made in the science of chemistry, physics, and biology, still our knowledge in these sciences is far from complete; in fact, the known forces are less than the unknown, and especially so with biology, where even the molecular composition and arrangement of the cells during health and disease is not known. Even in the case of dead cells, the composition of some of which has been analyzed, the molecular arrangement has not been mastered up to the present time, and it is self-

evident, when we cannot analyze the cells, that it is still harder to analyze their forces. Still, we cannot afford to wait until the above named sciences are complete and then study the mind, because the burden to society from those with abnormal minds is getting heavier and heavier.

Mind is a biological force, and the force is propagated by all the cells of the body, but only special cells, known as neurons, transmit, store, liberate, and also propagate the force.

The activity of the mind depends on the activity of the entire body, especially, of course, on that of the nervous system. Had our bodies always had the same form, our minds would have been simpler, the forms of insanity fewer, and the individual reactions still fewer. But our ancestors looked quite different from what we do to-day, even not following Darwin to the monkey, for from the remains that are found of man thousands of years back we can judge the difference between the primitive man and the man of to-day. Besides the difference in the figure, the needs were also different from those of the man of to-day. The primitive man was of strong muscular development—long face, strong jaw, and small head. His needs were simple, like food unprepared. His dwellings were caves, and his clothes were skins of animals, or grass, and only such biological forces were stored as were necessary for instinct purposes, but most of them were spent in reflex actions.

How different is the man of to-day—his large head, comparatively small face, weak jaw, and poor muscular development. His needs are great, food must be prepared, dwelling roomy and heated, and clothing better. It is no longer possible to spend most of the biological force in reflex action and save only for instincts, but force has to be saved also for reasoning, judgment, morality, and many other things modern life requires.

What has happened? The cells in the cortex where the biological force is stored have increased in numbers, while the face, jaw, and muscles that have become of less importance have decreased. Now, it must be understood that the biological force we commonly call mind is not the experience of the brain cells themselves nor of a generation, but it represents the experience of all the cells in the body accumulated during the stages of evolution, which represents thousands, if not millions of years.

In the study of comparative anatomy we can hardly fail to see the following facts:

1. The nervous system in lower forms of animals consists of a straight tube with neurons surrounding it, enlarged towards its head with lateral vesicles, from which the hemispheres have developed, and the higher the intelligence of the animal the larger the hemispheres in proportion to the body.

2. The cerebral hemispheres are connected with the entire body, through either the cranial, spinal, or sympathetic nerves. Now let us trace what happens. Waves of light which are physical forces will emanate from an object. It will reach the refracting media of the eyes and an inverted image of the object will be formed on the retina. From there the physical forces will be converted into biological forces, carried to the center of sight, which is supposed to be located in the occipital lobes. There part of the force will be retained for comparison for future times, while part of it will be carried to the associated centers. There again part of the force will be retained for comparison at a future date which we call symbols, while part will be projected back to the periphery and we see the object.

It may be what we see requires action, and part of the force will also be transmitted to the motor neurons, and they will stimulate other cells in action. For instance, when we stop at a place and see a car running into us, we run away. It may even be at a time of great danger that all the force propagated in the sensory organ will be transmitted to the motor neurons, so that a man may see an object, run from it, and when safe may not remember what he ran away from.

What is true of sight is also true of hearing, and of the other senses; and even further, the force started at a sense organ may not only be transmitted direct to the motor neurons, but may take from them force that has already been stored up in some of the neurons, so that not only will the person not remember the incident, but will even forget things that he has known before. The same may occur even in the case of motor neurons, while the neurons themselves may remain normal, and that is why after some accidents people may forget their names or residences and not recognize their relatives, and even be unable to use some muscles, according to the amount of stored forces removed.

We may say that mind is the conversion of physical and chemical forces by the cells of the body into biological force, which sensory neurons transmit to other neurons, where part of the force is retained as symbols, part is projected, and part is transmitted to motor neurons.

Having some conception of the normal mind, we can explain some of the phenomena of the abnormal mind. In organic brain disease we may find that a normal person, after a cerebral insult, may suffer in varying degree from a slight amnesia to profound idiocy, according to the size of the injury to the brain, location, and amount of stored forces the injury has removed. In epileptics, where apparently at intervals the peripheral force is transmitted direct to the motor neurons, some stored force must be removed with each convulsion, and the patient will in time mentally deteriorate; and, as stated before, while the brain where the biological force is stored has developed in stages during the process of evolution, so its decline may also be in stages and a normal person in the involutional period or suffering from chronic intoxications, such as alcoholism, syphilis, autointoxication, etc., where the neurons are getting weaker and the force stored more easily liberated, may decline in morality, affection, emotion, judgment, etc., in any or all spheres. A normal man, after becoming alcoholic, syphilitic, etc., will develop delusions, lose his previous affection for his family, become immoral, depressed, agitated, euphoric, etc.

In some brains, some neurons may either not develop at all, or may not be able to store force and may never possess morality, affection, emotion, judgment, etc. Sometimes the force carried to the associated centers will neither be stored nor transmitted to the motor neurons, but spread out at the associated centers and gradually liberate stored force and project it into the periphery, and the person will

see, hear, smell, etc., imaginary things according to what part of the brain it is projected into, and this is what we commonly call hallucinosis.

What are we to do for the insane? The underlying factor is weakness, and we must see to it that every one develops normally. The rights of the individual do not begin at birth but at the time of the impregnation of the ovum. It is our duty to teach the public the care of the pregnant woman and the growing child, so that it may develop normally, the prevention of infectious diseases, intoxications, and propagation of defectives, and the treatment of the insane scientifically.

Medicolegal Notes.

Liability of Charitable Hospitals.—In an action against the Savannah Hospital certain questions were certified by the Georgia Court of Appeals to the Supreme Court, to which the following answers were given:

The Savannah Hospital, chartered by the General Assembly, is authorized and empowered by its charter to conduct an institution eleemosynary in character for the public benefit. It was not the intention of the Legislature that the business so conducted might be for the pecuniary gain or benefit of its managers, officers, or others. The intention of the Legislature in chartering the corporation is fixed and determined by the acts incorporating it. In a suit against the corporation by a patient for injuries, the charter provisions are controlling, notwithstanding allegations in the petition.

It was asked: "If the Savannah Hospital was chartered as a charitable institution, but, nevertheless, the greater portion thereof was set aside by the officers and superintendent for the treatment of patients who paid for the services they received, would this state of facts render the corporation liable to one who entered the hospital as a patient under an agreement to pay a stated sum for all necessary care, nursing, attention, control, oversight and medical treatment suitable or appropriate to her condition, for any injuries resulting to such patient on account of the negligence, carelessness, or incompetence of the officers and agents of the corporation?" It was answered: "Under circumstances as just enumerated (although the hospital is a charity, and the general rule is that charitable trust funds are not to be depleted by subjection to liability for negligence), the corporation would be liable; but a recovery would be limited to the extent of income derived from treatment of patients who paid for services."

With the exception just stated, an incorporated hospital, primarily maintained as a charitable institution, is held not liable for the negligence of its officers and employees, unless it fails to exercise ordinary care in the selection of competent officers and servants, or fails to exercise ordinary care in retaining such officers and employees.

Where a patient in such an institution is not the recipient of its charity, but is able to pay, and does pay, for the services, and is injured on account of carelessness, negligence, or incompetence of an officer or employee of the institution, the corporation is held liable therefor; but the judgment can only subject funds derived strictly from noncharitable pay patients, and for this purpose the petition need not allege that the corporation failed to exercise ordinary care in the selection of its officers and employees or in retaining them. A judgment so rewarded will not subject funds in trust for charitable purposes, unless the petition alleges that the corporation failed to exercise ordinary care in the selection of its officers and employees, or in retaining them. Morton v. Savannah Hospital, Georgia Supreme Court, 96 S. E. 887.

Selection of Ship Surgeon.—In an action by a passenger against a steamship company for injuries caused by a fall on a slippery bathroom floor, it was alleged that the ship's physician was incompetent in his treatment of the plaintiff and claimed that the vessel was liable. The court thought the evidence did not show that the physician was incompetent. He found the plaintiff suffering from a bruised shoulder. He manipulated it sufficiently to see that the arm moved freely in the socket. He refrained from further manipulations for the reason, as he said, that they would cause pain which was unnecessary, in view of the fact that at the conclusion of the voyage, two or three days later, the plaintiff would have the opportunity to go to his own physician at Honolulu, where an *x*-ray picture could be taken, and the precise nature of the injury could be ascertained; and he advised the plaintiff to have the *x*-ray picture taken immediately upon his arrival in Honolulu. In the meantime, the plaintiff's arm was held in a sling. If there was error in the treatment, it was held a mistake in judgment, and it did not prove incompetency.

Moreover, under Act Aug. 2, 1882, section 5, requiring passenger vessels to carry a competent surgeon or physician, whose services shall be given to passengers needing them, the owner and master discharged their full duty when, in employing a physician, they enquire as to his fitness and obtain recommendations. The Act requires no more than that, in his selection, reasonable care shall be exercised.—The Great Northern, C. C. A., 251 Fed. 826.

Malpractice—Insufficient Evidence of Negligence.—In an action against a surgeon for alleged malpractice, it appeared that the plaintiff was treated by the defendant from November, 1911, until January, 1913. On January 28, 1913, the defendant performed an operation for cataract on the plaintiff's right eye. The operation was not successful, and sight was not restored. As the left eye subsequently became involved from what was apparent sympathetic inflammation, the right eye was removed by the defendant on April 14, 1913. This removal, however, did not allay the trouble with the left eye, and, after further treatment continued for a period of several months, vision in that eye was also lost.

The plaintiff alleged many negligent acts on the part of the defendant, which he said might have produced the blindness. These he summarized in his brief as follows: "Such as general negligence; that the incision on the eyeball of the right eye was within what is called the danger zone; that the defendant did not make a proper diagnosis of the eyes, and did not understand the real condition of the eyes before he operated; that he did not use proper methods in preparing the eye for the operation, and in treating the eyes before and after the operations of January 28 and April 14, 1913."

The evidence introduced by the plaintiff, including that of an eye specialist, failed utterly to substantiate a single one of the many claims set forth in the writ. True, the operation proved unsuccessful, and upon that fact alone the plaintiff seemed to rest his case. But that was held insufficient to establish negligence on the part of the operator. The surgeon cannot insure recovery, and the testimony showed that, with all due care, loss of sight resulted in 5 or 6 per cent. of the cases in operations for cataract, depending in large measure upon the condition of the patient. It was shown here that the plaintiff's trouble was of long standing. His vision had been more or less affected for 40 years.

It was not claimed that the defendant did not possess the ordinary skill of members of his profession in like situations. The law required him to exercise that ordinary skill, and to use reasonable care and diligence in his treatment of the case, and his best judgment in the application of that skill to the case in hand.

The evidence did not show that the defendant failed to measure up to the legal requirement in a single particular, either in the care and treatment prior to the operations, in performing the operations, or in the care and treatment subsequent thereto. The defendant was not called upon to offer any testimony. A jury would not have been justified in drawing from the evidence an inference of legal liability on the part of the defendant, and, therefore, non suit was held properly ordered by the presiding justice.—Curran v. Holt, Maine Supreme Judicial Court, 104 Atl. 579.

Military Medicine.

Acute Respiratory Diseases Among Troops with Especial Reference to Empyema.—In the *Journal of Infectious Diseases* for November, 1918, Captains Lynn S. Neale, Benjamin F. Zimmerman and Searle B. Marlow, M.C., U. S. Army, give the results of a study made by them of acute respiratory diseases among troops. The details are recorded of the incidence of various respiratory conditions, measles, and rubella in their relation to each other and to the more serious conditions, pneumonia and empyema. They summarize as follows: Respiratory infections in 1917 and 1918 occurred among troops in waves, the greatest severity of the diseases being at the height of each wave. Not only were pneumonia and empyema more frequent and severe, but also tonsillitis, pharyngitis, and bronchitis. The most serious infections were characterized by septicemia with empyema, peritonitis, phlegmon, and rarely arthritis, and by pulmonary infection, pneumonia, lobular or lobar in distribution, with consecutive empyema.

While patients who were passing through measles were more severely affected by the streptococcal invasion, the two infections should be regarded as separate even though they were coincident. The empyema and pneumonia were not the result of the measles but of the prevailing severe respiratory infections of that period. The marked freedom from complications of the group of measles treated during the fall and winter of 1917, when general streptococcal infections were absent in camp, and the severe wave of streptococcal pneumonia and empyema, of April, 1918, when measles were on the wane, and which involved for the most part soldiers who had not had measles, are points in support of this view. In a group of 115 consecutive cases of pneumonia and empyema a definite history of an acute antecedent bronchitis, pharyngitis, or tonsillitis was obtained in over 80 per cent. of the cases. In the majority of cases of empyema, a streptococcus has been the causative organism. When grown on blood-agar it has been shown to be usually hemolytic. During the period of prevalence of empyema streptococci were demonstrable in the throats of the majority of healthy soldiers, including fresh recruits, as well as of patients entering the hospitals with respiratory infections. The clinical manifestations of empyema include rapid and profound toxemia, the quick formation in many cases of large amounts of pleural exudate and a marked tendency to pocket formation by old and new adhesions in atypical locations. The mortality was highest (61.5 per cent.) in the cases of empyema following measles, and the lowest (22.7 per cent.) in the cases in which empyema was primary. In empyema complicating pneumonia the mortality was 38.2 per cent.; the mortality of all cases of empyema was 40.5 per cent. At necropsy the outstanding features have been the finding of widespread lesions with a tendency to involve serous membranes, the occurrence of a severe bronchitis in the majority of cases, and a type of bronchopneumonia so distributed as often to resemble closely a lobar process. Early recognition of empyema is important, especially in the acute fulminant type of cases. The diagnosis depends on close attention to clinical progress, frequent observations accurately made and recorded, and proper interpretation of physical signs. Dulness, the sense of resistance on percussion, and the diminution or absence of tactile fremitus are the most reliable signs. The relative incidence of empyema complicating pneumonia was high in one month, 50 per cent. of pneumonia cases developing empyema. Of 830 cases of measles, including rubella, 4.4 per cent. developed pneumonia or empyema; of the group, empyema was the primary condition clinically in 70 per cent. of the cases. The control of such epidemics would appear to depend on the sanitation in barracks as regards ventilation; adequate space and proper separation, especially of those even slightly affected with respiratory disease; on line officers not allowing overheated men to stand inactive in cold winds; on not indiscriminately giving triple typhoid inoculation at the very entrance of the soldier to camp without regard to any respiratory infection he might have at the time; on careful attention to overexertion and exposure of soldiers having mild respiratory disease, and on close attention to the details of equipment to ensure adequate clothing for the unacclimated raw recruit on his arrival.

Death Rate in Camps Increases.—A report by the Surgeon-General of the Army for the six months period ending December 27, 1918, shows that the death rate for the six months rose to 32.15 per thousand per annum from all causes. The rate from influenza and pneumonia was 30.07 per thousand. During demobilization the report states that relatively high mortality and morbidity rates may be expected as only well men are discharged, the sick being retained indefinitely for treatment.

Red Cross Aids Russian Prisoners.—The American Red Cross will begin immediately the work of providing relief for Russian prisoners in Germany, who are said to number 1,500,000. Most of these are in large camps where the sanitary conditions are said to be very bad owing to the lack of soap, disinfectants, and medicines. The Red Cross is sending hospital and disinfecting units, kitchens and canteens with the first relief ship. It is reported that 100,000 Russian prisoners are in hospitals, and that 50,000 more are invalids, chiefly because of consumption which is attributed to the lack of proper food. The Red Cross will supply fats and other foods to supplement the diet furnished the prisoners by Germany. Most of these prisoners have not received any clothing except paper underwear and wooden shoes. The Red Cross will try to supply warm clothing at once.

Care of Shell Shock Cases.—The Army Medical Department, in providing for the treatment of soldiers suffering from so-called "shell shock," will differentiate between the nervous patients and those who are mentally affected, and will treat the two classes of cases in separate institutions. The necessity of this policy was emphasized by the

early experience in England and France. Plans have been formulated by the Surgeon General's office for the proper distribution of these two classes.

Hospital Construction Authorized by War Department.—The War Department has given orders that the following hospital construction work be undertaken at once: At the Walter Reed General Hospital at Washington, D. C., alterations and additions to the receiving ward are to be made and a building is to be constructed for automobile repairs and farm mechanics necessary for physical reconstruction exercises. At Debarkation Hospital No. 51, at Hampton Roads, Va., nurses' quarters, barracks for enlisted men, mess barracks, diet kitchens, alterations in existing barracks, and other changes are to be made. It is estimated that the cost of this work will be $195,000.

Many Wounded Cared for Overseas.—The Senate Committee, in conducting an inquiry into hospital facilities and construction in this country, brought out the information that there are 104,000 wounded men still overseas, may of whom will not be brought home until they have recovered. In the hospitals of this country there are at present about 4,500 vacant beds. The testimony brought out at this inquiry revealed the fact that Assistant Secretary of War Crowell had disapproved the recommendations of the medical authorities to build a $3,250,000 military hospital at Chicago.

War Wounds Leave Many Blind.—The number of totally blinded victims of the war among the Allied Forces has now been calculated as 7,000. According to estimates twenty-five or thirty per cent. will have to be added to this figure from among the patients now undergoing treatment. The total of those who lost one eye amounts to between 30,000 and 40,000.

Hospital for Czecho-Slovaks.—The American Red Cross has put in operation a completely equipped modern military hospital for sick and wounded members of the Czecho-Slovak forces, at Cognac, France. The hospital was equipped under the direction of Dr. Howard Lewis of the American Red Cross and is a model of the small military type. The doctor in charge and the personnel of the hospital are all members of the Czecho-Slovak army.

Fire in Naval Hospital.—The galley attached to the Pelham Bay Naval Training Station was almost destroyed by fire recently and two of the hospital buildings were damaged. It was found necessary to remove many of the patients from the hospital, which for a time was threatened by the blaze. Discipline prevailed, however, and there was little excitement. The damage is estimated at $15,000.

Auto Trips for Wounded Soldiers and Sailors.—Sight seeing excursions for wounded men in the hospitals of New York have been inaugurated. The New York War Camp Community Service buses took the first party of men from the Debarkation Hospital at Sixth Avenue and Eighteenth Street, the old Greenhut Building. The trips cover points that are usually of interest to sight-seeing visitors in the city.

Surgeon General Merritte W. Ireland and Col. Walter E. Bradley have been presented with Distinguished Service Crosses by General Pershing in recognition of their devoted services to the country during the war.

Brig.-Gen. William S. Thayer of Baltimore has returned to this country and will resume his work as professor of clinical medicine at Johns Hopkins University.

Recreation at Military Hospitals.—The Surgeon General's office and the American Red Cross have co-operated in formulating plans for providing recreational activities in forty reconstruction hospitals in the United States. Dr. Elbert K. Fretwell of Columbia University has charge of the undertaking and has started on a tour of the hospitals on the Atlantic Seaboard where wounded soldiers are being cared for. The organization now engaged in welfare work among soldiers will be utilized in furthering this plan, the aim of which is to provide indoor games, athletics, books, gardening materials, and everything calculated to improve the mental and physical condition of the men under treatment.

Military Hospitals Will Help Relatives Find Soldiers.—The War Department has devised a plan which will soon be put into operation to assist relatives to get in touch with wounded soldiers admitted to military hospitals. Military hospitals will be required to send cards reporting immediately to the nearest of kin when a soldier is admitted, what his wound or ailment is, and what his general condition. Transfers of men from one hospital to another will also be reported.

Aid Asked for American Military Hospital No. 1.—Announcement is made through the Atlantic Division of the American Red Cross that American Military Hospital No. 1 will be needed throughout the year 1919 to care for sick and wounded soldiers and that many beds should be endowed. The President General and Chairman of the War Relief have been officially informed that re-endowment may be upon a basis of six months and $50 a month thereafter for such a time as the beds may be needed.

Deaths in the Service.—Lieut. Clyde Lorenzo Carey, M. C., U. S. Army, of Elmira, N. Y., a graduate of the University of Buffalo, in 1910, died of pneumonia at his home, on January 6, aged 34 years. He was president of the Chemung County Medical Society, and a member of the Elmira Academy of Medicine.

Major Robert Lord Hull, M. C., U. S. Army, of Oklahoma City, a graduate of Jefferson Medical College, Philadelphia, in 1902, died from pneumonia following influenza, at the Letterman Generla Hospital, Presidio, San Francisco, on January 5, aged 43 years. He was associate professor of orthopedic surgery in the University of Oklahoma, chief surgeon of the Emergency and St. Anthony Hospitals, Oklahoma City, and head of the orthopedic department of the Letterman General Hospital.

Lieut. Samuel Leo Oren, M. C., U. S. Army, of Lewistown, Ill., a graduate of Barnes Medical College, St. Louis, in 1899, aged 39 years, died in France on October 9, from nervous collapse, presumably following ambulant typhoid fever.

Capt. Herbert Martin Howes, M. C., U. S.

Army, of Portland, Me., a graduate of the Bowdoin Medical School, in 1917, and assistant professor of pathology in his alma mater, who was honorably discharged from the Medical Corps of the army on December 21, died from pneumonia following influenza, at his home, on January 5, aged 28 years.

LIEUT. HERBERT LEER MCNIEL, M. C., U. S. Army, of Houston, Texas, a graduate of Johns Hopkins University, in 1911, aged 32 years, died while on duty with the American Expeditionary Forces in France, at Camp Hospital No. 30, on November 30, from bronchopneumonia.

CAPT. CHARLES HENRY WEINTZ, M. C., U. S. Army, of Cincinanti, a graduate of Miami Medical College, in 1909, died from pneumonia at Camp Sherman, Chillicothe, Ohio, on October 14, aged 33 years. He was assistant chief of the nose and throat department of the base hospital.

LIEUT.-COL. CARL EDWARD HOLMBERG, M. C., U. S. Army, of Whipple Barracks, Ariz., a graduate of Jefferson Medical College, Philadelphia, in 1908, commanding officer of United States Army General Hospital No. 20, Whipple Barracks, Ariz., died in that institution from bronchopneumonia, on January 1, aged 39 years.

LIEUT. JOSEPH ALPHONSE FURLONG, M. C., U. S. Army, of Spring View, Neb., a graduate of St. Louis University, in 1912, aged 29 years, on duty with the American Expeditionary Forces in France, lost his life when the steamship *Leinster*, on which he was returning to this country, was torpedoed off the coast of Ireland on October 10.

LIEUT. JEROME MCKAIG LEONARD, M. C., U. S. Army, of Douglas, Ariz., a graduate of Hahnemann Medical College, Chicago, in 1906, aged 34 years, was killed in action while on duty with the American Expeditionary Forces in France, on November 8.

LIEUT. DAVID NEEPER RICHARDS, M. C., U. S. Army, of Germantown, Md., a graduate of Johns Hopkins University, in 1915, aged 28 years, on duty with Evacuation Hospital No. 49, American Expeditionary Forces in France since June, 1918, died of bronchial pneumonia following influenza, at Camp Merritt, N. J., on October 12.

CAPT. JOHN EDWIN RAY, JR., M. C., U. S. Army, of Raleigh, N. C., a graduate of Cornell University Medical School, New York, in 1912, aged 31 years, died of wounds received in action in Bellicourt, while on duty with the American Expeditionary Forces in France, on October 5.

LIEUT. JAMES FRANCIS GORMAN, U. S. N. R. F., of Manchester, Conn., a graduate of Georgetown University, Washington, D. C., who had been on duty at the Brooklyn Navy Yard, died at his home in Manchester, from pneumonia following influenza, on December 28, aged 34 years.

LIEUT. STANLEY LEE CASSELL, M. C., U. S. Army, of Sweet Grass, Mont., a graduate of the University of Illinois, Chicago, in 1914, aged 28 years, was killed while on duty with the American Expeditionary Forces in France, on November 4, at Earle Fontaine, by a shell explosion.

LIEUT. ROBERT ELDRIDGE HEARN, M. C., U. S. Army, of Mabank, Texas, a graduate of the University of Louisville, Ky., in 1904, on duty at Camp Funston, Leon Springs, Texas, died from bronchopnuemonia on October 18, aged 39 years.

LIEUT. CASPER JOSEPH MIDDLEKAUFF, M. C., U. S. Army, of Hayes, Kan., a graduate of Jefferson Medical College, in 1917, aged 31 years, died from pneumonia while on duty with the American Expeditionary Forces in France, on October 8.

LIEUT. SAMUEL DANA HENDERSON, M. C., U. S. Army, of Lansford, N. D., a graduate of Tulane University, New Orleans, in 1916, died from pneumonia following influenza, at Camp Greenleaf, Ga., on October 19, aged 30 years.

LIEUT. BURGESS ALLEN GIBSON, M. C., U. S. Army, of Washingtonville, Pa., aged 30 years, died from the effects of wounds received in action on November 3. He was a graduate of Jefferson Medical College, Philadelphia, in 1913.

LIEUT. CLYDE EVERATT SHEDD, M. C., U. S. Army, of San Francisco, Cal., a graduate of the Oakland (Cal.) College of Medicine and Surgery, in 1917, aged 25 years, was killed in action in France, November 4.

LIEUT. JULIUS LEWIS SHRYER, M. C., U. S. Army, of Durant, Iowa, a graduate of the Chicago College of Medicine and Surgery, in 1917, died from bronchial pneumonia, in France, on November 4, aged 29 years.

LIEUT. EARLE WILLIAM GILROY, M. C., U. S. Army, of Minneapolis, a graduate of Rush Medical College, in 1916, and head of the department of pathology at the base hospital at Camp Wheeler, Macon, Ga., died in Minneapolis, on December 30, of pneumonia following influenza, aged 25 years.

LIEUT. CARL DINSMORE GRAY, M. C., U. S. Army, of Portland, Me., a graduate of Bowdoin Medical School, who had been honorably discharged from the service, died while en route to his home in Portland, of complications following influenza, on December 19, aged 32 years.

LIEUT. GEORGE BUOL, M. C., U. S. Army, of Ravenna, Neb., a graduate of the University of Nebraska, Omaha, in 1910, aged 32 years, on duty at Camp Funston, Kan., was instantly killed on December 21, when his automobile was struck by a Burlington train at a grade crossing at Streetwater, Neb.

CAPT. PAUL LEE COCKE, M. C., U. S. Army, of Birmingham, Ala., a graduate of the University of Virginia, Charlottesville, in 1899, on duty with the American Expeditionary Forces in France, died in Paris, July 27, from concussion of the brain following an automobile accident, at the age of 43 years.

LIEUT. WILLIAM CLEVELAND REESE, M. C., U. S. Army, of Wilkes-Barre, Pa., a graduate of the University of Pennsylvania, Philadelphia, in 1910, a member of the staff of the Wilkes-Barre City Hospital, died from pneumonia, following influenza, on October 20, aged 34 years.

LIEUT. CHARLES VERMILYEA, M. C., U. S. Army, of Poughkeepsie, N. Y., a graduate of the University of Syracuse, N. Y., in 1912, aged 31 years, is reported to have died in the service, in France, several months ago. Before enlisting in the army he was assistant physician in the Hudson River State Hospital.

CAPT. THEODORE LEGRANDE BURNETT, M. C., U. S. Army, of Louisville, Ky., died of pneumonia following influenza, while on duty at Camp Shelby, Hattiesburg, Miss., on November 5, aged 28 years.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, February 1, 1919.

FLEXION OF THE GREAT TOE; A SIGN OF LESIONS OF THE SCIATIC NERVE AND ITS BRANCHES.

THE sign of the great toe (Villaret's sign) is dependent upon an increase of the neuromuscular reflectivity which can be readily detected in cases of lesion of the sciatic nerve and its branches. Percussion of the tendo Achillis, when there is some pathological disturbance of the sciatic, will reveal a plantar flexion of the great toe, while at the same time the plantar flexion of the foot will be weakened or absent. Under normal circumstances percussion of the tendo Achillis produces nothing of the kind, the great toe does not change its position while the foot becomes flexed. It may, however, happen, although very infrequently, that a slight flexion of the great toe occurs, and in order that this sign shall have a diagnostic value there must be, firstly, a marked flexion quite distinct from that obtained on the normal side and, secondly, a simultaneous exaggeration of the neuromuscular reflectivity.

The technique to be followed for obtaining these clinical evidences is as follows: To detect the phenomenon of flexion of the great toe the leg is slightly flexed with the thigh in abduction, the patient lying down. The phenomenon will acquire greater distinctness if percussion is carried out along the internal border of the tendo Achillis, on the posterior lip of the retromalleolar gutter, in other words, over the internal border of the flexor longus pollicis, which still possesses muscular fibers at this level and passes beyond the internal border of the tendo Achillis. It is to be remarked that in case of extreme hypotonia of the lower limb, the jump imparted to the foot by the hammer percussing the tendo Achillis may be mechanically transmitted to the other toes, imparting a kind of passive nutation proportional to their mass. In these circumstances flexion of the great toe may appear to have occurred, but in reality quite easily distinguished from active muscular movement, which is slower and more ample. The tendo Achillis reflex is to be sought for with the patient kneeling on the edge of the bed or a chair, and all that is required is to percuss the tendon and compare the resulting reflex with the opposite side. Jumentié has resorted to the graphic method and has been able to note that, according to the degree of the lesion, there is either an exaggeration of the neuromuscular reflectivity of the gastrocnemius and the normal reflex of the tendo Achillis, or a weakening of the latter and an exaggeration of the neuromuscular reflectivity, or absence of the reflex with exaggeration, attenuation, or even absence of the neuromuscular reflectivity.

The exaggeration of the neuromuscular reflectivity of the gastrocnemius and the muscles innervated by a pathologically involved nerve is readily understood. Neuromuscular contractility is independent of bone, tendon, or cutaneous contractility to such an extent that it is quite proper to speak of neuromuscular reflectivity, because it is a true reflex. Therefore, it is not surprising that for the same muscle a decrease of the tendinous and neuromuscular reflectivity may coexist. For that matter, this is quite normal in peripheral paralyses, be they of organic or other nature. The phenomenon of the reflex of the great toe is intimately united to neuromuscular reflectivity and this becomes more evident if, instead of percussing the tendo Achillis, this is carried out along its internal border, because by so doing the internal border of the flexor longus pollicis is percussed. This sign is, consequently, a neuromuscular reflex. The flexor longus pollicis and the sural triceps receive the same innervation, so that their neuromuscular reflectivity undergoes necessarily the same variations in identical circumstances.

Now, how does it happen that when in the normal state percussion in the internal retromalleolar gutter which is over both the flexor longus pollicis and the internal border of the gastrocnemius, there is a plantar reflex and not of the great toe? And why in the normal state is there not rather a digression between the plantar flexion of the foot and that of the great toe? In answer to this question one must necessarily admit that in the variation of its intensity it is the neuromuscular reflectivity of the small muscles which especially increases. In the case of percussion of the tendo Achillis the tendinous reflectivity is explored, which in case of lesion of the sciatic is diminished or absent according to the extent of morbid change in the nerve and by *contre-coup*, the neuromuscular reflectivity of the flexor longus pollicis is explored and which, on the contrary, is increased. A practical conclusion imposes itself, namely, in searching for the neuromuscular reflectivity of the great toe, percussion should be carried out high up in the retromalleolar gutter in order to percuss the muscle and not its tendon.

THE CAUSATIVE FACTORS OF HEMATOCELE OF THE THYROID GLAND.

CYSTIC adenoma of the thyroid, by its presence in the gland, produces certain perturbations which are the direct causes of hematocele in goiter. Under the influence of the growth the surrounding struc-

tures become congested, resulting in a series of intraglandular hemorrhages, these being followed by foci of sclerosis, which form a more or less thick shell around the cyst. The same phenomenon occurs on the lining membrane of the cyst with intense proliferation of the epithelial cells, and from this process papillary growths develop, composed merely of a simple endothelial covering into which neighboring embryonal capillaries penetrate. The presence of the pericystic fibrous zone still more increases the tension of these new-formed vessels, which, on account of their thin walls, easily rupture. They are also dilated, and this decreases their resistance and explains why the hemorrhage may be considerable in amount. When one of these capillaries ruptures the blood mixes with the colloid fluid contained in the cyst and then fibrinous clots, variously colored by the pigment of the altered red blood corpuscles, are deposited, carrying cell débris along with them. If the hemorrhage is considerable, the blood will distend the cyst and the exogenous capillaries, being flattened, rupture.

A certain number of thyroid hematoceles appearing during labor have been recorded, and are supposed to be caused by congestion of the gland, followed by vascular rupture from dilatation and softening of the vessel walls. But these congestive phenomena of pregnancy do not come under the head of the process under consideration. No matter what causative factor be admitted, it nevertheless remains a fact that there is a marked dilatation of the perithyroid venous system, and this return circulation being interfered with will react on the pericystic capillaries. At a given moment the equilibrium between the pressure of the intracystic fluid and the capillaries ceases, from which results rupture of the neoformed capillaries in the intracystic vegetations and hemorrhage into the thyroid pocket. This process is quite similar to those lesser hemorrhages encountered during simple thyroid congestion involving the entire gland, and it is only the presence of the cyst which gives to this benign accident quite another physiognomy.

As to intrinsic causes, it has been admitted by some that a decrease of the intracystic pressure may occur from certain chemical changes arising in the fluid content, thus resulting in hemorrhage within the cyst. But this theory is unsatisfactory and has never been confirmed by either a physical or a histological examination. There are two hypotheses that are tenable if one admits *a priori* that the tension of the intracystic fluid has remained the same while the pressure in the neighboring capillaries has increased, causing their rupture, or there exists an irritative process of the lining membrane of the cyst, in which the intracystic outgrowths participate and become the direct factors, perhaps the only ones, of the hematocele.

Therefore, the process may be summed up as follows: The fibrinous clot extends over the entire inner lining of the cyst, imprisoning the leucocytes, while at the same time contracting adhesions with the surrounding parenchyma, which sends off angioplastic cells to it. These are quickly transformed into blood vessels. The fragility of the vascular walls explains their rupture, but the cruoric deposit becomes a new fibrinous deposit from which new membranes and vessels result, likewise renewed hemorrhage, so that a thyroid hematocele is absolutely comparable to a pelvic hematocele, but it differs from the latter in that its purulent transformation is much more frequent.

INFLUENZA TRANSMITTED BY INDIRECT CONTACT.

IT is agreed without demur that influenza is a disease which is communicated with great facility, and it is believed to be spread chiefly through discharges from the nose and throat. While it is generallly believed that direct contact is one of the most important factors in the dissemination of influenza, there is small room for doubt that indirect contact plays a part in its spread. The results of an investigation as to the incidence of influenza carried out by Col. Charles Lynch and Lieut. Col. James G. Cumming, published in the *American Journal of Public Health* for January, 1919, appear to show that the major route of transmission of influenza infection is by indirect contact. The investigations covered a total of 66,000 troops and the findings were of very considerable value. It seems to have been demonstrated that mess kit wash water contaminated by mouth organisms was responsible for a large proportion of the cases of influenza which occurred among these men.

The contamination of the water by mouth organisms took place by two routes of travel, from the mouth to mess equipment, thence to wash water, also from the nose and mouth to the hands and thence to wash water. It was, according to these investigations, the hands which were kept in a constant state of contamination by tepid dish water. As it is the invariable custom for the hands to visit noses and mouths frequently, the conclusion was reached that warm dishwater is the most intimate and frequent point of contact among troops for the exchange of mouth organisms. Figures as to mortality rates gathered from the various camps in which the 66,000 men were stationed, showed that the incidence of and death rate from pneumonia coincided with the washing of the mess equipment in unsterilized water. That is, deaths from pneumonia were few in the battalion in which the mess equipment was washed in boiling water and high in the battalion in which warm water was used for this purpose. The ratio of influenza in these two organizations was 1 to 12, and the incidence paralleled closely the ratio of deaths in the two organizations. It may be further noted that the members of the battalion in which warm water was employed were physically unfit, while that in which boiling water was used was composed of hardy, vigorous men.

The authors argue that not only was influenza

caused indirectly by contaminated dish water, but that streptococcal pneumonia was largely transmitted in the same manner. It was found that in civil life only 5 per cent. of average throats harbor hemolytic streptococci and that among troops 35 per cent. of measles cases harbor these organisms. Cols. Lynch and Cumming take the stand that if warm mess water was, as they have shown, responsible for approximately 80 per cent. of the cases of influenza, the conclusion is justified from the fact that they succeeded in isolating streptococci almost invariably from the hands of streptococcus carriers, that the epidemic of streptococcus pneumonia was due to the facility of transmission by means of the mess kit washing water.

From these investigations it may be fairly deduced that the hands and eating utensils play a prominent rôle in the transmission of influenza and streptococcal pneumonia and probably of many infectious diseases, and that infection by indirect contact is of great consequence. If this be so, and the evidence appears to point strongly in this direction, the advice given by the authors should be closely followed. They insist that the essentials of prevention are clean hands, disinfected eating utensils, the avoidance of intermediate object conveyors handled by many persons, the frequent cleansing of such conveyors, the keeping the hands away from the mouth and nose, and the elimination of sick persons from the kitchen.

PARASPECIFIC SEROTHERAPY IN OPHTHALMIC PRACTICE.

THE vast amount of work done during the past few years on serotherapy has shown beyond a doubt that antidiphtheritic serum is a very great aid in ophthalmology and that this paraspecific serotherapy powerfully excites the defensive powers of the organism, increasing the phagocytic properties of the leucocytes. It is also true that paraspecific serotherapy by mouth may produce the same effects as when the serum is given by injection; it does away with the pain, causes absorption of the exudates, and checks the infectious process. But paraspecific serotherapy by mouth is not infallible. It is a powerful aid to the defensive activity of the tissues and a tonic which helps the organism to resist the progress of infection, but when the latter is too far advanced or too virulent nothing can control it, and this is a point which must never be overlooked.

In pseudomembranous conjunctivitis which may have such a variable etiology (gonococcus, pneumococcus, staphylococcus, etc.), serotherapy by mouth has a favorable action on the pathological process. If the corneal lesions are advanced the necrotic process may be checked, but if the cornea is perforated, serotherapy will act only indirectly on the lesions by reestablishing the normal nutrition in the tissues and preventing the occurrence of leucoma.

In infectious ulcers of the cornea paraspecific serotherapy acts as a general stimulant and a very great aid to the local treatment of the lesion. The antidiphtheritic serum must be given, in a potion, in the dose of 10 c.c. (2,500 antitoxic units) in twenty-four hours. The action of the serum is made manifest by a very marked state of euphoria, allowing the patient to sleep the entire night after the first dose of serum. The following day the pain will be greatly lessened and the patient can open the eye and better support light. The resulting leucoma will be less extensive, much more transparent, and vision will be better than with any other treatment.

Although many have denied the good effects of serotherapy by mouth in lesions of the cornea, there appears to be a unanimous accord in its favor in cases of iritis with hypopyon and the very violent and painful plastic iritides. There is no better soil on which to study the action of paraspecific serotherapy by mouth than in infections of the iris. The process can be seen but cannot be acted upon directly with topics; atropine and dionine exercise an action on the iris. But when these two therapeutic agents have remained without action on the pupil and without influencing the pain for several days, the action of the serum given per os becomes manifest, because in a few hours after seric medication, usually after the sixth or seventh spoonful of the potion, the pain commences to diminish and finally completely subsides. The following day the eye is less red and tumefied and more mobile in the orbit. The pupil gives way slowly to the action of atropine, the exudates in the anterior chamber are rapidly absorbed and in four or five days recovery is apparent and it only remains to attack the primary etiological factor of the process—whatever that may be—mercury or arsenic in syphilis, the salicylates in rheumatism, antigonococcic vaccines if a gonorrheal infection is present.

But where paraspecific serotherapy is at its acme of therapeutic value is in infection following the extraction of cataract. Generally speaking, if the infection is dealt with at its beginning, within four to eight days, the prognosis becomes more favorable, while at the end of a month the vision will be about the same as that obtained in a normal operation. In serious infection involving the vitreous humor, serotherapy will be of no more use than any other medication in checking the infectious process. But in general no treatment employed up to date has given such rapid and constant results, involving no risk whatsoever.

RETURNED SOLDIERS AND COMMUNICABLE DISEASES.

THERE is reason to fear that certain communicable diseases may be introduced into this country by returned soldiers. These are especially those which have been shown to be spread by lice or other insects, as for example, typhus fever and plague. Also there is certain to be some of the many thousands of returned soldiers who are carriers of disease. The Public Health Service, however, is awake to the menace and is putting measures into effect

to meet the situation. In Public Health Reports for December 6, 1918, it is stated that explicit instructions have been issued to all quarantine officers, urging the most careful examination, including laboratory tests, of all units of the returning armies liable to be carriers of exotic epidemic communicable diseases. Moreover, officers of the Public Health Service trained in quarantine procedure either have been sent to various ports of Europe or will be sent as the occasion may arise. They will there supervise the enforcement of the United States quarantine regulations applicable at foreign ports against ships and passengers destined for ports of the United States. It is anticipated that compliance with the quarantine regulations, as bearing on returning troops, will be effected by the cooperation of the United States military authorities in the examination, delousing, and disinfection, when necessary, of the troops prior to embarkation. While there appears to be little danger of the introduction of cholera from American soldiers now in France and Germany, there may be danger of the introduction of this disease from the Russian front, where conditions are still very disturbed and where cholera is now known to be more or less prevalent. There is, however, greater reason to fear that trench fever or typhus may be brought in by infected lice on the bodies of returned soldiers. Therefore, it imparts confidence to learn that the Public Health Service is doing its share to prevent the introduction of foreign communicable diseases into America. Precautions of a similar nature are being taken to prevent the spread of disease by soldiers discharged from training camps.

Clinostatic Bradycardia.

The phenomenon of marked slowing of the pulse rate in paroxysmal tachycardia, which supervenes immediately upon lying down, may not be rare, but Vincent has isolated an entire syndrome which he terms clinostatic bradycardia (*Journal de médecine et de chirurgie pratiques*, November 10). This author has noted the phenomenon often in sound adolescents of dull intelligence. One element is an acrocyanosis which in winter aggravates the natural violaceous hue due to exposure. This appears along with the bradycardia when the subject lies down. There is noted a drop of the blood pressure to somewhere between 110 and 140. The corresponding fall in the pulse rate is from normal limits to 58, 52, or even 40. No tachycardia is mentioned in this connection. When the subject first stands up again the pulse quickens, but the pressure soon falls 20 or 30 more millimeters. This triad of bradycardia, lessened blood pressure, and acrocyanosis appears to have a sexual significance, for in young women it may disappear after marriage and childbirth. The author instituted a research for an endocrinic component which included an examination of the glands and treatment tests. The thyroid, according to the case, showed either enlargement or atrophy. A combination of thyroid extract with iodides yielded remarkable improvement. As these patients are very subject to chilblains, the improvement in the latter was often striking. In a few days the pulse on standing increased only the normal amount under the circumstances.

Antihrax Cured by Neosalvarsan.

The idea of anthrax which obtains to-day is that the nonseptic forms are amenable to various kinds of treatment, some of which may be quite simple, while septic anthrax, like all sepsis, is very refractory to any plan of treatment. The alleged remarkable cures which find their way into literature are usually of localized forms, which, while they may present a marked constitutional reaction, are seldom septic in the true sense of the term. Much confusion is associated with the management of the disease on this account. Whether serum treatment has ever actually prevailed over true bacteriemia is still open to doubt. In the *Correspondenz-Blatt für Schweizer Aerzte* for November 9, 1918, Gsell refers to the use of salvarsan in this affection. In the original case of Becker the general condition was bad, but the blood remained sterile, and the same was the case with others related. Salvarsan was successful in cases of this type, but made an inglorious failure in others in which bacteriemia was present. Only in the laboratory did this remedy cure septic cases, the bacilli dying in the blood within a short time, as shown by failure to develop blood cultures after treatment. The author's case was not of especial severity, and was not septic at any time, but yielded so promptly to intravenous injections of neosalvarsan that the result deserved to be called favorable.

News of the Week.

Influenza Epidemic Continues in the United States.—Although the influenza epidemic has about completed its sixteenth week, and the number of cases reported is not much above the low level reached in its tenth week, there is no definite sign of a letup. The most recent figures compiled by the United States Public Health Service estimate the number of deaths from influenza in the United States at 145,512. This death rate is 50 per cent. more than the combined total of the epidemics of 1889 and 1891. In New York City for the week ended January 25 the rate was considerably higher than for some weeks, the daily average of new cases reported running between 500 and 600. In view of these reports, Health Commissioner Copeland has requested the police again to distribute circulars containing suggestions as to how a recurrence of the epidemic might be avoided.

Influenza Toll in Jamaica.—A special cable from Kingston, Jamaica, to the *New York Times* reports that Government statistics show an increase of 160 per cent. in deaths from October to December, the period during which influenza was epidemic. During the last quarter of 1917 there were 5,699 deaths, and during the corresponding period of 1918 there were 13,373 deaths. It is estimated that more than one-third of the population was affected by the epidemic.

Influenza in India.—Influenza and famine conditions are said to be causing a death rate seven times as great as during the plague last spring in certain sections of India, according to advices received by the Board of Foreign Missions of the Presbyterian Church.

Bubonic Plague in Argentina.—A report from

Buenos Aires states that the Government of that country is sending a commission to the Province of Jujuy for the purpose of fighting the epidemic of bubonic plague, which is reported to be serious. The Santiago Dispensary reports 605 cases of typhus fever and 13 deaths.

Smallpox in Dresden.—A sudden and violent outbreak of smallpox has broken out at Dresden, according to a telegram from Constance. Official reports show 125 cases of the disease, which is said to have been introduced from Bohemia, where the disease has been raging for several weeks.

Cholera in Hamburg.—A telegram received in London from an Amsterdam correspondent states that an outbreak of cholera has occurred in Hamburg. Seventy fatal cases have been reported.

War Increases Mental Disease.—Figures compiled by the New York State Hospital Commission show that 3,995 more patients have been admitted to the State hospitals during the forty-four months since war was declared than for the similar period of time prior to the beginning of hostilities, the admissions prior to the war being 29,316, as against 33,311 afterward. The State hospitals are actually housing 6,500 more patients than they were built to accommodate. The State Commission on the Feebleminded has mapped out a program for the relief of this condition, which has been presented to Governor Smith.

Physicians Needed in Rural Sections.—Many rural communities in New York State are absolutely without a physician according to letters that are daily being received at the State Department of Health. With many country roads becoming practically impassable, the situation in many cases is very serious, as neighboring towns can no longer be depended on for medical assistance in emergencies. In order to aid these communities the State Department of Health has placed advertisements in some of the medical journals for physicians who desire to locate in rural communities. A large number of replies have already been received from qualified physicians, and it is believed that the situation will soon be relieved.

Annual Meeting of United Hospital Fund.—At the annual meeting on January 13, of this organization which divides its funds among forty hospitals of New York City, it was announced that for the fiscal year just ended the receipts were $183,778, a gain of 36 per cent. over last year. In order to meet the increased cost of maintenance and the greater demand for free service the fund plans to raise $250,000 during the present year. Dr. George E. Brewer, W. V. S. Thorne, and James McVickar Breed were elected trustees of the Fund.

Charitable Bequests.—By the will of the late Mary H. Wood of Morristown, Pa., bequests are made as follows: $10,000 each to the Philadelphia Home for Incurables, Woman's Medical College of Pennsylvania, Woman's Hospital, and the Charity Hospital at Norristown.

By the will of the late Sarah R. Watson of Philadelphia, the sum of $1,000 is bequeathed to the Germantown Hospital and Dispensary.

By the will of the late Abbie E. Sinnott of Philadelphia, bequests are made as follows: St. Vincent's Home and Maternity Hospital, $11,000; Philadelphia Home for Incurables, $4,000.

Philadelphia Psychiatric Society.—At the annual meeting, held January 10, Dr. Charles S. Potts delivered the president's address, which was entitled "A Study of the Effects of Alcohol from a New Standpoint." He contended that there had been a good deal of hysteria and hypocrisy in the crusade against alcohol. He pointed out that the use of alcohol in some form dates from the earliest times recorded, and that the status of civilization and progress was not less high among those peoples accustomed to its use than among those who abstained by reason of religious inhibition. He named a number of the great men in history who were in the habit of using alcohol.

Guard Port of New York Against Smallpox.—A statement recently issued by Health Commissioner Royal S. Copeland calls attention to the fact that smallpox of a virulent type is raging in certain sections of Italy, and to guard against the disease being brought into New York the strictest precautions must be observed. The closest possible inspection is made of every incoming vessel from an Italian port. Every passenger from Italy will be vaccinated if the time since the departure of a ship from an infected port has been less than sixteen days. No passenger will be permitted to land until that time has elapsed. The New York Health Department is given the name and destination of every person who enters the United States. If he tarries in New York City he will be kept under the observation of the officials of the Health Department until all possible danger has passed. If he does not remain in the city the health officials of the place to which he is going are notified. The health commissioner announces that there is no occasion for alarm at the present time, the purpose of the statement being to avoid disquieting rumors and to fortify the public against groundless fears.

Milk Strike Increased Infant Mortality.—According to the statistics of the New York Department of Health, introduced at the John Doe milk inquiry, the recent milk strike has been responsible for a sudden and marked rise in the infant mortality rates of this city. The deaths of children under one year of age per 1,000 births during December were as follows: Week ended December 7, 109; week ended December 14, 210; week ended December 21, 204; week ended December 28, 175. The milk strike started on January 1 and ended January 18, and during this period the deaths of children under one year per 1,000 births were as follows: January 4, 243; week ended January 11, 221; week ended January 18, 277. There seems to be no other factor excepting the lack of milk to account for this increased death rate, as the weather during this period was mild. In the discussion of the milk problem, Irwin E. Jennings, formerly secretary of a large distributing company, who has made several investigations of the city's milk problem, suggests that if all other measures fail it may be necessary to have the State or municipality assume control of the distribution machinery, and as a last resort take over the direction of both the production and the distribution of milk.

Health Bill Endorsed.—The Council of Organizations, representing 400 bodies in New York, met

on January 24 to discuss ways to meet the present health emergency. It was the sense of the meeting that it is highly important that matters pertaining to health be brought to the attention of Congress for proper legislative action, especially infant hygiene. The speakers approved the Rankin-Robinson bill now before Congress, the aim of which is to preserve all the bureaus of industrial hygiene. At this meeting resolutions were passed protesting against Health Commissioner Royal S. Copeland's plan to remove the Division of Industrial Hygiene from the Bureau of Preventable Diseases.

Health Commissioner Defends Changes in Administration.—On the invitation of Health Commissioner Royal S. Copeland, representatives of labor and civic organizations of New York City met in the Department of Health Building on January 24 to discuss the advisability of the removal of the Division of Industrial Hygiene from the Bureau of Preventable Diseases, of which Dr. Louis I. Harris is director, and placing it under the direct care of the Health Commissioner. Commissioner Copeland explained that he had made the change because the work of the Bureau of Preventable Diseases was sufficiently onerous without the additional labor imposed by the Division of Industrial Hygiene, and that he believed the change would insure better protection to the public from communicable diseases. This change in administration, he said, would not leave the health of industrial workers unprotected. He asked that criticism be deferred until his plan had had a trial. Rabbi Sidney E. Goldstein suggested in a recent sermon that the citizens request the Committee on Public Health of the New York Academy of Medicine and invited experts on public health and social welfare to make an investigation. In reply to this suggestion, Dr. Copeland is reported as saying that if he had to submit his problems to a committee named by Rabbi Goldstein he would "quit right now." On the day following this conference Dr. Copeland appointed Dr. S. Dana Hubbard head of the Division of Industrial Hygiene under his new plan, which separates this division from the Bureau of Preventable Diseases, of which Dr. Louis I. Harris is the director.

Dr. Henry Dwight Chapin of New York has been appointed chairman of the Public Health Committee of Governor Smith's Reconstruction Committee, which has been organized to solve post-war problems.

Dr. A. L. Benedict, who has been serving as captain in the Medical Corps of the United States Army since November, 1917, has returned to Buffalo, and will resume his practice at 377 Elmwood Avenue.

Dr. Charles F. Dalton of Burlington, Vt., has been appointed to the chair of hygiene and preventive medicine of the University of Vermont, to succeed the late Dr. C. S. Caverly. Dr. Dalton also succeeds Dr. Caverly as president of the State Board of Health of Vermont.

Public Health Service Bill.—A bill appropriating $10,500,000 for enlarging hospitals to be conducted by the United States Public Health Service was reported favorably to the House by the Buildings Committee on January 25. A minority report opposed the program as unnecessary if abandoned army posts were converted into hospitals.

Hospital Equipment to Aid Polar Expedition.—The Aviation Committee of the National Special Aid Society has unanimously voted to contribute the complete hospital equipment and supplies for the Roosevelt Memorial Arctic Expedition, which is to start by airplane for the polar regions in June of this year.

Campaign for Tuberculosis Hospital.—At a meeting of the board of trustees of the National Jewish Hospital for Consumptives, at Denver, Col., held at the Hotel Biltmore, New York, on January 25, plans were announced for a campaign to raise funds among children of Jewish religious and Sabbath schools throughout the country to erect a children's pavilion as an addition to the institution. The annual report from the hospital shows that during the nineteen years of its existence it has cared for 3,500 tuberculosis patients, 70 per cent. of whom have either been cured or their disease arrested so that they were able to become self-supporting.

Health Congress in June.—Plans have been perfected for a public health convention to be held in June, in conjunction with the annual meeting of the American Medical Association. The Hotel Traymore in Atlantic City has been selected as headquarters for the meeting.

Civil Service Positions Open.—The Civil Service Commission of the State of New York announces the following examinations to be held March 1, 1919, for which applications must be received at the office of the commission before February 19: *Physiological Chemist,* at a salary of $2,600 to $3,000 a year. Applicants for this position must have had practical experience in physiological, biological, and organic chemistry. The position is open to men and women and to non-residents and citizens, except those at war with the United States. *Laboratory Assistant in Bacteriology,* at a salary of $720, open to men or women between the ages of 21 and 35 years. Only candidates who have completed a satisfactory course in bacteriology will be accepted. *Assistant Physician,* regular or homeopathic, to provide eligibles for the position of assistant physician in the State hospitals and for other positions of similar nature in various State and county institutions. The salary is $1,200, with increase and maintenance. The examinations are open to men and women who are licensed practitioners of medicine in New York State, and who have had six months' experience on the resident medical staff of a general hospital, or as a medical interne or clinical assistant in a State hospital or institution. No written examination will be required of applicants who meet the specified requirements.

Medical Society Elections.—THE CENTER DISTRICT AND MERRIMACK COUNTY (N. H.) MEDICAL SOCIETY, at its ninety-seventh annual meeting, held in Concord, N. H., January 14, 1919, the following officers were elected for the ensuing year: *President,* Dr. George E. Clarke of Concord; *Vice-President,* Dr. N. L. Griffin, New London; *Secretary-Treasurer,* Dr. Charles Duncan, Concord.

THE ANDROSCOGGIN (ME.) MEDICAL ASSOCIATION, at its annual meeting, held in Lewiston, Jan. 7, 1919, elected the following officers for the ensuing year: *President,* Dr. Harold Garcelon; *Vice-President,* Dr. Leo Hall; *Secretary,* Dr. A. S. Dolloff.

The Waterbury (Conn.) Medical Association, at its annual meeting, January 13, 1919, elected the following officers for the ensuing year: *President*, Dr. Charles H. Brown; *Vice-President*, Dr. Edward W. Goodenough; *Secretary*, Dr. William H. Licht; *Treasurer*, Dr. Charles S. Rodman.

The Winona County (Minn.) Medical Association, at its annual meeting in Winona, Jan. 7, 1919, elected the following officers for the ensuing year: *President*, Dr. F. H. Clay, St. Charles; *Vice-President*, Dr. Oswald Leicht; *Treasurer*, Dr. F. W. F. Heise; *Secretary*, Dr. High F. McGaughey.

The New England Women's Medical Association, at its forty-sixth annual banquet and meeting, held in Boston, January 16, 1919, the following officers were elected for the ensuing year: *President*, Dr. Agnes C. Vietor; *Vice-President*, Dr. Margaret L. Noyes; *Secretary*, Dr. Alice Bigelow; *Treasurer*, Dr. Isabel Kerr.

Obituary Notes.—Dr. John H. Lowman of Cleveland, Ohio, who returned from Italy a few days previously, died of complications following influenza, in the New York Hospital, New York City, on January 23, aged 70 years. He was a graduate of the College of Physicians and Surgeons, New York, in 1877, and formerly professor of clinical medicine in the medical department of the Western Reserve University. He was a former president of the National Tuberculosis Association, and represented the American Medical Association at the International Conference on Tuberculosis several years ago. Dr. Lowman headed the first American Red Cross tuberculosis mission to Italy, arriving in December, and within a fortnight was stricken with influenza and compelled to give up his work.

Dr. J. M. King of Chewalla, Tenn., was struck by a Southern passenger train near his home on January 4, and instanty killed. He was 65 years of age and had been a practicing physician for 45 years.

Dr. George Nelson Dolbeck, a graduate of the Hahnemann Medical College, Philadelphia, in 1893, died at his home in New York City on January 22. He formerly practiced medicine at Port Chester, N. Y.

Dr. Thomas Lewes Riley of New York City, a graduate of Bellevue Hospital Medical College, in 1897, died in Bellevue Hospital, after a long illness, on January 24.

Dr. Charles H. Greenough, a graduate of Bellevue Hospital Medical College, in 1872, died at his home in Bayport, L. I., on January 22, aged 69 years.

Dr. Charles Henry Riley, a graduate of the University of Maryland School of Medicine, Baltimore, in 1880, died suddenly at his home in Baltimore of complications following an attack of influenza, on January 23, aged 62 years.

Dr. Thomas F. Harrington, a graduate of Harvard Medical School, in 1888, died at his home in Boston on January 19, aged 53 years. He was deputy commissioner of the State Board of Labor of Massachusetts, and in 1910 represented the United States at the International Conference on Hygiene and Health at Paris.

Dr. Edward A. Ingham, district officer of the California State Board of Health for the Central Coast District, died of pneumonia at Berkeley on January 2.

Correspondence.

FELLOWSHIP WITH GERMAN PHYSICIANS.

To the Editor of the Medical Record:

Sir:—I have thoroughly approved of your recent editorials as to German doctors, who, when peace is declared, it is reported, are actually proposing to come to America and enter into practice!

At the close of the "Appeal to the Civilized World" of the ninety-three German Intellectuals, among whom appear the names of von Behring, Ehrlich, Haeckel, Neisser, Roentgen, Rubner, Waldeyer, and Wassermann, all doctors, they say:

"Have faith in us! Believe that we shall carry on this war to the end as a civilized nation to whom the legacy of a Goethe, a Beethoven, and a Kant is just as sacred as are our own hearths and homes. For this we pledge you our names and our honor."

One of their thus accredited statements is that "the German army and the German people are one." Let us see what that army did.

The armistice requires the German army to point out the wells that they have poisoned! So far as I know, this is the only occasion in history in which such an act of barbarism has been *officially confessed!*

Their atrocities in Belgium, France, Poland, and Serbia are known to thousands of witnesses. Those barbarities were the work of the army, with which, we are assured, the German people "are one."

They initiated the horrible poison-gas warfare.

They permitted the "unspeakable" Turk, their welcome Mohammedan ally, to murder by wholesale the defenseless Christian Armenians, including thousands of women and children.

Yet poisoning wells, using poisonous gases, and murdering innocent civilians—men, women, and children—are all prohibited by solemn treaties signed by Germany. But treaties are only "scraps of paper" to Germany.

And after all these atrocities and these constant violations of international law do these German doctors dare to come here and propose to obtain a living here as medical practitioners?

Never was there a more insolent proposal. The Germans are whipped, but still defiant; beaten, but still unregenerate. Witness what Hindenburg said to his army two days after the armistice: "We leave the fight, in which for more than four years we have resisted a world of enemies, *proudly and with heads erect.*" They must be taught many stern lessons in humility instead of the haughty arrogance which has been their national trait for years. If they dare to come, I hope that no American doctor will ever take any such man by the hand, and that no American medical society will admit a single one to membership. They may be sure that few, if any, American patients will ever patronize them. Let them stay at home.

In time, when as a nation they have repented of their sins and brought forth fruits meet for repentance, and especially when a younger and better and cleaner generation has come on the stage, then, and not until then, may they be received into civilized society.

W. W. Keen, M.D.

1729 Chestnut Street, Philadelphia

ULNAR NERVE TENDERNESS IN LEAD POISONING.

To the Editor of the Medical Record:

Sir:—I have frequently had occasion to note that marked tenderness of the ulnar nerve, particularly in the right arm, is one of the earliest signs of lead intoxication. Not only is it to be found in acute cases, but also in many chronic cases which have otherwise cleared up. It would be interesting to learn in how far lead is absorbed through the skin and into the nerves and nerve lymphatics, thus accounting for localization of lead neuritis.

Emanuel M. Josephson, M.D.

2132 Daly Avenue, New York.

Progress of Medical Science.

New York Medical Journal.

January 18, 1919.

1. Mouth Infection. Oliver T. Osborne.
2. Influenza. Adam H. Wright.
3. Alcoholism and the Phantasy Life in Tolstoi's Drama "Redemption." Smith Ely Jelliffe and Louise Brink.
4. The Development of Consciousness. Henry Jones Mulford.
5. Peanut Bronchitis. Ellen J. Patterson.
6. Pulmonary Tuberculosis and Insanity. Irving J. Sands.
7. Borderline Gastric Disease. Max Kahn.

6. Pulmonary Tuberculosis and Insanity.—Irving J. Sands points out that: (1) from the medical and sociological aspects pulmonary tuberculosis and insanity have much in common. (2) Psychoses among tuberculous patients are infrequent and are usually either of the infective toxic type of reaction, or shown by the manic depressive behavior. (3) An analysis of 962 cases of psychoses coming to autopsy at the Manhattan State Hospital during the past eight years shows that 13.61 per cent. revealed active pulmonary tuberculous lesions, and that of these, 61.83 per cent. had been correctly diagnosed antemortem; in the remaining 38.17 per cent., however, tuberculosis had not been suspected during life. (4) The general therapeutic principles employed in the treatment of tuberculosis are equally applicable in the insane as in mentally sound patients afflicted with this disease.

Journal of the American Medical Association.

January 18, 1919.

1. A Bacteriologic Study of the Influenza Epidemic at Camp Devens, Mass. Lesley H. Spooner, Joseph M. Scott, and Elmer H. Heath, Jr.
2. Edema of the Brain in the Infectious Diseases. C. T. Sharpe.
3. Cardiovascular Examinations of Fifty-five Thousand Recruits. George E. Fahr, assisted by D. W. Carter, J. H. Cosgrove, and J. D. Edgar.
4. Blood-Clot Dressing in Mastoidectomy: Modified Technique Which Assures Primary Painless Healing Without Deformity—Preliminary Report. George E. Davis.
5. The Value of Chest Fluoroscopy. F. E. Diemer and R. D. MacRae.
6. Pneumobacilli as Complicating Organisms in Influenzal Pneumonia. H. J. Nichols and C. O. Stimmel.
7. Epididymitis as a Complication of Meningitis: A Study of Twenty-four Cases. Joseph R. Latham.
8. Experimental Measles: A Review. Ludvig Hektoen.
9. Chancre of the Fingers. Douglas W. Montgomery and George D. Culver.
10. A Pulse Rate Standard for Recruits. Thomas Addis.
11. Influenza Epidemic at the Chicago State Hospital. Edward A. Foley.
12. Contribution to the Etiology of Yellow Fever. Hideyo Noguchi.
13. Relation of Influenza Bacillus to the Recent Epidemic of Influenza. F. T. Lord, A. C. Scott, Jr., and R. M. Nye.
14. The Production of Meningitis by Release of Cerebrospinal Fluid During an Experimental Septicemia: Preliminary Note. Lewis H. Weed, F. Wegeforth, J. B. Ayer, and L. B. Felton.
15. A Stain for Influenza Bacilli in Tissues: A Combination of Goodpasture's and Weigert's Stains. W. G. MacCallum.

12. Contribution to the Etiology of Yellow Fever.—Hideyo Noguchi describes a leptospira which he has succeeded in isolating by means of dark field examination of the blood, liver, and kidneys of laboratory animals inoculated with the blood of yellow fever patients, and also in the blood and liver of the patients themselves. By special methods, this organism was obtained in pure culture directly from the blood of yellow fever patients in a limited number of cases, as well as from the blood and viscera of experimental animals. The organism in its morphologic characters closely resembles the leptospira described in cases of infectious jaundice. It does not grow on ordinary bacterial culture media, and when grown on the special media employed it induces no macroscopic changes of the latter and may easily be overlooked. Only by a very thorough dark field examination of such cultures can the occurrence of the growth be ascertained. By inoculation of blood and emulsions of the liver and kidneys of infected guinea pigs, the infective agent has been conveyed from animal to animal without loss of virulence through eighteen successive series, and pure cultures of the organism are obtainable during the course of the infection from any animal of these series. Inoculation of cultures, derived either from inoculated animals or from the blood of patients, induced in guinea pigs, monkeys, and puppies, symptoms and lesions similar to those following the successful inoculation of guinea pigs with blood from yellow fever patients. Moreover, the organism recovered in pure culture from these inoculated animals retained its original characteristics. Many of the guinea pigs which did not succumb to inoculation with blood from yellow fever patients showed definite febrile reaction, some with a trace of jaundice, for several days, but soon returned to normal. Most of these animals later proved resistant to reinfection. A positive Pfeiffer phenomenon was obtained in the majority of instances with serum derived from convalescents from yellow fever in Guayaquil when tested with the leptospira isolated from cases of this disease or from infected animals, and this was also true of the serum of animals which survived experimental infection. Characteristic symptoms and lesions were induced in susceptible animals by inoculation with the filtrates obtained by passage through Berkefeldt filters V and N of the blood of experimentally infected animals, of the emulsions of the liver and kidneys of these animals, and of the cultures of the organism. Leptospira was demonstrated in the blood or visceral organs of the animals thus inoculated. Fuller details of this work will be published later.

The Lancet.

December 28, 1918.

1. Some Observations on the Bacteriology and Pathology of "Influenza." Delivered at the Royal Society of Medicine on November 13, 1918. Harold E. Whittingham and Carrie Sims.
2. Some Observations on the More Severe Cases of Influenza Occurring During the Present Epidemic. Sir Thomas Horder.
3. The Use of Vaccines in Acute Influenza and Influenzal Bronchopneumonia. W. H. Wynn.
4. Some Observations on the Recent Influenza Epidemic at a Base Hospital in France. D. T. Harris.
5. Some Clinical Aspects of Longstanding Pulmonary Tuberculosis. Cecil D. Wood.
6. A Case of Bence-Jones's Albumosuria with Lymphocytic Leucocythemia. Henry L. Heimann and C. Bawden Wilson, with Note by H. Batty Shaw.

3. The Use of Vaccines in Acute Influenza and Influenzal Bronchopneumonia.—W. H. Wynn comments on the timidity so frequently manifested in the use of vaccines for treatment. He considers the vaccine dosage recommended by the Conference held at the War Office last October, and adopted by the Army and Local Government Board, entirely inadequate and points out that in the treatment of influenza and its secondary bronchopneumonia Lord Fisher's advice is appropriate: "Strike early and strike hard." Every case should be regarded as serious and a dose sufficiently large to produce a satisfactory response within a few hours should be given when the patient is first seen. When the author first used vaccines in the diseases in question, doses as small as 5 million were given; and results, though occasionally good, were uncertain. Larger doses were then given, with better results. It is important that the first dose should be effective. The doses now recommended in acute influenza and influenzal bronchopneumonia are: for an adult man, 80 to 100 million pneumococci, streptococci, and *B. influenzæ;* for an adult woman, 60 to 80 million; for a child of 12 to 14, 40 to 50 million; for

a child of 2 or 3 years, 10 to 20 million. In deciding the dose, the size of the patient is more important than the age. The dose should not be reduced because of the gravity of the illness; and if the first dose gives insufficient response the next should be larger, doses being repeated on alternate days or even every day if required. It is rarely necessary to increase the dose, however, if 100 million are given at first. Wynn cites a number of cases in which this treatment has been given with satisfactory results and states that he has never seen any bad effects when the vaccine has been given early in the disease. A constant feature has been the drop in temperature, associated with general improvement in the patient's condition and slower pulse. In acute lobar pneumonia the respirations are slower *pari passu* with the temperature and pulse. In influenzal bronchopneumonia, if the respirations are rapid they are slowed with the fall in temperature, but in the serious cyanotic cases with slow respirations the rate is increased. These results, which are similar to those obtained for years in acute lobar pneumonia and other types of bronchopneumonia, can only be explained by assuming that the injection of an adequate dose of vaccine causes a satisfactory immunizing process. Considerations as to the possible harm caused by negative phases has deterred many from giving sufficiently large doses of vaccine, and in this connection the author reminds us that the doctrine of the negative phase was worked out in patients suffering from chronic localized diseases and not in patients with acute diseases. The former appear to be "sensitized" in a different manner and the explanation may lie in the different amount of infection in the two cases. Prophylactic injections have been given by the author to 230 persons, 100 million of streptococci and pneumococci and 50 million *B. influenzæ* being used as a first dose; after a week 90 persons received double these doses, and 140 received 200 million of each organism. In some cases a third dose of 400 million, and in a few a fourth of 800 million was given. The author points out that, as Wright has shown, vaccine therapy is highly successful when applied during the incubation stage; in fact, he considers this the best time to inject if it could be discovered in the individual. His observations have also led him to believe that moderately small doses of vaccine give some slight measure of protection and that an attack of influenza confers immunity for a limited period.

6. A Case of Bence-Jones' Albumosuria with Lymphocytic Leucocythemia.—Henry L. Heimann and C. Bawdon Wilson report a case in which there was a history of "albuminuria," shortness of breath, and cough for 14 days, with blood-stained expectoration. Patient was a married woman of 39 years of age, who stated that she had suffered from anemia for the past ten years and that eleven months previously her legs had begun to swell, but returned to normal size on resting. Her complexion was waxy and she looked wasted. The anterior abdominal wall was lax, there was ventral hernia, enlarged spleen and liver, and enlarged heart with "blowing" systolic murmur in mitral area. Nothing abnormal was found in chest. There was no albumin in urine but, on heating, a flocculent precipitate appeared which largely disappeared on boiling. Detailed examination of the urine showed that the case was one of Bence-Jones' albumosuria and this was confirmed by various tests. Further experiments were made with a specimen of urine and a saturated solution of ammonium sulphate, all precipitates giving the Biuret reaction, a phenomenon which, combined with the different increments obtained by coagulation, suggests that Bence-Jones' albumose is a complex of a number of albumoses. The total albumose excreted per diem was found to be 35.7 g. and the nitrogen content was equivalent to 1.09 g. per diem. The albumose therefore contained 3 per cent. of nitrogen, the unestimated N amounting to 0.32 g. per diem. Streptococci were found in large numbers and in pure culture in the urine, the strain proving very virulent to rabbits. No casts were found. Blood examination showed, Wassermann negative, r.c. 2,860,000, hemoglobin 59 per cent., color index 0.9, w.c. 8,000, lymphocytes 63 per cent. During the time patient was under observation, from July 22 to August 16, there was slight evening temperature; appetite was good but weight increased only 2 lbs. There were no deformities in spine or painful areas in long bones, no enlargement of lymph glands or metaplastic nodules. Heart condition improved and cough disappeared while in hospital. The chief features of the case were the presence of albumose in urine, with relative and total increase of small lymphocytes in blood, and absence of signs of malignant growths. The authors are inclined to regard the lymphocytic myeloma of Parkes Weber and Ledingham as identical with the lymphoid hyperplasis of the bone marrow described by Hopkins and Savory and to include the present case in this category. They point out that the enlargement of liver and spleen indicate hemapoietic disease They are tempted to ascribe the heart lesion to an endocarditis of streptococcal origin, and to speculate whether a pyogenic organism of this type can affect the bone marrow and lead to the production of a lymphoid hyperplasia. They are convinced that the case was one of albumosuria from the beginning, and that the albumin was really the proteose they found. It is possible that patient may have had true albuminuria during the periods of dropsy. Commenting on this case, Dr. Batty Shaw points out that the association of leucocythemia with Bence-Jones' albumosuria is of special interest, and that presumably the marrow has shared with other tissues in producing the picture of leucocythemia. If Bence-Jones' albumosuria were expressive of a pathological function of the marrow it should be more common in leucocythemia, especially in the myelocytic form. The coincidence is one which has not been met with before in his experience, nor is it much referred to in the literature. He concludes therefore that the association is purely an example of coincidence, or would be more frequently observed if greater care were taken in the examination of the urine in such cases.

British Medical Journal.

December 28, 1918.

1. An Address on the Treatment of Some Common Female Ailments. Frederick J. McCann.
2. A Clinical Lecture on Gonorrhea in Women. W. E. Fothergill.
3. Pulmonary Spirochetosis. A Preliminary Note on Spirochetes in the Sputum of Soldiers Admitted to Special Malaria Wards. Captain J. A. Thomson.
4. Note on the Epidemiology of Amebic Dysentery. H. M. Woodcock.
5. The Triangle Splint in the Treatment of Compound Fractures of the Humerus. Major Philip Turner.
6. The Position of the Operation for the Excision of a Cartilage in Military Surgery. T. E. Hammond.
7. A Clean Milk Supply. Sheridan Delepine.

3. Pulmonary Spirochetosis. A Preliminary Note on Spirochetes in the Sputum of Soldiers Admitted to Special Malaria Wards.—Captain J. A. Thomson examined the sputum of 79 military patients in a special hospital for malaria in England; in 39 cases spirochetes were found, and in 2 cases tubercle bacilli. While in charge of the laboratory, the attention of Captain Thomson was drawn to the frequent requests made by medical officers for examination of sputum for tubercle, and later, coming into direct contact with patients, he was able to study the conditions which had led to the suspicion of tuberculous infection. In addition to chronic debilitation, cough, and lack of progress towards recovery, many patients exhibited tachycardia after or without physical effort, shortness of breath after slight exertion, systolic cardiac bruits both at apex and at base—if not while at rest, after slight effort, low vasomotor tone, nervous debility, and fluctuating temperature a little above or below the normal line. The cardinal signs of malarial cachexia were not seen in these cases, the blood was negative both on admission and during stay in hospital, and there was no appreciable enlargement of spleen or severe anemia. However, most of the patients in question had already been treated with quinine. All were men invalided home from Salonica on account of malaria and all had spent months in hospital with occasional visits to depots. The author states that it was not easy to determine whether the men actually got fever at their depots, but in many cases they stated definitely that the attack was not like their old malarial attacks. Sputa varied in character, being in the majority of cases clear, jelly-like, and non-aerated; in a few cases it was purulent, and more often mucopurulent.

In three cases (all without tubercle bacilli) the sputum was blood-stained. Captain Thomson was able to continue his observations only for a short period of approximately three weeks, as he was then transferred to other duties. He is inclined to believe, however, that many men presenting the symptoms he had described get attacks of fever when exposed to the strain of camp life and that these attacks are frequently not malarial in origin. It is difficult to say how far the symptoms are due to organic degeneration of tissues produced during the acute stage of malaria. Such factors as the mental and physical strain of war service, and the possibility of trench fever or other infection, must be considered. At present, therefore, the author wishes simply to point out that chronic pulmonary (or bronchial) spirochetosis is present in many such cases. Whether it is a cause of the debility, or whether the debility merely affords favorable conditions for the development of the spirochetes, must be decided by further research. As far as the author could ascertain, the physical signs of the cases under consideration were of an indefinite character and there appeared to be no serious pulmonary lesions. The spirochete, which stains easily, has tapering extremities and gently undulating outline without spirals. It affects various attitudes, sometimes extended, often bent on itself; when numerous, the organisms appear entangled with each other. Captain Thomson's observations would seem to lend additional support to those of Castellani and Violle (see MEDICAL RECORD, January 11, 1918, p. 74).

Berliner klinische Wochenschrift.

November 18, 1918.

The Treatment of Tuberculosis of the Lymph Nodes by the X-Rays and Injections of Camphorated Phenol.—F. Hercher declares that among the many treatments, operative measures are alone to be rejected. At the present time the treatment of choice is by radiotherapy. When its use cannot be resorted to the writer gives the following indications based, for that matter, on Calot's teachings. When the nodes are soft but not broken down, puncture followed by an injection of 2 to 5 c.c. of a solution composed of acid carbol., 30 grams; camphor, 60 grams; alcohol, 10 grams. The injections are repeated every second to fourth day. About ten injections will usually be required. In cases of hard, solid nodes softening should be brought about by daily injections with the above solution, with or without the application of poultices. When fistulæ exist ½ c.c. of the solution is injected every fifth day.

Congenital Retraction of the Ocular Bulb.—A. Rados reports two cases in which the mobility of the right eye was intact. The left eye offered a slight external strabismus with a complete loss of adduction. This was replaced by a movement of retraction of the bulb with a palpebral ptosis. Some differences in detail of the movements of the eye offered by the two cases leads the writer to the following conclusions, namely, that in one case the insertion of the right internal muscle was too far back, and in the second this same muscle had two insertions, being attached at an unequal level behind the point of normal insertion.

Münchener medizinische Wochenschrift.

November 12, 1918.

Radiological Diagnosis with a Distended Abdomen; a New Method.—O. Goetze, in an important article illustrated by thirty figures, sums up the technique and results given by a new radiodiagnostic procedure consisting in distending the peritoneal cavity with oxygen or simply atmospheric air. This causes a sort of dissociation of the abdominal viscera which then become accessible to radioscopy and radiography. For the introduction of the oxygen, the writer employs a special apparatus or injects the gas through lumbar puncture needles. A practised hand will readily determine when the needle has entered the peritoneal cavity. The point of puncture should be selected at from three to five centimeters below the umbilicus in the middle of the left rectus muscle, or below the costal margin outside of the hepatic dullness. Insufflation of from two to three liters of oxygen is easily tolerated in all cases. As to contraindications to the procedure, they are all serious disturbances of the circulation and respiration, acute or adhesive peritonitis (danger of perforating the intestine), etc. The gas is evacuated after radiography has been done. This procedure has not influenced the temperature nor pulse in over ninety cases in which it was resorted to. The illustrations show the really remarkable results obtained, revealing as they do peritoneal adhesions, ascites at the beginning, neoplasms of the viscera or abdominal walls, various forms of hernia (among others the diaphragmatic, whose diagnosis is always a difficult, not to say impossible matter), enlarged mesenteric lymph nodes, changes in the abdominal aorta, caries of the spine and pelvic bones, abscess, the shape of the lower cardiac limits, pericholecystitis, renal calculi, renal changes, splenomegalia, pathologic conditions of the bladder (simultaneous intravesical and abdominal insufflation), growths of the uterus and adnexa, pregnancy, etc., are all examples for the use of this procedure. The writer announces another paper for the near future, the present one being merely a preliminary one.

The Diagnostic Value of the Cerebrospinal Fluid by the Procedure of Floculation in Cerebrospinal Syphilitic Lesions.—E. Nathan and R. Weichbrodt conclude in favor of the procedure described by Sachs and Georgi, which offers a remarkable accord with Wassermann in the majority of cases. The floculation method is, therefore, characteristic of syphilis; however, this equivalence with the Wassermann reaction is especially real in the case of the blood serum and is less so as far as the cerebrospinal fluid is concerned.

Deutsche medizinische Wochenschrift.

November 14, 1918.

The Treatment of the Pulmonary Complications of Influenza with Calcium and Neosalvarsan.—A. Alexander has noted, as almost immediate results of this treatment, a cessation of the progressive extension of the process and a subjective improvement and ease in the respiration.

The Genesis of Initial Serous Pleurisy in Tuberculosis.—H. Grau discusses the exact meaning of the terms primary or initial pleurisy as employed in a clinical sense. It is well known, however, that these terms are applied in the vast majority of cases to pleurisies which are primary in appearance only. From the viewpoint of pathology a tuberculous pleurisy is usually secondary to the development of one or several pulmonary foci. Radiography confirms this fact as it reveals changes in the apices or disseminated foci in cases of mild pleurisy at its beginning. This latter form of tuberculosis, which Grau considers as a dissemination by way of the circulation (interstitial form of the French writers) is responsible for the majority of the so-called initial pleurisies. It also has a hematogenous origin.

Unconscious Hearing in Psychogenous Deafness.—J. Göpfert describes a procedure which reveals the audition both in simulators and true psychopaths. The patient is made to sing with a piano accompaniment. Then the pianist changes the key (from one-half to one tone or more) and if the singer is not really deaf, he is carried along by his singing and changes to the key given by the piano. By playing in varying strength one may, by this means, estimate the degree of dysacousia in a subject having an incomplete deafness.

La Presse Médicale.

December 5, 1918.

Injections of Saccharose.—Lo Monaco, professor of physiological chemistry in the University of Rome, answers some of his critics in reference to injections of saccharose in tuberculosis. He claims that with his students and followers he has shown that injections of saccharose have two different actions on the secretions—in small doses they increase and in larger doses they diminish them. The first action is the result of stimulation of the glandular epithelium, while the second is due to constriction of the blood vessels. Thus small doses increase the secretion of milk in both women and cows, while large doses check hemorrhage.

In fact, this property is readily exercised by the local application of saccharose. In the Policlinic at Rome surgeons keep these sugar solutions always on hand. In certain operations attended by deep parenchymatous hemorrhage, this solution is depended on to arrest the bleeding. The latter are also used entirely in animal experiment. Injections of sugar have a proved value in hemoptysis, acting promptly after other hemostatics have failed. The action of sugar solutions and powder on wound surfaces has long been known. The first experience with tuberculosis was made with soldiers who received injections which were seen to check night sweats, expectoration, and other symptoms of the disease. Dr. Luccherini, who made these injections, chose the worst cases for the experiment. Another follower was asked by Lo Monaco to test the remedy on civil cases and the injection was tested on a variety of types. In six cases of advanced second stage the results were encouraging as the expectoration was brought to a standstill. In general, daily injections sooner or later tend to arrest secretion, although many days may elapse before such result can be obtained. That is, in some cases sputum is no longer produced as long as the injections are kept up. A few have gone 6 months, and one begins to wonder if the patients have been cured. This has not yet been shown beyond doubt, but that such result is possible appears from the fact that sugar, however given, has power over unhealed wounds. From Tunis comes a report of an Arab who expectorated an enormous amount, the total averaging at least three pints a day, who after 25 injections had only 10 c.c. of sputum per day and was anxious to return to work.

La Presse Médicale.

December 9, 1918.

Use of Dead Grafts in Surgery.—Nageotte and Sencert refer to the grafting of dead connective tissue into living organism. A year or two ago the claim was made that the former could undergo revivification under such circumstances and the authors have tested the problem on dogs. They worked largely with tendons, resecting these and inserting sections of dead tendon. At the expiration of a certain period the animals were sacrificed and the grafted tendon could in no wise be distinguished from the others in the limb. By the microscope it was quite impossible to distinguish where the graft ended, so absolute was the repair. The site of the former graft answered to all the tests of living substance. The next step was with grafts in the large arteries and in a series of animals pieces of dead carotid replaced resected portions. Not an animal was lost in this series of experiments. The surgical integrity of the vessel was secured but unfortunately the formation of thrombosis could not be prevented and the functional result was as bad as it possibly could be. By perseverance, however, the authors finally obtained an ideal result, which they attributed to perfection of technique.

Periodical Fever with Tibialgia.—Bourcart and Laugier describe one more type of fever seen quite recently on the Eastern front. Ordinarily it would doubtless have passed for malaria but observation led to the discovery of its autonomy. The initial attack was that of a classical secondary malaria. The temperature, however, did not run so high and the attack lasted longer. Then the periodicity was seen to be unlike that of any type of malaria, and the attacks seemed to taper off until permanent apyrexia set in. During the febrile crises tibialgia was a pronounced symptom and pressure over the crest was intensely painful. This symptom is described at length and is the most burdensome one of the disease. Some of the patients were already paludics so that it was easy to exclude malaria. Quinine was freely used in all cases but it was impossible to ascertain whether it controlled the disease and the impression received was that recovery was spontaneous. Since tibialgia is a prominent symptom of trench fever the latter affection will at once be suggested and a bacteriological study will be necessary to distinguish between them. No studies of this sort were attempted by the authors and they are silent as to louse transmission.

Correspondenz-Blatt für Schweizer Aerzte.

December 7, 1918.

Treatment of Influenza.—Massini, of Professor Stahelin's clinic, gives some matured observations on this subject after having expressed himself somewhat pessimistically. The only satisfactory method is to divide the disease into clinical groups. In all cases it is very difficult to determine whether the remedy has really been efficacious. He asserts that quinine had no prophylactic value even if pushed to deafness. Alcohol, tobacco and garlic have also been used in vain as prophylactics. The mask is burdensome to some and its value is in doubt, perhaps because worn too long without changing. Mask wearers have been infected, but none yet severely. Of many alleged abortive remedies no one has made good. The coal tar synthetics relieve symptoms and not a single instance of depression from these bodies has been seen. In the treatment of simple influenza two objectives are present, to mitigate the disease and to abort pneumonia. Of many remedies tested the only kind to receive any recognition are the colloidal metals and of these only electrargol and a new colloidal silver synthetic which contains acridin. This seems superior to all others of its type and is harmless, however injected. It has shown some negative results and is clearly no specific. Pneumonia can only be treated by old plans, as wet packs and the bronchitis kettle. The hydrotherapy is that of typhoid fever. The digitalis group of remedies was used not only after pneumonia symptoms had developed but even as prophylactic. This seems justified by the chance of sudden heart failure. Strophanthus and caffeine are also used and massage of the extremities will revive the pulse in some cases. Venesection, saline infusion, and the Murphy drip—in fact all known resources—have been drawn upon, but only too often the case progresses steadily to death without response to treatment.

El Siglo Médico.

November 30, 1918.

Data for a History of Influenza.—A contributor to *El Siglo Médico* who has been consulting an old journal file of 1837 found therein the following list of alleged outbreaks of the disease beginning in the XIV century. The first outbreak recorded was in Italy in 1323, with a recurrence four years later. A third outbreak occurred in the same country in 1351. There was an outbreak in France in 1387, a fact of especial interest when the disease is said by some never to have appeared in that country until two centuries later. In the XV century France had a series of epidemics in 1403, 1410, 1411, 1427, 1482. Italy was visited in 1428. These visitations may not have been global. Not until the XVI century do we begin to hear of pandemics affecting the whole of Europe. Such pandemics are mentioned for 1557, 1559, 1574 and 1580. In some or all of these Asia was ravaged as well as Europe. The affection, however, does not appear to have been serious, although one historian believes that Madrid was devastated, the people taking refuge in flight. The first appearance in England was in 1658 when many old people lost their lives. It appeared in that country again in 1676 and 1679. Middle Europe was visited in 1676, 1679, 1691 and 1695. In the XVIII century there were two pandemics in Europe, in 1709 and 1729. In the latter year 908 persons died in London in the course of eight days in November. In 1742 it ravaged Middle Europe. In this century it began to be known as the grippe. In 1762 one of the worst pandemics occurred in Europe. In the city of Breslau the total daily deaths reached 100. The last epidemic mentioned by the author occurred in 1782. It was at this period that the Germans named the affection Blitzkatarrh. Data as to the features of these epidemics are chiefly lacking but in some instances the public was attacked *en masse* during very cold weather and the late fall and early winter seemed especially selected for outbreaks.

Dysentery in Germany.—In order to illustrate the ravages of dysentery in Germany, it is sufficient to state that in one week last fall there were 2975 cases with 518 deaths.—*Pathologia.*

Book Reviews.

Infection and Resistance. An Exposition of the Biological Phenomena Underlying the Occurrence of Infection and the Recovery of the Animal Body from Infectious Disease. By Hans Zinsser, M. D.; Professor of Bacteriology at the College of Physicians, Columbia University; Bacteriologist to the Presbyterian Hospital, New York; Major, Medical Officers' Reserve Corps, U. S. A. With a chapter on "Colloids and Colloidal Reactions" by Prof. Stewart W. Young, Department of Chemistry, Stanford University. Second Edition Revised. Price, $4.25. New York: The Macmillan Company, 1918.

The second edition of Zinsser's book contains several revisions and additions which bring it pretty well up to date. For those who are not familiar with this work it might be said that the author has succeeded in writing a treatise on immunity and infection that can be read with profit by the practitioner of medicine as well as the individual more especially interested in this complex study. The problem of infection has become so inextricably interwoven with resistance of the animal body that we cannot think of infection as separated from the reactions which constitute the various forms of immunity. Such is the basis of Zinsser's work. The subject is discussed from every possible angle, both theoretical and practical. Naturally in a book of this kind there occurs a large amount of theory, but it is all well digested by the author who gives expression to his personal ideas on debated points. Several chapters are concerned with anaphylaxis, a topic that has recently assumed considerable importance in view of the extensive use of serums and biological products generally. The chapter on therapeutic immunization represents the most recent advances in this line. The reader will find much of practical value here. The newer work on serum enzymes and colloids is included, the latter being contributed by Prof. Stewart Young. We certainly can recommend this text and deem it a distinctly worth-while addition to medical literature. It is printed on excellent paper, in clear type, and contains a most voluminous and carefully arranged index.

Clinical Diagnosis A Manual of Laboratory Methods. By James Campbell Todd, Ph.B., M.D., Professor of Clinical Pathology, University of Colorado. Illustrated. Fourth Edition, Revised and Reset. Price, $5.00. Philadelphia and London: W. B. Saunders Company, 1918.

Todd's book is a well-known and popular manual of laboratory methods. The present edition has been enlarged and includes much new material. The particular features which appeal strongly to the average reader are its essentially practical character and the attractive manner in which the context is presented. Long-winded dissertations on the theoretical phases and histories of the various tests are omitted, but sufficiently lucid explanations of the rationale of these procedures are made to give an intelligent conception of their value and limitations. The manual contains ten chapters, with an introduction which is devoted to a common-sense exposition of the use of the microscope. A chapter is assigned to each major subject, as follows: Sputum, urine, blood, stomach contents, feces, animal parasites, miscellaneous examinations, bacteriologic methods, preparation and use of vaccines, and serodiagnostic methods. In Chapter VII, on miscellaneous examinations, the author takes up such topics as pus, peritoneal and other serous fluids, cerebrospinal fluid, animal inoculation, the mouth, eye, ear, parasitic diseases of the skin, milk, syphilitic material, semen, and the diagnosis of rabies. The chapter on bacteriologic procedures, while not exhaustive, is comprehensive enough for routine clinical work. The chapter on vaccines includes—in addition to the usual bacterins—tuberculin, the luetin test, and the Shick test for immunity in diphtheria. The last chapter, on serodiagnosis, is written by Prof. Ross C. Whitman of the University of Colorado. The basis of immunity is given in short form, following which are the methods and apparatus needed in performing the Widal test, the complement fixation reaction for syphilis, gonorrhea and tuberculosis, and the cobra venom test for syphilis.

An appendix is added which contains formulæ for staining solutions, a list of apparatus for office laboratory equipment, weights, measures, etc., and equivalent temperatures on the Centigrade and Fahrenheit scales. The author has drawn freely from standard works, particularly in the matter of illustrations, which are numerous and well adapted. We can recommend this book as a very useful and handy manual for the laboratory worker.

Medical Electricity. A Practical Handbook for Students and Practitioners. By H. Lewis Jones, M.A., M.D., F.R.C.P.; late Consulting Medical Officer to the Electrical Department in St. Bartholomew's Hospital. Seventh Edition. Revised and Edited by Lullum Wood Bathurst, M.D. (Lond.), Physician in charge of Electrotherapeutic Department, Royal Free Hospital (Officers' Section); late Chief Assistant Electrical Department, St. Bartholomew's Hospital. With illustrations. Philadelphia: P. Blakiston's Son & Company, 1918.

This book is a fairly exhaustive treatise on the subject of electricity as applied to the practice of medicine. Much of the text is the work of the original author, whose grasp of the problem was very wide. The first part of the book is devoted to a detailed consideration of the different forms of electricity and apparatus, with methods of application of the latter. Following this is a chapter on physiological data, such as electrolytic conduction, ionic medication, cataphoresis, resistance of the body, the action of electrical currents on living tissues, and lethal effects. A chapter on general therapeutic procedures discusses the chemical and physical basis of electrical treatment and the effects of x-rays and radium. Mention is made of the value of different forms of light rays. The author then takes up the use of electricity in various system diseases, nervous, circulatory, respiratory, digestive, genitourinary, joints and tendons, special senses, and skin. An appendix is added containing a table of electrochemical equivalents and relative ionic velocities. The work is extensively illustrated with cuts of apparatus and explanatory diagrams.

A Practical Medical Dictionary of Words Used in Medicine, with Their Derivation and Pronunciation, Including Dental, Veterinary, Chemical, Botanical, Electrical, Life Insurance, and Other Special Terms; Anatomical Tables of the Titles in General Use and Those Sanctioned by the Basle Anatomical Convention; Pharmaceutical Preparations, Official in the United States and British Pharmacœpias and Contained in the National Formulary; Chemical and Therapeutic Information as to Mineral Springs of America and Europe, and Comprehensive Lists of Synonyms. By Thomas Lathrop Stedman, A.M., M.D., Editor of the "Twentieth Century Practice of Medicine," of the "Reference Handbook of the Medical Sciences," and of the Medical Record. Fifth, Revised, Edition. Illustrated. Price, $5.00 net. New York: William Wood & Company, 1918.

The appearance of a new edition of Stedman's Medical Dictionary has come to be a biennial event, not only expected but welcome. The fifth edition, now at hand, has been enriched by the addition of many terms fresh from the battlefield: even such solecisms find place as P. U. O. and D. A. H., which the author admits to his lexicon with much the same gesture with which the young lady novice in the biological laboratory receives a crayfish to dissect. The new editions of both the Pharmacopœia and the National Formulary, appearing since the fourth edition, have necessitated considerable revision, which has been conscientiously performed. While we may not possess the imagination credited to the American humorist who spent many spare hours reading the dictionary, wondering how the characters would turn out, we can easily fancy the great help this volume will be to the medical writer who wishes to enlarge his vocabulary without sacrificing philological correctness. Against all hybrid words, crude and barbarous terms of all kinds, Stedman sets his face; while he does not impair the usefulness of his dictionary by omitting any such expressions which may be in common use, he nevertheless indicates their meretriciousness and strives to lead the medical writer into etymologically correct modes of expression.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held December 19, 1918.

THE PRESIDENT, DR. WALTER B. JAMES, IN THE CHAIR.

THE meeting was devoted to the presentation and discussion of "Some of the Medical Problems in Aviation."

The Field of the Medical Research Laboratory at Mineola.—Lieutenant-Colonel EUGENE R. LEWIS made this presentation, reading a brief paper by Lieutenant-Colonel E. C. Seibert which he afterward amplified. He said that the work of the Medical Research Board up to July, 1918, gave an insight into what had been accomplished in a field of medical endeavor that, while explored to a small extent in the past, yet at the period when the air service of our country was fast developing into a great military factor was, in comparison with other fields of military endeavor, almost an unknown quantity. Experience in the British and French service was being accumulated slowly, at the expense of many wrecked lives and broken machines. The air medical service of our allies did much to work out the means by which conservation of efficiency could be accomplished, and it was found when their air reports reached us late in September, 1917, that they had determined many of the causes that led to the rapid deterioration of air forces early in the war and had pointed out ways to remedy the conditions which were so seriously reducing the efficiency of their flying service. It was only needful to give the figures of three years to point out the results of the application of medical study to these problems. In the first year of the war the inefficiency in the flying service amounted to 65 per cent. In the second year this was reduced to 30 per cent., and in the third to 12 per cent., this inefficiency not coming from wounds or accidents, but solely from the stress of the service and the effects of altitude. The speaker said he would not discuss the physiology of altitude work, but would present a series of motion pictures showing the apparatus and procedure by which the classification of the aviator was arrived at and by which might be easily diagnosed the onset of those fatigue manifestations which had been termed staleness and which was so manifestly the fundamental basis of inefficiency which became so marked a feature of the Air Service of our Allies. The Medical Research Board was formed early in September, 1917. On a visit to Toronto in August, 1917, information was obtained concerning those effects that caused such lowering of efficiency in the British Air Service. This was made the basis of a report to the Chief Surgeon, A. S. S. C., and by his direction the Medical Research Board was recommended to the Secretary of War and authorized September 26, 1917. By this establishment of a board devoted entirely to research the problems of investigation were begun. The field was new, and as the possibilities for its exploration developed the interest became most absorbing. It was safe to say that while this work was started as a military need, the value of these researches to medicine would in some measure offset the loss of many in their usual fields of work. One method in particular might be called the rebreathing tank. This apparatus gave these conditions which developed circulatory strain in a short time and called forth all the factors of compensatory reaction by which such strain was met. In the ordinary stress of daily life there must be at all times stress in greater or lesser degree which was not met by the body powers in the form of compensatory reactions. This apparatus gave to medicine an exact measurement of the powers of compensatory reaction possessed by the individual, and by means of this knowledge certain latent deficiency in such power of reaction could be definitely determined. This was particularly valuable in cardiovascular research and more might be promised by future investigation. The Air Medical Service was peculiar, a study *sui generis*, as man had never had a chance to be exposed to the conditions encountered in the air before and in developing this service pioneer work had to be done. In providing a suitable air force there were three subdivisions of the work to be considered, namely, selection, classification, and maintenance. (1) *Selection.* In determining a man's fitness for the Air Service his physical equipment only was the responsibility of the Medical Corps; all other attributes of the applicant were up to the discretion of the Aviation Board. All ocular, hearing, upper respiratory, lower respiratory, cardiovascular, abdominal muscular, skeletal, and nervous examinations were exacting and comprehensive. The motion sensing ear function was incorporated into this selective examination because it was realized that the flier, above all others, should have the full complement of special sensory equipment. The high standards originally set up had been adhered to, as there was neither paucity of applicants nor reasons leading to the improvement of the service indicating advisability of change. (2) *Classification* was introduced in order to furnish flying instructors and commanding officers of training schools with definite information that enabled them to know that individuals allotted for certain types of flying would probably stand up physically in that training. The devising of practical tests for the examination of large numbers of fliers within a relatively short period of time was the problem of the Medical Research Board. When these tests had been devised, their rapid application to the service was accomplished by sending to the medical examining laboratory units and special equipment each capable of completing about twelve medical examinations a day. By demonstrations and lectures at the Mineola Laboratory intensive courses of instruction were given to specially selected medical officers recruited from those who had demonstrated their special aptitude for this air medical work and who had already acquired familiarity with the peculiar physical demands upon the flier by work in the examining units where selection was carried out. An additional division of the work of the Medical Research Board was the carrying out of various research work. In this purpose the Mineola Laboratory was extensively engaged and equipped with specially devised apparatus and provided with special research personnel in the various departments. (3) The *maintenance* of the physical efficiency of the flier was the practical application at the front and in the field of the products of all the foregoing work. Early recognition of beginning wear and tear incidental to the flying service was the keynote of conservation and reconstruction of skilled fliers. The signs of beginning physical deterioration were protean and infinite in variety and intensity. State of mind as well as condition of body were intimately involved. The flight surgeon came into being as the culminating development of the Air Medical Service and was sent to the airdromes at the front and the flying fields throughout the country with the sole mission of acquiring intimate knowledge concerning the individual flier's fitness for flying duty from day to day. To aid this flight surgeon he was provided with a physical director recruited from an athletic club or college and a specially trained nutrition officer. The flight surgeon's service was solely the maintenance of the man in the plane at his full efficiency. Prior to being sent to the field for active service the flight surgeon was sent to the Mineola Laboratory and given the most intensive and extensive training and instruction embracing all the various medical activities and developments covered in selection, classification, and research. This sent him out with the best possible equipment for his peculiar pioneer work.

Col. Lewis then gave a motion picture exhibition showing the rebreathing apparatus, the tests for visual and auditory acuity, and motor coordination, for the measurement of fatigue, color vision, and also a number of psychological tests, as for steadiness, association of ideas, memory test, reaction time to vision and hearing, etc.

The Practical Value of Ear Studies.—Major LEWIS FISHER, M.C., U. S. Army, gave this demonstration, which was illustrated by motion pictures. He discussed the value of ear studies in general medicine and the relation of the ear to aviation. The reason he called attention to the ear was because in recent years they had come to realize that the internal ear was not simply an organ of hearing, the special auditory sense, but that it was the organ of another special sense, namely, the motion sensing function. This function of the internal ear was quite a mystery until recently, but when

it was recognized that the middle ear was a special sense its value was recognized immediately. A medical examination to determine a man's fitness for a special work depended upon the examination of his special senses, and if there was another special sense to be examined it afforded that much more help. In seeking for methods of examination of the various special senses the attempt was always made to imitate the physiology of that sense. This same principle had been applied in the effort to devise methods for testing the motion sensing function. Many accounts of airplane crashes given by pilots emphasize dizziness or vertigo, and hence the organ responsible for dizziness when the individual was whirled around, namely, the ear, was made the subject of special investigation. An apparatus was devised which reproduced all the various stunt evolutions of the airplane and by which it was possible to simulate all the subjective effects of the actual stunt. Since being whirled in an aeroplane produced identical effects with those resulting from being whirled in a laboratory device, such as the turning chair, they were furnished with an accurate and convenient means of studying the various vertigo effects of ear stimulation produced by evolutions in the air, and the deductions derived from this experimental stimulation were true and applicable to stunt flying. The facts gleaned were so exactly in accordance with our knowledge of the ear as a "motion sensing" mechanism that they were simply corroborative of certain well-known otological principles. The speaker then described the semicircular tubes as canals containing fluid so placed that they were at right angles one with another. Because of this arrangement no change of position of the individual was possible without producing some movement of fluid on one or more of the canals. Movement of the fluid in these canals sent messages to the brain which were there interpreted as body movement. When an individual was whirled, whether in a laboratory apparatus or an aeroplane, there was produced a circulation of this fluid in certain definite canals or planes. If the turning was suddenly altered or stopped, or if the aeroplane came out of a rotating maneuver, the fluid in the canals continued to move in its former plane by sheer force of its momentum. The circulation of the fluid by momentum was interpreted by the brain as body movement; but not being in accordance with the fact, the body having ceased to revolve, it constituted vertigo or dizziness, and was disturbing to the individual. Each semicircular canal, if stimulated, produced a vertigo in its own plane. Therefore, with the individual in an upright position, stimulation of the horizontal canal was much less disturbing or disabling than stimulation of the vertical canals. When a disturbing or disabling vertigo was induced in the vertical semicircular canals, the effect could be greatly ameliorated by bringing the vertical canals in a horizontal position, which could be done by bringing the head forward. Thus by experience the aviator learned to adapt himself to the changed position through practice. By the use of laboratory apparatus he avoided the danger incident to acquiring this dexterity by actual flying.

Major Fisher gave a motion picture demonstration explaining the relation of the vestibular apparatus to eye movements, nystagmus, and vertigo, and showing the pathways of communication from the auditory and vestibular apparatus.

The Ear and the Aviator.—Captain H. W. Lyman made this presentation, which was illustrated by motion pictures. He asserted that of all the problems in aviation none was more important than sensing motion. It was absolutely necessary for the aviator to have his motion sense. On the ground a man could get along even though his motion sense was impaired; as, for instance, the tabetic could walk by the aid of his eye, and the blind man could get along by means of the tactile sense; but the man in the air changed his position so constantly and so rapidly that it was essential that he have his motion sense unimpaired. He must be 100 per cent. perfect if possible, and for that reason the examinations of the special senses had been very strict. The first film to be exhibited was concerned with deaf-mutes in actual flight. As a rule the deaf mute was without vestibular mechanism. The fact that a deaf mute did not hear did not necessarily mean that he was without motion sense, because the cochlea might be destroyed without destroying the static mechanism. However, as a rule, in deaf-mutes the motion sense was destroyed. A comparison of the motion sense of deaf-mutes and that of normal individuals was made by having the deaf-mutes actually fly. They were supplied with paper and pencil and recorded their conception of the changes in posture that they experienced during flight, and these were compared with the actual course as recorded by a good aviator whose motion sense was normal. The films illustrated this comparison and showed that the records of the deaf-mutes were surprisingly inaccurate, and that they were unable to detect to any extent the movements of the plane. The second film showed an interesting piece of apparatus known as the orientator. In its construction it was like the cockpit of an aeroplane, suspended in concentric rings, after the manner of a ship's compass. The movements or changes of position were possible in all directions except actual forward progression and were governed by the individual seated in the machine and using a set of controls like those of an aeroplane. Strapped in this machine he was able to execute any evolution, at any desired speed for any number of turns, and thus acquire in absolute safety a tolerance for the disturbing effects of vertigo induced by the various evolutions, instead of acquiring this tolerance and knowledge by actual flying with its consequent crashes and loss of life. In this apparatus the student soon learned to orientate himself in new and rapidly changing positions of the body and to perform properly the complicated acts necessary to trol an aeroplane. A man instinctively learned to drive an aeroplane very much as he learned to drive an auto or to skate. The flier instinctively adopted means which at all times kept the vertigo in a horizontal plane—procedures based on sound otological principles. The greatest usefulness of the knowledge that stunting was an ear problem lay in the fact that the flier might be educated to disregard the vertigo effects of his stunts and by means of the orientator acquire a tolerance to evolutions to a large degree impossible in the air.

Dr. George D. Stewart said he confessed that he was instructed, interested, and very much amused by the presentations of the evening. He was much amused by the demonstration of the orientator. He had been instructed by the lucid description and graphic method of demonstration of the posterior longitudinal bundle —a structure he had always found difficulty in describing to his students. After thanking the gentlemen for having given them such a very interesting evening, Dr. Stewart said he would also like to thank Dr. James, as his term of office as President of the Academy drew to a close, for having given them such good meetings, he had kept—he would not say the good wine, since all wine was good—the best wine until now.

Dr. R. C. Myles spoke briefly of the great value of the work that had been presented, in that through it many lives were saved that would otherwise have been sacrificed while learning the art of flying. The work done at Mineola and the procedures carried out there could not be improved upon.

Dr. S. Adolphus Knopf asked if any observations had been made with reference to the effects of flying and high altitude on the pulmonary system.

Colonel Lewis replied that they had not much to report on that point, for if one stopped to think it was evident that whatever effect the high altitude had as a result of barometric pressure was transitory. Even if the aviator ascended to a height of 20,000 feet it was only for a few minutes, and it was obvious that under the conditions no examinations could be conducted that would carry much weight, and one could not expect much organic change as a result. There were, however, cardiac and vascular phenomena when a man exceeded the limit of his endurance, as acute dilatation of the heart, just as occurred in running when a man exceeded his limit, but they were also transitory unless they went to such an extent as to be fatal, but they had not seen any fatal results from such causes.

Dr. Louis Livingston Seaman related some of the experiences of a party of which Dr. Senn and he were members, who went to the top of the Andes, 18,000 feet above sea level. All of their party were seriously af-

fected after they had ascended 9,000 feet in six hours. Later they all became seasick, and two of the party were so seriously affected that this experience was thought to have hastened their death. These, however, were not young men like those engaged in aviation.

Dr. WILLIAM P. NORTHRUP congratulated the speakers of the evening on the excellence of their delivery as well as the instructiveness of their presentations, and spoke enthusiastically of the cinematograph as an aid in teaching, urging its more general adoption by the younger men who were engaged in teaching.

Annual Meeting, Held January 2, 1919.

THE PRESIDENT, DR. GEORGE DAVID STEWART, IN THE CHAIR.

Report of President.—Dr. WALTER B. JAMES submitted this report, in which he stated that during the year 1918 all the usual activities of the Academy had gone on without interruption. The number of readers in the library had been somewhat fewer than during the few years preceding, due to the large number of the profession absent on military duty, but the falling off had been less than would have been expected. The war shortage of medical books and journals had continued and this had given rise to a considerable balance in the hands of the Library Committee, which would be expended when communication with Europe again became normal. In spite of the war, none of the stated meetings had been omitted, although a resolution of the Council permitted this to be done. An attendance at these meetings quite equal to that of other years testified to a growing interest in them on the part of the medical public. The project of building a fireproof addition on the adjoining lot had necessarily been held in abeyance through the war. The plans, however, were now being completed in detail, and the specifications were expected to be ready by the end of this winter, so that as soon as building costs and conditions made it possible work could be begun at once. The opportunity of having their dues remitted by those Fellows who were absent from their practice on national service had been largely availed of, but, in spite of this considerable diminution of income, and of certain unusual expenses, the academy had been able to meet all its obligations and to continue its operation throughout the year without deficit. The Academy Extension Fund was not quite adequate to build and equip the proposed addition, and it was hoped that the Fellows would subscribe additional funds to make this possible.

Report of Council.—Dr. WILLIAM L. STOWELL presented this report in which it was shown that the regular meetings of the Council had been held and the business of the Academy transacted. At the January meeting it was resolved to remit the dues of such Fellows as might be absent in the national service, and this privilege had been availed of by a large number. At the February meeting the Council endorsed the creation, on the part of the Pediatric Section, of a Committee on War Time Problems of Childhood of the New York Academy of Medicine. The Sections had in some cases been excused from having their regular meetings. The Council had had regular reports from the Public Health Committee covering its various activities and was pleased to find this committee occupying a constantly more and more useful and indispensable position in the community.

Report of Trustees.—Dr. W. GILMAN THOMPSON and Dr. NATHAN E. BRILL submitted this report, which stated that the Trustees had held their accustomed stated meetings during the year and, in addition, had held a number of special meetings for the transaction of the business of the Academy. Owing to the exigencies of the war conditions, there had been minor administrative difficulties. The loss of the Academy's income through remitting the dues of the Academy members while in war service had been offset by rigid economy and by additional funds which had been derived from the income of the Rudolph A. Witthaus estate. The most important financial transaction of the year had been the lease of the property of the Academy in the rear of the main building, with option to purchase within five years, under conditions which are believed to be very satisfactory to the Academy. Plans for enlarging the Academy's facilities through rebuilding upon the lot owned by the Academy and adjoining it, had not been lost sight of, but were necessarily suspended, owing to the inflated cost of all building materials during the year.

Report of Committee on Library—ROBERT J. CARLISLE presented this report, in which attention was drawn to recent reports of this committee as to the effect of the war on the Library's activities. The total number of readers was about 6000 less than in 1916, when the largest number of readers was recorded, 27,203. The total for the year was about the same as for the year 1912. In 1916, the number of volumes added was 3911, while for 1918 it was 900 less. There had not, however, been a corresponding reduction in the number of pamphlets, there having been more of these than for any year since 1912. It had been impossible to obtain the German and Austrian periodicals complete since 1914. A number of the 1915 journals had been accessioned, some through gifts of individual Fellows. There were at present some 1500 periodicals overdue. It was evident that the committee could look forward to a time, very rapidly approaching, when the former congested and overcrowded condition of the Library would again exist. The Library Committee requested an appropriation of $5,000 to cover Library expenses for 1919. The detailed report of the committee showed that from December 13, 1917, to October 31, 1918, 2,697 new books had been added to the Library.

Dr. WALTER B. JAMES, in relinquishing the Presidency of the Academy, said it was his duty to hand to his successor his office which it had given him so much pleasure to occupy during the past four years. It was difficult to do this without mentioning the loyalty of the officers and members of the Academy, which had made his term of office a constant pleasure. It was perfectly fair to say that he envied his successor because the duties of his office brought him into such close association with the members of the profession. The world was too busy looking to other things to give much attention to what was happening in medicine, but the members of the profession were intent on what was going to happen in the future; all believed that the science of medicine had a tremendous future ahead and the Academy of Medicine stood for all the greatest aspirations of the profession both scientific and spiritual and should, therefore, have a great part in that future.

Address of the President.—Dr. GEORGE DAVID STEWART, in assuming the duties of his office said that he would promise to make his remarks very short, that he meant to content himself with calling attention to the increased responsibilities of the teacher and practitioner of medicine in America today. Over a large part of the civilized world there was chaos, because the formulae of civilization had failed. This failure was nothing new, but had occurred again and again through the centuries; in England, in the reign of John, when the nobles wrested from their monarch the Great Charter; again in England, in the reign of Charles I, when it was necessary to separate that monarch from his head, and in France, in the great Revolution of 1789. In the French Revolution, civilization had broken down despite the fact that Roman law and Roman civilization had been introduced into France prior to the Christian Era, and had held sway there for several hundred years. The French believed they were struggling against the monarch. The truth was that people and monarchs were both victims of a vicious system; there had been a lamentable failure of education and of all the agents of civilization, which might or could teach the people how to ballast their Ship of State, or what course they were in the future to steer. Then they invented a new and specious formula, "Liberty, Equality, Fraternity," and the people waded through the bloody years of the Terror to prove that all men were born free and equal, or, rather, to prove that the proposition could not be proven. The same thing was happening again. We were witnessing this last colossal failure of civilization, and, as Henry Adams had said, political progress seemed to be only by assassination. Once more we were groping for ideals. "Pacifism" and "The League of Nations" were the new formulae that were being offered to us. To the pessimist they seemed much

like "Balance of Power," and few even of the optimists dared to hope that eternal peace could be achieved. When it came truly the millennium would have arrived, the lion might lie down with the lamb, and the child play on the cockatrice den. Until that event, even if we could not attain perfection, we were all the better for making the attempt just as the teacher might ennoble his soul by an effort which lulled his hearers into somnolence. The standards of medicine had always been high. Medicine had always borne on its banner an inscription to the "brotherhood of man," and it was our duty in this trying time to see that no lowering of these standards was permitted. During the war medical education in the warring countries had suffered tremendously, and on the profession of America had fallen, whether they wished it or not, great responsibilities. In keeping up these standards, indeed, in elevating them to higher levels, the New York Academy of Medicine had borne a worthy part, for which altruistic work the officers and committees of the Academy deserved hearty thanks, particularly the Public Health Committee, and the retiring President, Dr. James. Dr. James, by his vigilance had prevented any lowering, even under war conditions, and by his industry and influence had provided intensely interesting meetings, thus spreading the message of the Academy afar. In concluding, Dr. Stewart said he wished to thank the members of the Academy for the courtesy of electing him President; he would enter upon his duties with a haunting fear that he might not prove a worthy successor of Dr. James, and he would not dare the challenge, did he not feel that he could turn for aid and counsel to Dr. James and all the other officers and members of the New York Academy of Medicine.

Experiences of a Surgeon in the War Zone.—Colonel GEORGE E. BREWER delivered this address in which he related in an informal way some of his experiences in the war zone, discussing certain of the medical problems and activities and also the progress of surgery in the treatment of battle casualties. He said it was perhaps unnecessary to remind his hearers that the wounds of battle differed in character, extent, multiplicity, and in their mutilating effects on account of the extensive destruction of tissue and deadly infections, from the wounds met with in civil practice. Of all the disabling and invalidating sequelæ of wounds, infection headed the list, and, therefore, how to combat infection was the first problem that confronted the military surgeon. To give some slight idea of the progress in this respect, he recalled two mental pictures which had made a deep impression on him. In April, 1915, he had had charge of a small military hospital midway between Paris and Soissons, which was sometimes conducted as a base hospital and sometimes as a casualty clearing station. It was filled with every type of battle casualty. On his first visit to this hospital the impression made was one of almost universal infection of a virulent order. Up to that time, certainly, military surgery had not been able to cope with the type of infection observed on the battle front and as a result, the number condemned to a life disability or chronic invalidism was great. The impression which he compared with this was that obtained when he went to France a second time with the Presbyterian Hospital Unit and was placed in charge of British General Hospital No. 1. When he made his first visit to this hospital he saw the same types of battle casualties as before, but a very different picture was presented. Instead of the men lying listless and pallid and exhibiting all the evidences of sepsis, many of them were sitting up, looking bright and interested in what was going on about them. They presented a striking contrast to those seen on his previous visit, and he was simply astounded at the number of wounds absolutely free from infection. There were, of course, a large number of infections, but these were largely being controlled by the methods in use. Nearly every day cases were brought to the operating rooms to be closed by secondary suture. Shortly after this he spent a few days in the Belgian hospital conducted by Dr. DePage and there was practically no infection observed in the cases in that hospital. Another hospital which he visited had been unusually successful in treating compound fractures and in avoiding the anaerobic infections. Colonel Sinclair was particularly successful in treating compound fractures, especially those of the thigh. On the morning of his visit to his hospital, there were about 152 cases of compound fracture of the femur, all being treated by the Carrel-Dakin method, carried out with the most complete and perfect technique. With the exception of a few very recent cases and those with residual osteomyelitis, all were practically free from infection. He asked what was the shortest time that elapsed from the time the men received these fractures of the femur until they could be on their feet. Several men were called and questioned. These men simply wore steel braces and used canes. One said he was on his feet in six weeks and three days; a second said six weeks and five days, while a third said a little over seven weeks. These results seemed unbelievable, but they served to give some idea of the difference in the results obtained during the early years of the war and those seen in 1917.

It was singularly fortunate that our men entered the war after these results were acquired. What was the cause of this change? Three things of importance. First, both the French and the British realized that their original plan of having the major surgery of war carried out at base hospitals was wrong, that by the time a man reached a base hospital infection had a firm hold and that if good results were to be obtained the men must be operated upon as soon as possible after they received their wounds. When this fact was recognized they decided to push their operating hospitals up as near to the front as was possible and to man them with the best surgeons. The second important factor making for success was the perfection of the Carrel-Dakin technique. That method, if properly and thoroughly carried out, with carefully trained assistants, constituted one of the most important advances made in antiseptic surgery of the century. When anyone said that the Carrel-Dakin method was no better than other methods, it might safely be assumed that the method in that instance was not being properly carried out. The effective application of the Carrel-Dakin method required a great deal of time, many assistants and the most assiduous attention to technical details. The third most important factor was the recognition that there was a golden period between wound contamination and wound infection, generally estimated as the first twelve hours after injury, when the wound could be sterilized by operation—the so-called *débridement*—which meant cutting away all damaged and devitalized tissue and removing it with the foreign body and all infected material. If this could be accomplished, the wound, under favorable conditions, might be closed by primary suture. For this three conditions were essential: early operation, expert surgery, and a period of absolute quiet during convalescence. If these conditions were not possible delayed primary suture might be practised, namely, débridement, generally packing the wound with sterile gauze, and later closure, after four or five days if the wound remained clean, and the bacteriological examination was satisfactory. In cases in which the wound could not be thoroughly sterilized by operation, the injured tissue was removed as completely as possible as in the two preceding types of wounds, but in addition the Carrel-Dakin treatment was instituted. When later the condition of the wound was satisfactory as shown by the appearance and bacterial count, it might then be closed and one could hope for a satisfactory secondary union.

When our medical men first went to France there was the most cordial cooperation on the part of the British Medical Department and the French Service de Santé. They permitted our surgeons to go into their hospitals to observe their methods, and to work with them. All of this was most fortunate for our soldiers, for it was most important that our surgeons should gain experience in war surgery in hospitals already in operation. Colonel Brewer related that at first he was connected with an evacuation hospital in a quiet sector, Major Gibbin of Philadelphia, being in charge of another. Here they had a comparatively small number of casualties, from 10 to 30 a day, and when a raid occurred they might have from 100 to 150. They had splendidly equipped surgical teams and their results were exceedingly satisfactory. There was a

friendly rivalry between these two hospitals. In the first eight weeks, Hospital No. 2, of which the speaker had charge, handled 500 to 600 battle casualties, largely from high explosives, comprising all kinds of fractures, abdominal wounds, sucking chest wounds, brain wounds, and the various types of soft part wounds. Of these, 206 were closed immediately, and 93.3 per cent. healed without a drop of pus or a particle of infection. The second type of wounds in which they did not attempt primary closure were lightly packed for a certain number of days and closed by delayed primary closure. Of these, 100 per cent. healed without infection. In the third group where they knew infection was present, the Carrel-Dakin treatment was instituted immediately and secondary union was attempted; of these, 85 per cent. healed without suppuration. Major Gibbin reported almost identical results. This success was attained because of three conditions:

The patients were treated early; they remained in the hospital during the first eight or ten days after operation, and the surgeons who attended them were able and experienced. No matter how well trained a surgeon was in civil practice, he must be trained in a military hospital before he was fitted to do military surgery. A man must know just how far to go in débridement in each case, and this could be learned only by experience. To illustrate, Colonel Brewer said he had seen several cases of gas infection and thought he knew how to recognize it by the classical signs edema, odor, and subcutaneous emphysema, but if one wished to be successful in combating gas infection he must recognize it long before these signs appeared. On one occasion, he stood near a table where a young British surgeon was about to do an amputation of a leg. It looked to him like an ordinary compound fracture and he asked the young man why he proposed doing an amputation. The reply was, because of gas infection. He asked the young surgeon if he thought it was gas infection. The surgeon replied that he did not *think*, he *knew*, it was gas infection. He explained that he knew he was dealing with gas infection because the muscle had lost its color, being a brick red instead of a carmine—because the muscle fibers when cut did not contract, having lost their contractility, and because of the difference from the opposite side demonstrated by percussion. America had been fortunate in having had groups of surgeons in the evacuation hospitals who were not only skilled surgeons, but who had had experience in the treatment of battle casualties. Our Medical Department had its first great test at the battle of Chateau-Thierry, where we had eight divisions in the lines and our men were pushing back the Germans against the most stubborn resistance utterly regardless of the great number of casualties. Happily the third condition for the attainment of good results was present, that was that many of the best surgeons in America were doing the work, and that explained the success that was attained in spite of the delay in getting the wounded. He felt that under the conditions met with during and after the battle of Chateau-Thierry, there would be much gas gangrene, and in order to gain information on this point he had visited 26 base hospitals to ascertain what their results were in this respect. Much to his surprise and greatly to his gratification, the results showed not disaster but brilliant success. In three hospitals there was not a case of gas gangrene. One hospital had eight or nine cases, and a few had three or four cases; in all, there were about 30 cases of gas gangrene with 11 fatalities. As to the cases of delayed primary closure, they varied from 10 to 60 per cent.; about 30 per cent. could be closed within two or three days. The infected cases varied from 20 to 90 per cent., the average being 70 per cent., and of these about 85 per cent. were closed within six weeks by secondary suture. Although there was much delay in getting the casualties, the results were remarkably good, and for this there was only one explanation, and that was the good surgery at the front.

What was true of the Medical Corps after the battle of Chateau-Thierry was also true of the battles of Saint Mihiel and the Argonne. Colonel Brewer said that in his sector there were a great number of evacuation hospitals and surgical teams, and though there were many deaths and many amputations he felt that this was because of the conditions of war, which made it absolutely impossible to get all the wounded men to the hospital in time to save them. Many fell in shell holes and were not found for several days, and these men were hopelessly infected. There were also many bad compound fractures which it seemed impossible to clean up. At the battle of Chateau-Thierry the Americans had at first three large evacuation hospitals well back from the lines, because an evacuation hospital had to be situated at a rail head so that it could be evacuated rapidly. The roads were badly torn by shell holes, in spite of the large force of men kept busy all the time repairing them. There was also an enormous amount of traffic so that it was exceedingly difficult for ambulances to get through, and, consequently, there was great delay in bringing in the wounded, and as the number of casualties was very large, considerable time elapsed before the wounded received attention. The results of a rather far-reaching investigation made by the speaker allowed that the average time before the wounded received surgical attention was something like twenty hours. Another unfavorable feature with which they had to contend during this period, was the great congestion; at times every bed was filled, and there would be two or three hundred patients waiting, so many that in some instances they had to be turned over to base hospitals. The surgeons worked day and night and were constantly speeded up by being told how many were in urgent need of surgical attention. Under such conditions it was impossible for the surgeon to give the deliberate attention to each case that he could give in a quiet sector.

Colonel Brewer then spoke briefly of a phase of the war which he said was not strictly professional because he had so often been asked the question, "Do you think the German airplanes deliberately bombed hospitals?" On this subject he would not express his opinion, but would merely relate his personal experience, and his hearers might judge for themselves. In August, 1917, he was serving at a British front casualty clearing station. In this area they had a large number of surgical teams and many casualty clearing stations, several grouped together for the purpose of simplifying their administration, and because it was easier to deliver the ambulances. There were in the vicinity 15 such hospitals, each with 1000 or more beds. Some of these hospitals had been established for two years, many for a year, and none for less than six months. The Germans had photographed every inch of the territory just as we had photographed the area back of their lines. They knew where every hospital, every ammunition dump, every house was located and what it was. Every night a number of airplanes passed over the hospitals and no one thought they would attack them, as there were many legitimate targets in the neighborhood. On the night of August 17 they heard an airplane that seemed to be flying rather lower than usual. Suddenly they heard a terrific explosion, which was followed by a shower of debris. This bomb struck the officers' cook house, killing the night cook, wounding a medical officer and three nurses. On the same night three bombs struck in the center of another casualty clearing station, resulting in 66 casualties. Two or three nights after this four other evacuation hospitals were struck, causing numerous casualties. Two nights later their hospital was again bombed, killing 13 and wounding 35. In another hospital in which Dr. Darrach served there were 75 casualties. In still another group four hospitals were bombed on three successive nights. Within five days there were from three to four hundred casualties in the nine hospitals bombed. It was an insult to a man's intelligence to expect him to believe this was all accidental. Colonel Brewer related a number of very exciting and thrilling incidents in connection with these air raids on hospitals, and paid a tribute to the courage and self control of the personnel of the hospitals. In one instance in which they were compelled rapidly to evacuate, the nurses piled into the trucks that were to take them away singing as they came out. He had seen no instance in which any of the hospital personnel, medical officers, nurses, or enlisted men had failed in any duty, nor had he seen a single instance of lack of self control under these conditions.

SECTION ON SURGERY.

Stated Meeting, Held December 6, 1918.

DR. SETH M. MILLIKEN IN THE CHAIR.

Perforated Duodenal Ulcer.—Dr. EDWARD C. BRENNER reported a series of 11 cases of perforated duodenal ulcer, four of which showed something atypical as to history and signs. One case simulated intestinal obstruction, with very marked distention one hour after perforation occurred, evidently from cribbing of air and expelling it through the perforation. A second atypical perforating case simulated appendicitis with a diffuse peritonitis. A third showed the symptoms of general peritonitis suggesting pelvic origin. A fourth simulated appendiceal abscess. The operative measures advocated by the speaker was a simple closure without primary gastroenterostomy. All the patients in this series were examined before discharge after a six hour barium meal for gastric stasis. Two presented this condition, and in these a secondary gastrojejunostomy was done four weeks after the closure of the ulcer. These patients all remained well over periods of time ranging from two months to six years. The speaker also advocated immediate operation regardless of the degree of shock as the shock was relieved by opening the peritoneal cavity, thus relieving the tension. Drainage was not indicated if the operation was performed within twelve hours after the perforation and the peritoneum was not injected. The time of the operation in this series averaged 10.7 hours after the perforation, the shortest time being three hours and the longest two weeks. In only five cases was there a history of vomiting; the average temperature was 100° F.; pulse 90; white blood cells 15,000, and polymorphonuclears 85 per cent. Eight cases were cultured and all were reported sterile. Only two cases were drained. Obliteration of liver dulness was present in seven of the cases, absent in two, and in two this sign was not noted. This was a good differential point.

Duodenal Obstruction with Duodenojejunostomy.—Dr. EDWARD L. KELLOGG presented the following cases which were selected as illustrating variations in the problem of duodenal obstruction. In each in addition to the history and physical examination the diagnosis was based on complete data including the thread test, gastric analysis, urine analysis, motor function of the stomach, and *x*-ray examination. The pathology found at the time of operation was described.

1. *Duodenal Ulcer* (2 cases).—The first of these patients gave a history of having been operated on for appendicitis two years ago. Since that time the patient had had frequent attacks, with intervals of freedom from symptoms. The clinical diagnosis in this case was duodenal ulcer, dilated duodenum, pylorus not obstructed. At operation the cecum was found moderately dilated and adherent to the appendectomy scar, but not prolapsed. A small indurated ulcer was found just beyond the pylorus. The duodenum was much dilated. Just beyond the duodenojejunal junction the jejunum was narrowed, thickened, and there were light adhesions at this point. A duodenojejunostomy was performed, after which the patient made an uneventful recovery and had returned to work, being entirely free from all symptoms for a period of fourteen months. He had gained in weight from 129 to 142 pounds. This seemed to be the first case of duodenojejunostomy for the cure of duodenal ulcer (October 4, 1917). This operation seemed preferable to gastroenterostomy since the latter procedure must have been supplemented by pyloric exclusion and the obstruction of the duodenum would have remained. The *x*-ray examination in this case failed to demonstrate the dilatation of the duodenum. The second patient gave a history covering the past five years. The *x*-ray examination showed the presence of duodenal ulcer in this case. At operation the duodenum was found to be dilated presenting four fingers below the transverse mesocolon. There were adhesions to the gall-bladder. A crater-like depression was felt in the duodenum at about the junction of the first and second portions. The head of the pancreas was indurated and closely adherent to the duodenum at this point. The appendix was retrocecal, very long and closely bound down by adhesion. The procedure employed in this case was duodenojejunostomy, appendectomy, and plication of the cecum and ascending colon. The patient made an uneventful recovery, was entirely relieved of pain but had some intestinal fermentation. The *x*-ray in this case failed to demonstrate dilatation of the duodenum and no mention was made of dilatation of the cecum, although both conditions were evident upon physical examination.

Persistent Bile Regurgitation.—This patient gave a history of stomach trouble during two and one-half years. For this trouble hysterectomy was performed in 1915, followed by medical treatment for eight months. Cholecystostomy was performed in March, 1917. No stones were found and no improvement followed. This patient complained of burning in the stomach, esophagus and tongue, very severe, and every week or two vomited large quantities of bile. In the interim she frequently regurgitated it. The clinical diagnosis was intestinal adhesions, dilated duodenum with pylorus patulous or non-resistant, hyperesthesia of the esophagus. The *x*-ray examination showed a duodenal ulcer. A laparotomy was performed which revealed the omentum adherent to the scar of the old laparotomy and adhesions of the hepatic flexure of the colon involving the gall-bladder and duodenum. The duodenum was dilated, extending three fingers' breadth below the attachment of the transverse colon when the latter was drawn upward into the wound. The pylorus was dilated. No ulcer was demonstrated. The adhesions were divided and a duodenojejunostomy performed. The patient had ceased to vomit and regurgitate bile and was otherwise greatly improved. This was the type of duodenal obstruction with incompetent pylorus, shown by the regurgitation of large quantities of bile without pain.

Symptoms of Distention.—This patient had been operated on three years before for a floating kidney, the gall-bladder was inspected and found normal, and the appendix was removed. The symptoms were relieved for two months, after which a series followed of four attacks characterized by severe colic-like pain across the upper abdomen extending up under the sternum, and a more constant steady pain due to distention. During these attacks the temperature was subnormal; mental depression was marked; constipation was stubborn. Physical examination showed the abdominal walls relaxed; diminished resistance in the right iliac fossa; the right kidney could be palpated; there was gurgling and splashing in the cecum; the stomach extended from the fifth rib to the navel. The dilated duodenum could easily be made out by percussion. The pressure paradox (Hayes) was present. The *x*-ray examination showed adhesions of the duodenum which probably involved the gall-bladder and the terminal portion of the duodenum, obstructing this structure when the patient was in the upright position, and causing dilatation of the duodenum, ptosis of the cecum, and a probable band or membrane constricting the beginning of the ascending colon. In view of the severity of the attacks surgery was recommended at once. At operation the cecum was found markedly dilated and prolapsed into the pelvis. The hepatic flexure had given away completely, so that traction on the cecum caused a direct pull from the splenic flexure across the mesentery, resulting in pressure at the duodenojejunal junction. The duodenum was markedly dilated, the lower border of the transverse portion protruding through the mesentery four fingers' breadth below the attachment of the colon when the latter was lifted out of the abdomen. There was a long ligament of Trietz bringing the jejunum well forward on the surface of the mesocolon. The procedure followed here was a longitudinal plication of the cecum and ascending colon, restoration of the hepatic flexure and anchoring of the cecum to the posterior abdominal wall; duodenojejunostomy. This patient made an uneventful recovery; her bowels were moving regularly; duodenal symptoms had disappeared entirely, and she was gaining in weight and strength. Her mental depression had disappeared.

Epithelioma of Upper Lip. Excision and Cheiloplasty.—Dr. GEORGE H. SEMKEN presented this patient, a woman, sixty-five years of age, who noticed a small lesion on the left side of her upper lip, above the mucocutaneous border, in the late summer of 1916. Superficial erosion and crust formation soon occurred; and

there has been a progressive increase in the size and extent of the lesion. On May 23, 1918, when this patient came under observation, she had an elevated, indurated, elliptical lesion, 2.2 x 1.6 cm. in diameter, occupying the left half of the upper lip, including the mucous membrane in part, and extending for 1 cm. upon the adjacent part of the skin of the cheek. Its surface was covered by a thin, dark, reddish-brown crust. There were no palpable lymph nodes. (Photographs were shown.) On June 10, 1918, under local anesthesia, the lesion was widely excised—the line of section beginning near the midline and extending laterally well upon the cheek. The left half of the lip was removed *in toto*, excepting the upper half of the inner mucous membrane. For the closure of the defect that resulted a suitably shaped flap was cut from the left cheek, the pedicle being above, and this flap was swung mesialwards into place. A small triangle of skin had to be removed from above the defect to enable this swing to be made. The lower edge of the flap, where it became part of the mouth, was covered with a strip of mucous membrane, cut from the outer corner of the lower lip and turned back upon itself so as also to form the new corner of the mouth. The crescentic defect remaining upon the cheek was provisionally covered with Thiersch grafts. Three weeks later this crescentic area was excised, the skin edges were undercut, a small triangle was removed from the posterior arc (to reduce its length), and the wound area was closed by suture, thus leaving an inconspicuous curvilinear scar. The pathological examination of the tumor showed it to be a basal celled epithelioma.

Bilateral Mammary Carcinoma Presenting Unusual Features.—Dr. SEMKEN also presented this patient, a woman forty-seven years of age, who discovered a small tumor in the left breast in November, 1916. Four months later, when the growth had reached the size of an olive, an incomplete radical operation was performed upon the breast and axilla in a hospital in this city. Two months later a recurrence was noted in the line of the scar. Nothing further was done until October, 1917, when *x*-ray treatments to the chest and neck were begun; and these had been continued once a week until her admission to the Skin and Cancer Hospital on March 5, 1918. The local condition noted at that time was as follows: There was a short cicatrix, about 6 inches in length, across the upper chest and over the axilla. Near the sternal end of this was a raised ulcerated and indurated circular mass, 3.5 x 4 cm. in diameter, and about the end of the scar mesially a flat infiltration. There were palpable nodes in the axilla and in the left supraclavicular space. (Photograph shown.) On March 7, 1918, a comprehensive radical operation was done upon the left chest wall, axilla, and the supraclavicular space. Part of the sternal end of the third costal cartilage was resected also. The axillary nodes were bluish in color, and the largest one, approximately 1.5 cm. in diameter, was so closely adherent to the axillary vein at the site of the acromiothoracic vessels as to resemble a thrombosed varix. The supraclavicular nodes were all enlarged and black in color. Healing was uneventful except over the sternal end of the third costal cartilage and the rib end of the fourth, both of which had been covered with Thiersch grafts. The upper had since closed, and the other sinus would probably be healed soon. The report of the pathologist upon the material removed at operation showed carcinoma in the tumor of the chest wall, but none in the axilla or the neck. These nodes showed extensive pigmentation. The pathological condition of the right breast and axilla was first noted in September, 1918. There was then an olive-sized, projecting, hard, rounded, nodular, movable mass in the lower right axilla, just above and external to the breast; and a flattened fibro-adenomatous area in the outer part of the breast. The axillary tumor and a small piece of the suspected breast tissue were removed for microscopic examination on September 17, 1918. This study showed carcinoma in the node and fibrocystadenoma in the breast tissue. Three days later the radical operation was performed upon the right chest wall and the axilla. The report of the pathologist upon the tissue so removed showed a small focus of carcinoma in an area of intracanilicular fibroma of the breast. None of the other axillary nodes showed carcinoma. Healing was uneventful. A critical study of this case in retrospect brought out several points of interest: (1) The absence of carcinoma in the enlarged left axillary and supraclavicular nodes, and the operability of a seemingly inoperable condition; (2) the unusual pigmentation in the nodes, for which no explanation is offered; (3) the evidence of low resistance and poor vascularity in the costal cartilages, and their need of effective tissue-covering after operative exposure; (4) the occurrence of a malignant change in a benign process, as shown in the right breast—a phenomenon well known, but not often so well demonstrated; (5) the large metastatic cancerous axillary node, secondary to the minute primary focus in the right breast; (6) the failure of the probatory excision in the right breast to reach the cancerous focus, and the demonstration of the possibilities of error in such examinations; (7) the apparent independence of the cancerous process in the right breast from that of the left. Dr. Semken gave a demonstration of microscopic slides of (1) the recurrent carcinoma of the left chest wall, showing no pigment; (2) the pigmented supraclavicular nodes; and (3) the malignant change in the benign fibroma of the right breast.

Chronic Duodenal Obstruction. (Lantern Slides.)—Dr. EDWARD L. KELLOGG made this presentation. He first reported his findings from an anatomical point of view, which, he said, taught us that the duodenum was placed at a disadvantage in the matter of drainage and was easily subjected to mechanical interference. Writers on this subject gave one the impression that the condition was obscure and the diagnosis impossible unless made by the *x*-ray or after the abdomen was opened. It was his belief, however, that the condition was frequently present and the diagnosis could usually be made by the history and physical examination even in cases in which it was not demonstrated by the roentgenologist. It was certain that a considerable degree of obstruction might exist without symptoms. A study of the clinical cases showed two sets of symptoms, *toxic* and *mechanical;* in some both were present, in others only one group. One or more of the toxic symptoms were usually in evidence, *i.e.* headache, mental depression, lack of strength, disturbed heart action, cold extremities, and skin eruptions. The mechanical symptoms in obstruction of the first portion only were those of partial pyloric obstruction. In obstruction of the second and third portions, the mechanical symptoms would vary according to the problem presenting. Two distinct points of discomfort had been observed. First, a pain or dull ache just at the left of the median line and slightly above the navel (presumably the duodenojejunal junction); second, pain located to the right of the median line and above the navel, extending up under the liver and to the back. It might be colicky or steady and dull, often lasting until relieved by vomiting. It seemed possible to differentiate the following types of duodenal obstruction: (1) The asthenic duodenum, with symptoms largely toxic. (2) Duodenal obstruction with incompetent pylorus. (3) Obstruction with hypertrophy, the duodenum becoming elongated and the walls thickened (the writhing duodenum). (4) Dilated duodenum. The majority of these cases were amenable to the treatment given for enteroptosis or intestinal stasis, namely, abdominal support, sleeping with the foot of the bed elevated, resting after meals in the recumbent position, abdominal massage, colonic irrigations, mineral oil, cathartics, rest cure combined with forced feeding, etc. Those not responding could be cured by a surgical procedure which would vary according to the etiology of the case: dividing adhesions or shortening the gastrohepatic omentum for obstruction of the first portion; dividing adhesions for obstruction of the second portion; duodenojejunostomy usually met the indications for obstruction of the third portion or some operation on the cecum and ascending colon when the condition was plainly secondary to drag of prolapsed bowel and dilitation was not excessive. In spite of the fact that gastroenterostomy had been beneficial in one of his cases he considered the procedure obsolete, believing that when dilitation was marked the operation of choice alone or accompanied with other indicated procedure was duodenojejunostomy. It was only slightly more difficult than gastroenterostomy, the technique being much the same. In the writer's series of cases there had been no mortality.

and in every case there was either improvement or complete relief of symptoms, although sufficient time had not yet elapsed to speak definitely of end results. The following suggestions were offered: (1) Acute postoperative dilatation of the duodenum was predisposed to by chronic condition and might be prevented by correcting the latter. Vicious circle after gastroenterostomy was due to duodenal obstruction already present or produced by the operation. (2) In performing gastroenterostomy, if the duodenum is dilated, a duodenojejunostomy should supplement the procedure. Many socalled bilious attacks might be caused by obstruction of the duodenum, following constipation and the drag of a prolapsed omentum. Chronic duodenal obstruction probably predisposed to duodenal ulcer. In operating for duodenal ulcer when the pylorus was not obstructed and the duodenum was dilated, duodenojejunostomy appeared to be the proper surgical procedure.

Lantern Demonstration of the Pathological Duodenum; A Type Frequently Overlooked.—Lieut. Commander HAROLD D. MEEKER gave this demonstration. He stated that occasionally a patient presented himself to the general practitioner with symptoms referable to the upper abdomen which were quite atypical and did not respond to persistent medical effort. Should such a patient be seen and the suspected ulcer, neoplasm, galistones or inflammatory condition not be found, most surgeons would remove the appendix and attribute symptoms to the convenient and much abused reflex. Many such cases might be explained by the presence of certain abdominal bands which interfered with function. Whether the presence of these bands was due to embryological abnormalities, to infection, to an attempt of nature to hold up a sagging organ or to the selective affinity of toxins was of far less importance than the relief of symptoms. In observations on several hundred cases the speaker made the following arbitrary classification of these bands. (1) *a* Hepatoduodenal. *b*. Cystoduodenal. *c*. Hepatocystoduodenal. (2) *a*. Hepatogastric. *b*. Cystogastric. *c*. Hepatocystogastric. (3) *a*. Hepatocolic. *b*. Cystocolic. *c*. Hepatocystocolic. *d*. Gastrocolic. (4) Irregular. The speaker then gave a lantern-slide demonstration of the various types of bands, the points of strain and constriction, and described the resulting symptoms. The technique of repair was shown and stress laid on the necessity of using very fine round needles and fine suture material. Linen was used, treated with paraffin oil to block capillarity and to favor sliding through the tissues without tearing. The importance of covering raw surfaces and the inversion of raw edges was emphasized.

Dr. ANTHONY H. HARRIGAN said, that in regard to the diagnosis of duodenal ulcer, about a year ago he made a short contribution to the *Annals of Surgery*, in which he described a sign distinctive of the condition. This sign consisted in a small area of tympany over the liver, in the right parasternal line. It must not be, in any manner, confused with obliteration, or liver dulness. He believed that the sign was caused by the imprisonment of air, lying beneath the dome of the diaphragm and walled in by the falciform ligament. He did not maintain that this sign was found in 100 per cent. of the cases, but it was quite frequently present and was of great value in the differential diagnosis. While the suturing of a perforation of the pylorus was easy, yet he found the duodenal perforation one extremely difficult to suture. This was partly because of the presence of excessive exudate and fluid and the fact that the duodenum was relatively immobile. On the other hand, the stomach was quite mobile, could be delivered outside the wound, and easily sutured. Having found suturing in this locality so difficult, he usually employed gauze packing. He spoke of this to ascertain what the experience of others had been. In regard to the actual mortality in these cases, numerous articles detailing ten or twelve cases reported one or two deaths. In those met in general hospitals, such as the Bellevue and the allied hospitals, it was possible that out of eighteen cases the mortality was much higher. Some of these were operated on the second or third day, and some four or five hours after perforation. Dr. Kellogg had brought up the important topic of the surgical physiology of the duodenum. The question of chronic duodenal dilation was one to which Lane has given great attention. Those who had visited Lane in the Guy's Hospital in London would recall the *x*-ray pictures he showed to all his visitors of a case of chronic dilatation. Dr. Harrigan believed that Kellogg still left the etiology of this condition in the dark. A condition like that of of acute dilatation of the stomach, with which dilatation of the duodenum was usually associated, as yet had not adequate theory. In conjunction with Dr. Joseph Byrne, he had conducted a series of experiments on cats, repeating the experiments of Draper, Whipple, and Bernheim, of duodenal obstruction. The duodenum had been obstructed about 8 c.c. below the pylorus. The object of these experiments had been to determine the actual alterations in the nervous system. As yet, the experiments had yielded but negative results; however, it was interesting to state that intense hypermobility of the duodenum could be easily elicitated by electrical stimulation. This point was comparable to the writhing duodenum, described by Kellogg. It was possible that the whole question had a physiological basis. One must recall the theories advanced by Keith regarding the occurrence of nodes in the duodenum. Keith compared the entire intestinal tube to the heart. It was in the socalled myenteric plexus, which was supposed to initiate the impetus causing the movements of peristalsis. Dr. Harrigan wished to compliment Dr. Kellogg on his able paper.

Dr. FENTON B. TURCK said we were used to the surgeon, as a rule, presenting the anatomical pathology, that was the structural or architectural changes in the organism, and basing his deductions from these architectural changes. The great defect of this method of approaching the study of these changes was that these were not the disease, but merely the end product of the disease, and did not give any idea of the process or condition which we designated as disease. Dr. Kellogg's paper has been one of the most illuminating that he had listened to in this Section, particularly in that it presents both phases, the anatomical and the physiological. It was based upon complete data, including *x*-ray and other examinations both before and after operation, and a careful and methodical analysis of the condition clinically as he had done upon observations made in the course of animal experimentation. In the experiments which he had carried out in Chicago many years ago he obtained various degrees of obstruction of the alimentary canal at different levels. He found that obstruction in the lower part of the alimentary canal produced no marked symptoms, but when he produced these obstructions higher up they were followed by very marked symptoms with angulations. Seventy-five or 80 degrees of angulation were without symptoms if provision was made for the venous return. That was an important point that Dr. Kellogg brought out when he called attention to the line he had noticed on the duodenum in instances where he had obstructed the circulation affecting the splanchnic vessels. Now the question arose, "What made these symptoms?" Dr. Kellogg had had such excellent results by his operation in which the drainage was complete. This was a point the speaker observed in his experiments on animals; if drainage was adequate death did not occur in the animals operated upon. In the methods he had used he found that there resulted a much more rapid autolysis in the upper than in the lower part of the intestinal tract, for the reason that the ferments crypsin and trypsin were present in greater amounts in the upper part of the alimentary canal, and because of this there was a greater amount of proteolysis with resulting toxins. In his experience he took material from the stomach of animals and, after allowing it to autolyze for twenty-four hours, injected it into other animals, with the result that the animals died in three minutes; in others, in which a smaller amount was injected, death occurred after twenty-four hours, while control animals did not die. From this he had concluded that toxemia and death were due to tissue autolysis. Dr. Brenner found that after perforation there was shock and this was due to the absorption of the autolyzed tisue. He also found that in several of his duodenal ulcer cases with perforation that, several years after perforation, there was no return of symptoms, and this was because where there was perforation of an ulcer

with recovery there occurred an autovaccination. He had now produced a vaccine and a serum consisting of autolyzed tissue and bacteria especially for operative cases. This point was brought up because it was a very interesting fact that we never had a recurrence where the perforation of an ulcer with recovery had taken place. In these cases Dr. Kellogg had mentioned the medical treatment based upon restoration of the circulation and the overcoming of toxemia, which was a most reasonable procedure in all these cases both before and after the operation of duodenojejunostomy.

Dr. GEORGE WOOLSEY said that when Dr. Kellogg first presented his patients he thought his subject might be obstruction due to ulceration, and he wondered at that as we saw very few cases of obstruction due to ulceration. There were some cases of hour-glass duodenum reported as the result of ulceration, but they were rare. Dr. Kellogg said he regarded ulcer not as a cause but as a complication of the condition, as a rule. The method of determining dilatation of the duodenum by percussion did not appeal to the speaker. In the duodenum we had an organ situated posteriorly and surrounded by a group of hollow viscera, which made it difficult in percussion to know whether the percussion tone was from the duodenum or not. A vicious circle after gastroenterostomy might be cured by the union of two loops of the jejunum, so that it did not seem to be necessary to do a duodenojejunostomy. Dr. Woolsey asked Dr. Kellogg whether the duodenum to which he sutured the jejunum was covered with peritoneum or not. As he understood, Dr. Kellogg incised through the mesocolon and the duodenum was there retroperitoneal. If there was no peritoneal covering, the operation would not be as safe as an anastomosis operation where there was a peritoneal covering. The cases of perforating duodenal ulcer were an interesting series. Dr. Turck had mentioned that in duodenal ulcer the perforation seemed to cure the ulcer, but this was not invariably true; he had seen several cases in which there was subsequent trouble following perforation, indicating its continued existence, so without a gastroenterostomy we were not sure of avoiding further trouble. The suture of the ulcer or its cicitrization might cause a stenosis which would demand a later gastroenterostomy, so that he preferred always to add a gastroenterostomy if the patient's condition justified it.

Dr. ROBERT T. MORRIS said he was not present to see the cases or hear the first part of the paper, but it seemed to him that when a patient had any of the conditions named one should ask what else the patient had besides these conditions. The conditions described this evening were not diagnostic entities. They stood in second or third rôle to some underlying physical condition. Many of these patients might be grouped in the class with stigmata of arrested development, neurotic by inheritance and neurasthenic later. Duodenal lesions might relate to anatomical mechanical fault or to pathological processes, many of the latter relating to selective affinity for toxins. The subject of toxic peritoneal signs was brought forward by the speaker the very same year in which Lane called attention to his kinks as toxic insignia. The speaker had called the adhesions involving gall bladder and pylorus "cobwebs in the attic." The Lane kink first attracted attention and now, fifteen years later, cobwebs in the attic of the abdomen were receiving attention. Dr. Rosenow and Dr. Turck had both emphasized the importance of toxic influences, including autolytic changes belonging to antibodies called out in excess. The work Dr. Kellogg described was very neat. In many cases adhesions covered such a large area that one could not prevent recurrence of adhesions by such simple means. The speaker's first choice for preventing recurrence of adhesions was the employment of the Senn omental graft, next the use of Cargile membrane, the third, the arstol film. Dr. Kellogg described cutting of adhesions rather than tearing them free. One was always tempted to tear them, but that left a large surface for readhesions before endothelium could cover the defect. Neat cutting was better than tearing where one could employ the latter procedure.

Dr. A. JUDSON QUIMBY brought out several important points with respect to the *x*-ray examination of the duodenum. First it was very important to have the patient constipated when one made the *x*-ray examination. In the second place, the patient must not be handled too roughly in making the examination. It is frequently difficult to make the duodenum fill, as there may not be sufficient tone to carry the fluid ingested into the duodenum. In the third place, by putting the hand back along the middle of the fundus and carefully manipulating the stomach the organ can be held well up while the exposure is being made.

Dr. BRENNER said he was not sure of the exact area to which Dr. Harrigan referred, but he thought it was probably the same area of liver dullness to which he had referred. In regard to the mortality there were several factors that entered in: (1) The condition of the patient. (2) The duration of the perforation before operation. (3) The injection of the peritoneum. (4) The type of operation performed. He believed primary gastroenterostomy prolonged the operation and added to the primary mortality. Dr. Woolsey brought up the point that apparently gastroenterostomy was curative. This was not so in all cases, as one of Dr. Woolsey's cases was operated on by the speaker for recurrence after a perforated ulcer at the suture line of his gastroenterostomy.

Dr. KELLOGG, in closing, said that the duodenum was not covered by peritoneum. One had to put these sutures in with greater care than in gastroenterostomy, but in his cases there had been no leakage or complications of any kind. As regarded the method of diagnosis by percussion, it seemed difficult and obscure, but in actual practice he had found that one could make the diagnosis in that way and very frequently this had been borne out by the *x*-ray examination and by operation. The important point in his method of diagnosis was that the area of duodenal tympany was increased by deep pressure, while tympany coming from the stomach and colon was diminished. The reason for this was easily understood when one remembered that the duodenum was deeply placed behind the stomach and colon. In a patient with a thin abdominal wall it could be possible to press the hand hard enough to force the gas out of the duodenum and produce tympany, but before reaching that stage one should be able to recognize the increase in the tympanitic note. The other point was upward pressure below the transverse colon, which allows the gas to escape from the duodenum so it could be felt or heard gurgle under the fingers, after which the area of duodenal tympany diminished.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

TEXAS STATE BOARD OF MEDICAL EXAMINERS.

Austin, June 18, 1918.

ANATOMY.

1. Give size of pancreas and its position in relation to vertebræ.
2. (*a*) What nerves form the cervical plexus? (*b*) What nerves form the brachial plexus?
3. Give location, length and branches of the innominate artery.
4. What joint in the body has the largest articulation? Name its principal ligaments.
5. (*a*) How many bones in the tarsus? (*b*) How many articular surfaces
6. (*a*) What bone in the tarsus has two articular surfaces only? (*b*) What bone has four?
7. Name the ribs that have peculiarities.
8. Give origin of the great sciatic nerve.
9. Draw a diagram of the outer aspect of right innominate bone.
10. Name the five points on the innominate bone which you consider most important.

PHYSIOLOGY.

1. What percentage of the body weight is blood?
2. What is the average time for complete circulation of the blood?
3. What chemical changes take place in the muscle during contraction?
4. Give functions of the pancreatic juice.

5. What part of the brain controls respiration and circulation?
6. Give origin and fate of red corpuscles.
7. Give function of thyroid gland.
8. Give mechanism of respiration.
9. Give ingredients and functions of gastric juice.
10. Give function of cranial nerves.

CHEMISTRY.

1. Difference between physical and chemical change.
2. Give common name and physical properties of $MgSO_4$.
3. Why should we not use pure water through lead pipes? Why may we safely use river water through same pipes?
4. How are oxides formed? Give examples of two common oxides.
5. Give delicate test for albumen in urine. How does specific gravity of urine vary as amount of albumen changes?
6. From what source do we get carbolic acid? How prepared? Physical properties? Antidote?
7. In Fehling's test or any copper sulphate test for sugar in urine describe action of reagents used and if sugar is present, color of deposit? What is the deposit?
8. Complete: $H_2SO_4 + \text{——} = MgSO_4 + H_2O + CO_2$. What is the above reaction called?
9. Name elements of halogen group. Name of three useful halogen salts.
10. Give antidote for caustic potash.

HYGIENE.

1. Name five contagious diseases and give best methods of preventing their spread in a community.
2. Give a brief description of the best method of handling the sewage of a small town without sewerage system.
3. What diseases are often spread by the drinking of impure water and how purify water for drinking?
4. How rid a community of malaria?
5. Name the diseases commonly found in the routine examination of school children.
6. How may typhoid infection occur?
7. Give hygienic treatment of case of chronic interstitial nephritis.
8. Give hygienic care of lobar pneumonia patient.
9. How would you regulate or what measures would you enforce to secure a pure supply of milk from a dairy?
10. Give the hygienic care of early pulmonary tuberculosis.

HISTOLOGY.

1. Describe and tell where each of the following cells is found: (*a*) squamous, (*b*) cuboidal, (*c*) columnar, (*d*) goblet.
2. (*a*) Describe mucous membrane. (*b*) Serous membrane.
3. What kind of tissue is bone? How much organic and inorganic matter in bone?
4. Draw a diagram in full of a neuron.
5. In what veins are valves present and what is the function of these valves?
6. Locate secretory glands of stomach. How do they differ from that of small intestines?
7. How does muscle coat of large intestine differ from that of small intestine?
8. Describe appendices epiploicæ.
9. What kind of gland is the pancreas? Name its duct.
10. (*a*) What is periosteum? (*b*) Endosteum?

ANSWERS.

ANATOMY.

1. The *pancreas* is about 6 to 8 inches in length, 1 to 1½ inches in depth, and from ½ to ¾ inch in thickness. It lies in front of the first and second lumbar vertebræ.
2. The *cervical plexus* is formed by the anterior primary divisions of the first three and part of the fourth cervical nerves.

The *brachial plexus* is formed by the anterior primary divisions of the fifth, sixth, seventh, and eighth cervical, and the greater part of the first dorsal nerves.

3. The *innominate artery* arises from the upper aspect of the arch of the aorta, a little above the level of the upper border of the second right costal cartilage, and it terminates behind the upper border of the right sterno-clavicular articulation.

It is from 1½ to 2 inches in length.

It divides into the right common carotid and right subclavian arteries. As a rule, it gives off no branches in its course; occasionally, however, it gives off the thyreoidea ima artery.

4. The joint having the largest articulating surfaces is the knee-joint.

The *ligaments of the knee-joint* are: Anterior, posterior, external lateral, internal lateral, capsular, anterior or external crucial, posterior or internal crucial, transverse, coronary, and two semilunar fibro-cartilages.

5 and 6. The *tarsus* consists of seven bones.

ARTICULATIONS.—*Os calcis:* Astragalus and cuboid.

Astragalus: Tibia, fibula, os calcis, and scaphoid.

Cuboid: Os calcis, external cuneiform, fourth and fifth metatarsals, and (sometimes) scaphoid.

Scaphoid: Astragalus, three cuneiform, and (sometimes) cuboid.

Internal cuneiform: Scaphoid, middle cuneiform, first and second metatarsals.

Middle cuneiform: Scaphoid, internal and external cuneiform, and second metatarsal.

External cuneiform: Scaphoid, middle cuneiform, cuboid, and second, third, and fourth metatarsals.

7. The ribs that have peculiarities are the first, second, tenth, eleventh, and twelfth.

8. The *great sciatic nerve* arises from the sacral plexus, particularly from the descending branch of the fourth and fifth lumbar, and the first, second, and upper branch of the third sacral nerves.

9. See any standard text-book on Anatomy.

10. *Five important points on the innominate bone:* Crest of the ilium, acetabulum, anterior superior spine of ilium, symphysis pubis, and tuberosity of the ischium.

PHYSIOLOGY.

1. The amount of blood in the body was formerly estimated at about one-thirteenth (say 7 per cent.) of the body weight. More recently it has been estimated at about one-twentieth (5 per cent.) of the body weight.

2. The average time for complete circulation of the blood is a little less than half a minute (about twenty-five to twenty-seven seconds); it is often said to correspond with the time of twenty-seven heartbeats.

3. The *chemical changes which occur in a muscle during contraction* are: (1) It consumes more oxygen: (2) it sets free carbon dioxide; (3) it produces sarcolactic acid; (4) it becomes acid in reaction; (5) it produces heat; (6) it loses glycogen.

4. *Functions of the pancreatic juice:* (1) It changes proteids into proteoses and peptones, and afterward into polypeptides and amino-acids; (2) it converts starch into maltose; (3) it emulsifies and saponifies fats; (4) it causes milk to curdle.

5. Respiration and circulation are controlled by nerves which arise from the gray matter in the lowest part of the floor of the fourth ventricle of the brain (calamus scriptorius).

6. In embryonic life the red blood cells are formed in the area vasculosa. Later on they are formed in the pulp of the spleen; in postnatal life they are formed in the red marrow of bone. They are broken down in the liver and spleen, and the hemoglobin aids in the formation of bile pigments and the pigment of the hair, skin, etc.

7. The *function of the thyroid* is not definitely settled: (1) It has some trophic function regulating oxidation in the body, and it is supposed to have also a special influence on the vasomotor nerves, the skin, the bones, and on the sexual functions; (2) it is supposed to antagonize toxic substances; and (3) it produces an internal secretion.

8. "Respiration is carried on under ordinary circumstances by the diaphragm and external intercostals enlarging the chest and sucking air into the lungs, fol-

lowed almost immediately by the recoil of the elastic lungs and ribs forcing out the air so inspired. But when there is a more than ordinary venous condition of blood in the system greater efforts must be made to supply the lungs with oxygen, and muscles not ordinarily employed in the effort must be brought into play. The arms and scapulæ are fixed by seizing hold of some object, and by bringing into action the trapezius, levator anguli scapulæ, and rhomboidei, so as to make firm attachments for serratus magnus, pectorales and latissimus in their efforts to raise the ribs. Labored expiration in like manner brings extra muscles into play. In labored respiration the nostrils are expanded by the dilatores naris during inspiration, and resume their original size during expiration. The glottis is widely open during inspiration, while it is narrowed during expiration. These movements of the glottis occur during ordinary breathing, but are exaggerated during difficult breathing.

"Breathing is a reflex act, capable of being modified by the will. The nerve-center is situated in the medulla, the *afferent* nerves are the vagi; the *efferent* nerves are the phrenics, intercostals, etc. Respiration continues in the absence of consciousness and after the removal of the brain about the medulla; but destruction of a certain small portion of the medulla below the vasomotor center causes the movements at once to cease. This spot is called *nœud vital*. The center is influenced by impulses from without or within—a dash of cold water in the face, a cold bath, an emotion, venous blood in the pulmonary vessels, all call it into action. The center is probably automatic as well as reflex, section of the vagi, thereby interrupting the channel by which the afferent impulses reach it from the lungs, while interfering with the respiratory act does not stop its action. Automatic impulses descend from the center along the efferent nerves. Probably the venous blood circulating through the center itself supplies the stimulus."—(Ashby's *Physiology.*)

9. *Gastric juice* is a thin, colorless fluid; acid in reaction; specific gravity about 1002 to 1010; and containing about 1 per cent. of solids. It contains: Water, pepsin, rennin, hydrochloric acid, chlorides (of calcium, sodium, and potassium), and phosphates (of calcium, magnesium, and iron). Its action is to change proteids into proteoses and peptones, and to curdle the casein of milk; it is also slightly antiseptic, and inverts cane sugar into dextrose and levulose.

10. The special *names* by which the twelve pairs of nerves are generally known are: (1) Olfactory; (2) Optic; (3) Motor oculi; (4) Trochlear or Pathetic; (5) Trifacial; (6) Abducens; (7) Facial; (8) Auditory; (9 Glossopharyngeal; (10) Pneumogastric or Vagus; (11) Spinal Accessory; (12) Hypoglossal.

Functions: (1) Special sense of smell; (2) Special sense of sight; (3) Motor; (4) Motor; (5) General sensation and motor; (6) Motor; (7) Motor; (8) Special sense of hearing; (9) General sensation and special sense of taste; (10) Motor and general sensation; (11) Motor; (12) Motor.

CHEMISTRY.

1. A *physical change* is such a change as does not alter the composition of a substance; a *chemical change* does alter its composition.

2. The common name of $MgSO_4$ is Epsom salt; it is a crystalline solid, is easily soluble in water and the solution is neutral to litmus paper; it is insoluble in alcohol; the crystals are colorless and transparent.

3. "Lead in drinking water has been a prolific source of chronic lead poisoning. As lead is only dissolved by water after oxidation, conditions favoring oxidation of the metal favor its solution. Such conditions are: The presence of nitrates, a highly aërated condition of the water, alternate wetting and drying of the surface of the metal, the absence of sulphates and carbonates, and the presence of much carbonic acid dissolved under pressure (soda water). Sulphates and carbonates prevent solution by the formation of a protecting coating of an insoluble salt. As a rule, the purer the water the more liable it is to dissolve lead when brought in contact with that metal, especially if the contact occur when the water is at a high temperature, or when it lasts for a long period."—(Witthaus' *Manual of Chemistry.*)

4. *Oxides are formed:* (1) By heating the metal in air; *e.g.* zinc oxide. (2) By heating certain salts; *e.g.* calcium oxide (prepared by heating calcium carbonate).

Two common oxides: Sulphur dioxide, and manganese dioxide.

5. *Test for albumin in the urine:* "The urine must be perfectly clear. If not so, it is to be filtered, and if this does not render it transparent it is to be treated with a few drops of magnesia mixture and again filtered. The reaction is first observed. If it be acid, the urine is simply heated to near the boiling point. If the urine be neutral or alkaline, it is rendered *faintly* acid by the addition of dilute acetic acid and heated. If albumin be present a coagulum is formed, varying in quantity from a faint cloudiness to entire solidification, according to the quantity of albumin present. The coagulum is not redissolved upon the addition of HNO_3."

The specific gravity generally varies inversely with the amount of urine excreted, and directly with the amount of solids contained. A low specific gravity generally indicates albumin.

6. Carbolic acid is obtained from coal tar, or gas tar; it is also prepared by heating salicylic acid and quicklime; it is also obtained by synthesis from acetylene.

Carbolic acid crystallizes in long, colorless needles, has a characteristic odor, and an acrid burning taste, is soluble in 15 parts of water, and is very soluble in alcohol and in ether; it is neutral in reaction.

The *antidote* is alcohol, or sodium sulphate.

7. The copper tests for sugar in urine depend upon the fact that in strongly alkaline solutions glucose reduces cupric hydrate to cuprous hydrate (yellow color) or cuprous oxide (red color).

8. $H_2SO_4 + MgCO_3 = MgSO_4 + H_2O + CO_2$.

9. *Elements of the halogen group:* Fluorine, chlorine, bromine, and iodine.

Three useful halogen salts: Sodium chloride, potassium iodide, potassium bromide.

10. *Antidote for caustic potash* is a weak acid or vinegar.

HYGIENE.

1. *Five communicable diseases:* Smallpox, whooping cough, diphtheria, typhoid, and acute anterior poliomyelitis.

Smallpox may be prevented from spreading by compulsory vaccination and prompt isolation of all cases.

Whooping cough may be prevented from spreading by isolation of all who have been exposed to infection; the patient must avoid contact with others; vaccines have been used.

Diphtheria may be prevented from spreading by isolation of cases and carriers, by the injection of diphtheria antitoxin, disinfection of mouth and nose discharges and of toys, cups, spoons, etc., used by the patient.

To prevent the spread of *typhoid fever:* Flies should be kept out of the house as far as possible, by means of screens or otherwise; all discharges from the sick person must be disinfected; all utensils, dishes, etc., used by the patient must be thoroughly cleansed and boiled every day; soiled linen must be soaked in a disinfectant solution before being washed; after each attendance on a patient, physicians, nurses, and others should wash their hands in a disinfectant; thorough sterilization of all bedding, etc., must be performed after the disease is over. Further, each household should boil all water that is to be used for drinking or for washing dishes, etc.; milk should be boiled also; and no ice should be put *in* water or other drink or food.

Anterior poliomyelitis should be handled by isolation, cleanliness, and destruction of insects of all kinds; special attention must be paid to the discharges from the nose and mouth.

2. Where there is no sewerage system, a properly built privy must be used. *A sanitary rural privy* consists of a "small watertight pit, not drained but roofed over to exclude rain, and so arranged that the excreta and ashes become thoroughly mixed. For this purpose either the ashes must be thrown in through the closet seat, which may be hinged so as to be lifted *en masse*, or else a 'shoot' or sloping slab must conduct one and the other to a common point. The floor should be smooth, and raised a few inches above the ground level.

"The contents ought to be removed at fixed short intervals, and the work should be done at night or early in the morning so as to minimize the nuisance."—(Whitlegge and Newman.)

Privies and cesspools must be properly protected and the contents buried with chloride of lime, not less than two feet deep; later on it is used as a fertilizer. Garbage may be burnt, after edible matter has been used as food for pigs.

3. *Diseases which may be spread by the drinking of impure water:* Typhoid, cholera, dysentery, diarrhea, goiter, lead poisoning, and intestinal worms.

The means of purification of public water supplies are storage and sedimentation, chemical treatment, and filtration. *Sedimentation.* A part of the impurities in the water may be removed therefrom by storing the water in basins where the suspended matter sinks by the action of gravity, and in the process of settling entangles other impurities, as well as some of the bacteria in the water. In order to get good results, the basins must be shallow, the water left undisturbed and the accumulated sediment removed from time to time. No complete reliance can be put on this method, as it does not guarantee a germ-free water. *Chemical purification:* The sedimentation of water in the basins may be hastened by the addition to the water of certain chemicals, which act as coagulants and form precipitates, entangling the organic impurities and bacteria, thus freeing the water from a large part of them. Alum (half a grain to the gallon), chlorine, bromine, copper sulphate, metallic iron, and ozone are used for this purpose. Neither sedimentation nor chemical purification are practicable for large water supplies, nor are they free from many objections. *Filtration:* This is the only method which has proved successful in providing a pure water supply. Filtration of large quantities of water is accomplished by means of sand beds of large area the sides and bottoms of which are concreted, and on the bottom of which are placed numerous perforated and open drains which are to lead off the filtered water into separate special reservoirs. On the bottom of the filter areas, which are usually half or an acre in size, is placed a layer of coarse gravel, upon this a layer of finer gravel, which is then covered by a layer of fine, sharp sand, several feet in thickness, the whole filtering medium being from four to six feet in thickness. The filter is at first filled from beneath so that all air is driven off, and the filter area is then filled to a level of several feet above the filter bed. A filter of an acre in area may be made to filter two to four millions of gallons of water in twenty-four hours. Such filters act not only mechanically in intercepting all suspended impurities, but the slimy sheet which soon covers the top layer of the sand acts biologically upon the water and destroys a large number of bacteria, so that, it is claimed, the water may be freed from 99 per cent. of its bacteria, provided the rate of filtration is not too rapid and the top of the sand-layers is scraped off half an inch from the surface from time to time.—(From Price's *Essentials of Hygiene.*)

4. *Prophylaxis of malaria:* Individuals should use mosquito netting around their beds and wire gauze in doors and windows so as to keep out the mosquitos as much as possible. During residence in malarial districts quinine should be taken every morning, before breakfast. All pools, stagnant water, etc., where *anopheles* may breed, should be removed. All mosquitos, larvæ, etc., should be destroyed as far as possible. By staying indoors during dusk and darkness, opportunities for infection may be avoided. Occasional fumigation with formaldehyde or sulphur is also beneficial.

5. *Diseases commonly found in the routine examination of school children:* Adenoids chorea, myopia, pediculosis, ringworm, imperfect hearing, enlarged tonsils, carious teeth, scabies.

6. *Typhoid fever* is caused by the *Bacillus typhosus.* It enters the body by the mouth, and is conveyed by food, fingers, flies, fomites, and carriers.

7. *Hygienic treatment of chronic interstitial nephritis:* The patient "must be cautioned not to expose himself to the inclemencies of the weather, to avoid all excessive muscular exercise, and all mental worry; he must have his bowels open at least once daily (alkaline mineral waters, saline cathartics, occasional blue mass pill, etc.); and he must favor the action of the skin so as to relieve the subnormal cardiovascular-renal system; warm or hot baths are serviceable, but they are contraindicated if they cause unpleasant throbbings (increasing blood pressure). The diet is of the utmost importance, the duration of life probably depending more upon discretion in eating and drinking than upon any other factor. In many cases an exclusive milk diet for a time (four to six weeks) is desirable; and it may be repeated from time to time. In general the diet should be sufficiently varied to be attractive; it should be free from irritating qualities and readily assimilable, and the nitrogenous constituents should be relatively reduced. The meat allowance should not exceed 100 grams daily; a diet of ample fuel value should be constructed by adding a sufficiency of fats and carbohydrates; an excess of meat is said to favor the development of uremia; red and white meats are of equal value, and may be allowed in accordance with the patient's desires. As a rule, alcohol should be prohibited, although in some cases a little of the lighter wines appears to do no harm. In many cases the foregoing produces not only amelioration of the symptoms, but perhaps also arrest of the lesions; if so, other measures are not required."—(Kelly's *Practice of Medicine.*)

8. *Hygienic treatment of lobar pneumonia:* "The patient should be placed in a large, readily ventilated room, and the windows should be kept wide open all the time, so as to provide an abundance of fresh air. When available, as in hospital practice, the best results are achieved by placing the patient out-of-doors, as on a porch, for instance; he should, of course, be well protected by a sufficiency of bedclothes. The fresh air tends to promote an efficient aeration of the blood, it lessens the cyanosis, invigorates the cardiovascular system, reduces the general intoxication, etc. There can be no comparison between the results attained by affording the patient from the beginning an abundant supply of fresh air, and those that ensue upon the giving of canned oxygen when cyanosis has become extreme and the patient's vitality has been almost if not quite depleted by the intoxication."—(Kelly's *Practice of Medicine.*)

9. *Hygienic management of tuberculosis:* "The patient's quarters should be free from dust, and admit of spending many hours daily in the open air in all weathers, properly sheltered, and, if very ill, lying wrapped in a hammonck or reclining chair. His bedroom should be well aired at night, draughts being avoided. The room should be uncarpeted and free from hangings. It should be often cleaned and periodically disinfected. All sputum should be collected in paper spit-cups, which should be burned daily. Smoking should be forbidden. Harm is done by any exercise which results in fatigue, and while fever exists it should not be attempted at all. Patients should be taught the necessity of practising lung gymnastics and breathing only through the nose, which should be kept clear and free from occlusion by secretions, or an hypertrophied catarrhal mucosa. . . . The clothing should be woolen, but not too heavy, or sweating is increased; and a flannel nightgown and loosely knit leggings should be worn at night in cool weather. The skin should be cleansed by daily sponge baths of lukewarm alcohol and water."—(Thompson's *Practical Medicine.*)

10. *Essentials for the production and preservation of pure dairy milk:* Vaughan's rules are as follows: "(1) The cows should be healthy, and the milk of any animal which seems indisposed should not be mixed with that from the healthy animals. (2) Cows must not be fed upon swill or the refuse from breweries or glucose factories, or upon any other fermented food. (3) Milch cows must not be allowed to drink from stagnant pools, but must have access to fresh, pure water. (4) The pasture must be freed from noxious weeds, and the barn and yard must be kept clean. (5) The udders should be washed and then wiped dry before each milking. (6) The milk must be at once thoroughly cooled. This is best done in the summer by placing the milk can in a tank of cold water or ice water, the water being of the same depth as the milk in the can. It would be well if the water in the tank could be kept flowing, and this will be necessary unless ice water is used. The tank should be thoroughly cleaned each day to prevent bad odors. The can should remain uncov-

ered during the cooling, and the milk should be gently stirred. The temperature should be reduced to 60° Fahr., or lower, within an hour. The can should remain in cold water till ready for delivery. (7) Milk should be delivered, during the summer, in refrigerated cans or in bottles about which ice is packed during transportation. (8) When received by the consumer it must be kept in a clean place, and at a temperature some degrees below 60° Fahr."

HISTOLOGY.

1. *Squamous cells* are flat, nucleated, epithelial cells, cemented together at their edges, and occurring in a single layer. They are found lining the vascular system, pleuræ, pericardium, peritoneum, bursæ, and synovial sacs.

Columnar cells are tall, cylindrical, nucleated, epithelial cells, occurring in a single layer. They are found in the mucous membrane lining the stomach, intestine, bronchi, urethra, gall bladder, and the ducts of most of the secreting glands.

Cuboidal cells are similar to columnar cells, but the cells are shorter. They are found in the thyroid, testis, and some other glands.

Goblet cells are cylindrical cells distended with mucin; they are a modification of the columnar cells, and are found in the stomach, intestines, trachea, bronchial tubes, and mucus-secreting glands.

2. *Mucous membrane* consists of a superficial layer of epithelium which is supported by a basement membrane, which latter rests on connective tissues or corium. The basement membrane is supplied with bloodvessels, lymphatics, and nerves. Mucous membranes contain secreting cells and are continuous with the surface of the body.

Serous membranes are closed sacs which line the great cavities of the body. They consist of a mesothelial lining which rests upon areolar connective tissue containing capillaries and lymphatics. The mesothelium consists of large, flat, epithelial cells, with occasional stomata between them.

3. Bone is a specialized form of connective tissue.

The organic matter forms about one-third, the inorganic matter about two-thirds.

4. A *neuron* is a nerve cell with all its processes. The cells vary in size, but are generally large. They have one or more processes, a distinct nucleus, but no cell wall; the nucleus has a nucleolus; the cytoplasm is pigmented. The processes are the axis cylinder or axone, collaterals, and dendrites. The *axone* is usually a long protoplasmic process which carries an impulse away from the cell. It may be covered with a medullary sheath and a neurilemma. The function of the neuron (cell) is to receive or send out impulses, and to nourish the processes.

5. Valves are found in most of the larger veins, particularly in the veins of the extremities. They are lacking in the venæ cavæ, the hepatic, renal, pulmonary, portal, uterine, umbilical, and cerebral and meningeal veins.

Their function is to assist the flow of blood to the heart against the influence of the force of gravity, and to prevent the flow of blood in the opposite direction.

6. The *secretory glands of the stomach* are distributed throughout the entire fundus and body, and sometimes at the pylorus. (They are known as peptic, parietal, fundus, or oxyntic glands.) There are also pyloric and cardiac glands which secrete mucus; and are located at the pyloric and esophageal orifices, respectively.

The *small intestine* has Brunner's glands, Lieberkuehn's glands, and the solitary glands (Peyer's patches); these last are not true secretory glands. Brunner's glands are compound racemose glands situated in the submucous coat, with their ducts piercing the mucous coat; they are only found in the duodenum. *Lieberkuehn's glands* are simple tubular glands with a basement membrane supporting columnar epithelium; a few goblet cells are also present.

7. The muscle coat of the large intestine differs from that of the small intestine: In that the outer longitudinal coat is arranged in three flat, longitudinal bands, which cause a sacculation of the large intestine.

8. The *appendices epiploicæ* are peritoneal pouches containing fat, attached to the outer coat of the large intestine.

9. The pancreas is a compound tubular gland. Its duct is named the Duct of Wirsung.

10. *Periosteum* is a fibrous connective tissue membrane, firmly attached to the surfaces of bones except at their articular surfaces.

Endosteum is a membrane which lines the marrow cavity of bones.

(To be continued.)

BULLETIN OF APPROACHING EXAMINATIONS.

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION†	
Alabama*	S. W. Welch, Montgomery	Montgomery	July 8
Arizona*	A. H. Williams, 219 Goodrich Building, Phoenix	Phoenix	April 1
Arkansas	T. J. Stout, Brinkley	Little Rock	May 13
California	C. B. Pinkham, Sacramento	Los Angeles	Mar. 17
Colorado	David A. Strickler, Empire Building, Denver	Denver	April 2
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Mar. 11
Delaware	J. H. Wilson, Dover	Wilmington	Jan. 17
Dist. of Col'bia	E. P. Copeland, Washington	Washington	April 8
Florida*	W. M. Rowlett, Tampa		
Georgia	C. T. Nolan, Marietta	Atlanta	
Idaho*	Ray H. Fisher, Rigby	Pocatello	April 1
Illinois	F. C. Dodds, Springfield	Chicago	Mar. 3
Indiana	W. T. Gott, Crawfordsville	Indianapolis	Feb. 26
Iowa	G. H. Sumner, Des Moines	Des Moines	
Kansas	H. A. Dykes, Lebanon	Topeka	Feb. 11
Kentucky	J. N. McCormack, Bowling Green	Louisville	
Louisiana	E. W. Mahler, New Orleans	New Orleans	
Maine	F. W. Searle, Portland	Portland	Mar. 11
Maryland	J. McP. Scott, Hagerstown	Baltimore	
Massachusetts*	W. P. Bowers, 1 Beacon St., Boston	Boston	Mar. 11
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor	June 10
Minnesota	T. McDavitt, St. Paul	Minneapolis	April 1
Mississippi	J. D. Gilleylen, Jackson	Jackson	
Missouri	G. H. Jones, Jefferson City	St. Louis	
Montana*	S. A. Cooney, Helena	Helena	April 1
Nebraska	J. J. Hompes, Lincoln	Lincoln	Feb. 12
Nevada	S. L. Lee, Carson City	Carson City	May 5
N. Hampshire	Walter T. Crosby, Manchester	Concord	Mar. 13
New Jersey	A. MacAlister, Trenton	Trenton	June 17
New Mexico	R. K. McClanahan, East Las Vegas	Santa Fe	
New York	G. M. Wiley, Univ. of State of New York, Albany	New York / Albany / Syracuse / Buffalo	May 20
N. Carolina	H. A. Rosyter, Raleigh	Raleigh	June 23
N. Dakota	G. M. Williamson, Grand Forks	Grand Forks	
Ohio	H. M. Platter, Columbus	Columbus	
Oklahoma	J. J. Williams, Weatherford	Oklahoma City	
Oregon	B. E. Miller, Portland	Portland	July 1
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia	
Rhode Island	B. U. Richards, Pawtucket	Providence	April 3
S. Carolina	A. E. Boozer, Columbia	Columbia	June 10
S. Dakota	P. B. Jenkins, Waubay	Pierre	
Tennessee	A. B. DeLoach, Memphis	Memphis / Nashville / Knoxville	June
Texas	M. F. Bettencourt, Mart	Dallas	
Utah	G. F. Harding, Salt Lake City	Salt Lake City	April 7
Vermont	W. Scott Nay, Underhill	Burlington	Feb. 11
Virginia	J. W. Preston, Roanoke	Richmond	
Washington*	C. N. Suttner, Spokane	Seattle	July 1
W. Virginia	S. L. Jepson, Charleston	Huntington	July 15
Wisconsin	J. M. Dodd, Ashland	Madison	
Wyoming	H. E. McCollum, Laramie	Moorcroft	Feb. 12
National Board	J. S. Rodman, 310 Real Estate Trust Building, Philadelphia.		

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for all the details regarding the examination in any particular State.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

AMBULANCE DE L'OCÉAN (LA PANNE). Published under the direction of Dr. A. DEPAGE, with the assistance of Drs. A. P. DUSTIN and G. DEBAISIEUX. 567 pages. Illustrated. Price, 18 fr. Published by Masson et Cie., Editeurs, Paris France.

RURAL SANITATION. By L. L. LUMSDEN. 336 pages. Illustrated. Published by the Government Printing Office, Washington.

THE SURGICAL CLINICS OF CHICAGO. 1271 pages. Illustrated. Price, $10 per year. Published by W. B. Saunders Co., Philadelphia, Pa.

THE MEDICAL CLINICS OF NORTH AMERICA. 643 pages. Illustrated. Price, $10 per year. Published by W. B. Saunders Co., Philadelphia, Pa.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 95, No. 6.
Whole No. 2518.

NEW YORK, FEBRUARY 8, 1919.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

CANCER: GENERAL MECHANICAL PRINCIPLES.

BY FINLEY R. COOK, M.D.

NEW YORK.

THE greatest need to-day in the treatment of cancer, is a rational working hypothesis.

In the exclusive radio-treatment of the malignant process, with either radium or the *x*-rays, it is apparent that the sole objective is purely local, and is based upon the assumption that the final issue is solely dependent upon the adaptation of dosage to the various specific anatomical and pathological variations, which characterize its localized dynamic manifestations through structure.

This current viewpoint, which completely ignores all general biophysical and biochemical potentialities, necessarily involved in all transmutations of potential to dynamic, pertaining to the phenomenon as a whole, is undoubtedly the natural heritage of the ultrasurgical era; which not infrequently culminated, just as in the case of excessive and exclusive radiations, in futile or deprecable tissue destruction, both normal and abnormal; and the acceleration of metastatic dispersions.

However consistent it may be, therefore, from this limited perspective and its correlated irrational mechanic conceptive, to concentrate all efforts toward the attainment of precision with respect to merely local radio-adaptations, the only prospects in the exclusive pursuance of this routine are wholly dependent upon some radical and apparently chimerical innovation in local technique.

Granting that more cases have responded to what has erroneously been interpreted as the purely local effects of radiations, if only in sporadic and selected instances, cumulative experience is amply demonstrating the glaring impotency of all so-called local and specific interventions; and while it is only too obvious, from a general survey of the situation, that there is something radically wrong with the common concept of the disease, and consequently with the treatment of the same, and that absolute empiricism must eventually give way to progressive rationalism, in cancer as well as in general therapy, there are numerous specific facts and general basic principles which not only reveal the flagrant sources of gross inefficiency, but coincidently the pressing need of a much broader point of view.

The exigency for a more comprehensive viewpoint is more vividly realized when consideration is given to the self-evident fact (irrespective of the basic principles of equilibration which pertain to all biomechanical phenomena, manifest alike in either natural normal growth or natural, however abnormal, over-growth) that if the absolute removal or destruction of its localized effects were universally —and furthermore, even permanently—successful the cancer problem, the essence of which is prevention rather than remediation, through the removal of causes, whether primary or secondary, would still remain unsolved.

In the first place the local concept of the origin, nature, and treatment of cancer completely ignores the basic principles of general biology. From every biological viewpoint—biohistological, biophysiological, biophysical, or biochemical—there would appear to be no evidence that cancer or any other so-called local disease is absolutely dissociated, uncorrelated, or incoordinated, as regards the adaptations of the organism as a whole to its environment or the multitudinous interadaptations relevant to the whole and its cell-unit parts; for in virtue of the histological and physiological differentiation of the organism, from germ-cell unity to variation, through ontogenetic evolution, a reciprocal and metabolic interaction, coordinative as well as differentiative, is necessarily maintained between all structural and functional variations.

Furthermore, it is clinically demonstrable that local changes in structure and function involve changes in general temperature, pulse-rate, osmosis, blood-pressure, and hence in general metabolism; and that such general changes induce, in turn, other local changes in structure and function, with an illusively localized aspect.

All efforts to draw precise and consequently immobile lines of demarkation between general and local, organic and functional, normal and abnormal variations are evidently traceable to a seemingly deeply rooted pathological illusion, based upon a purely static viewpoint of biomechanical motions in general.

This static viewpoint, therefore, must necessarily retard all biological progress; for a mechanical basis, which is everywhere conceded to be the final and only real objective of general biology, involves the principles of dynamics as well as of statics, and no sharp lines of demarkation ever have or obviously can be drawn between the two.

As pathological states could introduce no principles or laws, save those which pertain to normal states, the various biological phenomena through which they are made manifest, such as heredity and environment, soma and germ-cell, endosmosis and exosmosis, assimilation and elimination, alkalinity and acidity, enzymotic syntheses and analyses, electronic associations and dissociations, anabolism and

catabolism, etc., and their respective interactive adaptations, must constitute fundamental factors in all malignant transmutations; and, furthermore, it is only too obvious how the most distinctive features of the cancer cell, viz., hypo-growth and hyper-reproduction, reveal some mechanical change in the polarity, or normal interactive relativity between two complementary and basic biological phenomena: the somatic and germ-cell cycles.

In the second place, the local viewpoint of cancer entirely ignores the principles of general biological evolution. The vast majority of scientists to-day voice the opinion that evolution has been firmly and unquestionably established as the universal law which governs all biological transmutation; and by some regarded as of even greater import than the universal laws of gravitation.

Medicine, beyond the domain of normal biology, has paid little if any respect to the evolutionary hypothesis; and the fact that medicine is the most backward of all the various branches of general science may be referable, in part, to the lack of their mutual coordination and the hesitancy of medicine to adopt an evolutionary basis.

If evolution is the law of universal change, then every branch of science, inclusive of pathology, must constitute, as it were, just one differentiated viewpoint of universal evolution.

When consideration is given to the things which medicine and evolution hold in common (for they both revolve around the protoplasmic cell as a common centre; are governed by the same principles of physics, chemistry, statics, and dynamics; and hence are mechanically and fundamentally the same), the gap which separates them is all the more surprising. Neither is it reasonable to assume that the insidious transmutations from normality to abnormality are concomitant with the mysterious evaporations of the universal forces and laws which obtain under normal conditions; and there is ready evidence, particularly so in cancer, of a gradual and insidious change from slightly abnormal or benign states, through various degrees of malignant progression, and the insidiousness of the transmutation is so typically evolutionary in character as to give rise to the three classic interpretations: positive, negative, and reciprocal, depending upon the spatial point of view.

There are, however, ample reasons for the incoordination of internal medicine and evolution; and while some are traceable to medical and others to evolutionary sources, in reality they are common to both; and the most important pertain to the nature of laws in general, through which not only biological laws, but the simple physical phenomena which underlie them, have been interpreted.

The axiom that all general laws, in virtue of their double meaning, overreach their mark would seem to strike directly at the heart of the whole situation.

In both fields of research, futile efforts are still being made to solve problems in the false concepts of entities, rather in the terms of general laws; in one, it is a malignant entity in the general sense of the word; and in the other, it is the heredity entity, in positive or negative Weismannistic points of view.

The first important laws were those pertaining to universal gravitation, the discovery of which by Newton marked the birth of modern science; and gravity was interpreted as a universal attractive or centripetal force.

If gravitation is a universal force, it necessarily constitutes one of the fundamental forces in universal intracellular transmutation.

The round form which characterizes embryonicity—cocci, spores, nuclei, and nucleoli—shows the relative dominance of a centripetal over a centrifugal force; the oblong form pertaining to maturity—stratifications, adhesions, chromatin bodies, bacilli, and spirilla, etc.—shows the relative dominance of a centrifugal over a centripetal force, in obligatory actions, reactions, and interactions.

Newton was unable to explain the laws of the so-called gravity force, and the problem has been relegated to some obscure or mysterious property of space. A precisely similar situation prevails to-day in regard to universal evolution; for no two evolutionists have or can agree upon its explanation; and the various versions, whether disguised under the names of Realism and Idealism, Mechanism and Vitalism, Darwinism and Lamarkism, Weismannism and Mendelism, have this in common: they all postulate two differentiated although co-ordinated factors, in actions and reactions, and mention no reciprocal interactive factor to coordinate the former two.

The most recent opinion upon the causes or forces of evolution is that of Osborn, an adherent of no particular school, who, in the "Origin and Evolution of Life," maintains that no real advancement has been made in the past one hundred years or more; that it is best to make a frank confession of failure, to make a fresh start, and to approach causality along lines radically different from those of the past and present. Believing that the whole difficulty arises from the habit of thinking from matter backward into energy, he proposes a reversion to one of thinking from energy forward into matter, and places special stress upon interactive phenomena.

While it is apparently unquestionable that the laws of gravitation, like the laws of normal evolution, remain concealed, it is also apparent that the same situation necessarily prevails in the domain of abnormal evolution; and that the solution of the problem of cancer, in common with all other types of malignancy, is only a part of the mystery as a whole pertaining to universal gravitation and universal evolution. The first general laws of science were the physical laws of motion governing the actions, reactions, and interactions of the sun, moon, and earth; and a problem arose which was called the famous problem of three bodies; and this, like the laws of gravitation and evolution, has remained unsolved.

Newton, however, induced the law of actions and reactions, which were found to be equal and in opposite directions; and the three bodies were shown not to move in completed cycles, but in the incompleted cycles which characterize a continuous spiral movement through rotations and revolutions.

There are three simple principles in general mechanics—positivity, negativity, and reciprocality; the same three principles obtain in mathematics, which constitutes a branch of mechanics, and are

expressed in the three postulates of mind—feeling, knowing and acting, and in the three basic factors of universal knowledge—matter, energy, and ether.

The most notable discussion in the whole history of science was that between Weismann, a Neo-Darwinian, and Spencer, a Neo-Lamarkian, on the relative evolutionary import of heredity and environment, or structure and function. In its simplest terms the question was: is a thing what it is in virtue of what it does; or does a thing do what it does in virtue of what it is? After years of the most vehement disputation, in which when either disputant advanced a positive proposition it was completely negatived by his opponent, the general scientific concensus of opinion was that both champions came off the field equally victorious.

Anatomically, the cerebrum is spheroidal in outline; it is divided into two hemispheres; and the brain mass is composed of cells, also more or less spheroidal in contour.

Mechanically, any mass of such a form, pertaining to its component parts, could be reproduced only by centripetal and centrifugal forces in reversible positive and negative actions and reactions through reciprocal interactions in versions and reversions.

Physiologically, it has been demonstrated that man has habituated himself to function with only one of his hemispheres, although the mechanical nature of the connecting fibers show a structural interrelationship admirably adapted to interactive or reversional functioning, and hence, he has not yet been trained to reverse his points of view. For example, there is an axiom that two and two make four; but behind the illusive exactness of the mathematic proposition is the false assumption that there is in nature such a thing as two and two; to say nothing of four. From one viewpoint, it is positively four; from the opposite one, it is negatively four; and from a reciprocal one, it is relatively + or —, depending upon versions and reversions respectively. Again, it is held that the earth rotates from West to East, and toward the sun; but it is equally true that this is false, and that the earth, as a whole, rotates from East to West, and away from the sun. A, with a microscopic view of a sphere in motion, views a movement from him, and positives a centrifugal force; B, facing directly about, views the movement toward him, hence he negatives B, and positives a centripetal force; C, with a broader and an interactive viewpoint, with respect to both A and B, positives and negatives both A and B reciprocally; for he perceives the sphere as a whole in action.

Bacon is generally accredited with having permanently established science upon a purely inductive basis; and induction functions from specific facts to general laws and principles. As facts, *per se*, however, are devoid of any meaning, when stripped of their multitudinous differentiative and coordinated bearings, their final orientation is effected only through the employment of two mechanical movements in space, mutually opposed; and if the one, which differentiates, is analysis, then its complementary one, which coordinates, is synthesis.

From time immemorial men's minds have been recognized as being analytic or synthetic; and wherever, on approaching truth from its opposite points of view, they have come into mutual contact, whether in State or church, science or art, struggling under the illusion that they were moving in straight lines, a difference of opinion has arisen; and the resultant interaction has ebbed to and fro, depending upon the relative dominance of analysis and synthesis respectively.

Analysis, Synthesis, and Orientation.—As it is impossible to analyze the unsynthetized, or reversely, to synthetize the unanalyzed, to tear down that which is not built up, or to rebuild that which is not torn down, subjective analytic and synthetic receptions involve the mechanical principle of reversions as regards their objective dynamic donations.

Analysis is a destructive and differentiative movement from the whole to the parts; and from simplicity in concrete unity to variations in multiplicity; associating and assimilating dissimilarities; and dissociating and eliminating similarities.

Synthesis, on the other hand, is a constructive and coordinative movement from the parts to the whole; and from variations in multiplicity to simplicity in concrete unity; associating and assimilating similarities and dissociating and eliminating dissimilarities.

As analytic procedures are cumulative with respect to variations, multiplicities, and dissimilarities, and synthetic procedures are cumulative with respect to simplicities, unities, and similarities, they are illusively and mutually contradictory in their respective presentations, and they may apparently go on to infinity, disintegrating and reintegrating truth, without reaching any explanatory objective as regards the reality of truth itself. Moreover, had the whole not been dissociated into its component parts, nothing could be known of the parts; and had the parts not been reassociated into the whole, nothing could be known of the whole. Analyses and syntheses are both qualitative and quantitative; but inasmuch as there is no such thing as quality without quantity, or reversely, quantity without quality, they necessarily present opposite viewpoints of some common or reciprocal interactive principle. Furthermore, as quantity is negative, when quality is positive, and reversely, quality is negative when quantity is positive, their respective presentations are mutually reversible with respect to the same interactive principle.

Again, as no two similars are absolutely similar, or reversely, no two dissimilars are absolutely dissimilar, the principle of relativity is involved in their reciprocally interactive principle.

Analytic and synthetic processes involve mathematic presentations, for analysis proceeds by divisions and multiplications and synthesis recedes by subtractions and additions.

To sum up: As structure and function, general or local, normal or malignant, constitute the analytic presentations of biologic phenomena, structure being positive when function is negative, and reversely, function being positive when structure is negative, they demand some third or common interactive principle in their mutual resynthetization.

As there is no such thing as structure without function, or reversely, function without structure, they present opposite and complementary viewpoints of some common or reciprocally interactive

principle. Mechanically, therefore, neither one is the cause of the other, for they constitute reversible active and passive complements of interactive supplements; in the same mechanical sense that the matter content of a steam engine is not the cause of its steam content, and vice versa; nor day the cause of night.

In conclusion, in virtue of the fact that there are only three principles of general mechanics which are applicable to universal movements in analyses and syntheses, they must of a mechanical necessity be applicable to the analysis of general and local growth; from which it may be deduced that there is no such thing as a local growth, normal or malignant, *per se*.

Matter, Energy, and Ether.—The three postulates which constitute the foundation of universal knowledge are matter, energy, and ether.

Nothing is known of matter, save through energy; nothing of energy, save through matter; and nothing at all of ether, save through the actions, reactions, and interactions of both matter and energy.

Nothing is known, therefore, of the matter-energy analyses, as entities *per se*, for their descriptive and illusive presentations through versions and reversions, involve opposite viewpoints of some reciprocal interactive principle called ether.

The real objective of this basic trinity in any explanation of universal, and hence of all biomechanical changes, through structure and function, is a lucid concept of the indestructibility or continuity of motion, through the conservation and transformation of energy.

As matter and energy involve actions, reactions, and interactions, in accordance with the three basic principles of statics and dynamics—positivity, negativity, and reciprocality—their reciprocal interactions demand a third and basic factor in continuity; hence the obligatory postulation of ether.

The obscuration of this purely descriptive trinity, as well as its illusive paradox, is referable to a compounding of terms; for inasmuch as the dissociation of the whole into its component parts is incomplete, it needs to be further analyzed, as all of the parts have not been reassociated into the whole, it needs to be resynthetized; and as the parts have not been equilibrated from part to part, it needs to be orientated, in order to complete the induction of some reciprocal law in continuity through actions, reactions, and interactions.

The matter-ether-energy analysis differentiates three presentations, as regards qualitative and quantitative movements in space and time; of these the first and third exhibit reversible polarities; for when one is either positive or negative the other is reversely so; and the second is reciprocally positive or negative with respect to the first and third.

The analysis of matter differentiates three presentations—form, extension, and mass; with the same interrelationships as those which characterize matter, ether, and energy. The analysis of form differentiates three presentations—the so-called three dimensions of space. The analysis of extension differentiates three presentations, compressibility, flexibility, and elasticity, in which the first and third are reversibly positive and negative and the second reciprocal.

The analysis of mass differentiates three presentations—solids, fluids, and gases; in which fluids are reciprocally interactive with respect to solids and gases.

The analysis is still incomplete, because actions, reactions, and interactions involve energy as well as matter; and as the properties of matter are positive as to space and negative as to time, those of energy, in virtue of their reversion with respect to those of matter, are reversely positive as to time and negative as to space; and consequently, all the various analytic presentations of matter demand a simple parallelism in terms of energy.

In an ultimate analysis, all the various properties of matter and energy are reducible to one simple presentation—centrifugations or movements from some one assumed point in tentative fixation; and in synthesis, being a reversion, these properties are reducible to centripetations, or movements toward the same given point.

In review, a simple mechanical analysis, synthesis, and orientation of the classic Spencer-Weismann debate upon the interactive adaptative relativity pertaining to heredity and environment, or structure and function, brings to the fore the following and seemingly unavoidable conclusions:

(1) Both disputants selecting the same two biologic factors: one postulated heredity as a point in fixation, and environment as a point in motion; and the other just reversing the order; they described similar circles in opposite directions of space.

(2) Mechanically, neither point, either in a state of relative rest or relative motion, is or could be one in absolute fixation.

(3) Both assumed a subjective completion of their respective circles, contrary to the nature of the objective phenomena they were at the most merely describing; and consequently disproved the evolutionary hypothesis *in toto*, the mechanical basis of which is continuity of motion in endless cycles.

(4) The reciprocal interactive principle, common alike to universal mechanic and biomechanic phenomena and their analyses, irrespective of quality or quantity, namely, ionization through positive and negative ions, in versions and reversions; physiologically expressed under the more complex concepts pertaining to metabolism, constructive and destructive, synthetic and analytic, or anabolic and catabolic, the essence of the entire disputation was entirely overlooked; and hence the analyses were unsynthetized and unorientated; for in a resynthesis both circles would have been reversed; and in an orientation, both circles would have been superimposed, thus leading to the discovery of the actual forces engaged, and the mechanic principles which govern them; as universally manifested in temperature, rhythm, pressure, osmosis, and ionization, namely, centripetal and centrifugal in cyclic continuity through versions and reversions.

Universal gravitation, like universal evolution, was induced from specific facts. The two laws governing the velocities of falling bodies in space, and consequently the universal movements of all ions in all space, namely, that they vary directly as the products of the masses, and inversely as the squares of the distance, have always been regarded as more or less inexplicable.

Experimentally, these laws have been proved to

be strictly true only for relatively short distances of space, and the exceptions have been traced to the personal equation, so called, or to unknown factors. The first law of motion, a body at rest remains at rest, etc., is now obsolete in consequence of the revolution in modern physics and chemistry through inductions drawn from radioactive phenomena, which was interactive in their mutual synthetization.

In brief, it is now known that no body remains at rest; on the contrary, is in a constant state of motion, in which positive and negative ions and electrons describe rotatory and revolutory lines of motion, precisely as the celestial bodies, around some reciprocal and interactive line in relative but ever-changing equilibrium; and in the case at least of radioactive, and deductively of all bodies, with centrifugations of positive, negative, and reciprocal forces—the so-called alpha, beta, and gamma rays, which upon meeting with resistance assume other positions in potential, and then centrifugate the same three lines of force, modified only in quality and quantity, or intensity and duration; and the process may thus apparently go on to infinity.

Analysis, synthesis, and orientation of universal gravitation socalled, in the basic terms of the simplest mechanism, not only explain the laws, or rather law, of the same, but coincidently show why they have not and could not be explained from the viewpoint of universal attraction; for in virtue of the fact that a positive mechanic concept of universality involves a negative and reversible complement in specificity, and one of attractivity, repelativity, their respective analyses and syntheses, the reciprocal presentations of which must necessarily be alternately positive and negative, and hence reversible from a common or reciprocal point of view, remain to be orientated, in order to induce some common or reciprocal law in continuity.

As all positive actions in attractions or centripetations involve negative reactions, in opposite directions of space; the postulation of universal gravitation, through the implication of universal stasis, negatives all laws pertaining to the same, in virtue of the fact that the essence of all law is continuity.

As all actions and reactions involve reciprocal interactions, all actions and reactions are reversely positive and negative; then what appears to be an attraction in one position of space, is, at the same time, a repulsion in an opposite position of space. As it is impossible for a thing both to be and not to be what it appears to be at the same time and space, it is not what it appears to be; and it follows then, that there neither is nor could be such a thing as universal gravitation.

To sum up: As a body cannot come down, that is not up; or go up, that is not down; its coming down and its going up constitute two correlated, complementary, and opposite presentations of the same cyclic phenomenon. If this cycle is energized by two component forces—solar and cosmic respectively, then its descendant and ascendant phases are not the resultants of a simple attractive or gravitational force on the one hand, or repellant on the other, but the resultants of the reciprocal interactions between centripetal and centrifugal forces in reversible positive and negative actions and reactions; in which either a positive centripetal dominates a positive centrifugal or reversely so.

In conclusion: every cell-body, normal or malignant, and its component ions and electrons, are subject to the same three mechanic principles, positive, negative, and reciprocal, in virtue of being energized by the same two opposed and complementary forces—solar and cosmic—in intermittent and reversible actions, reactions, and interactions, to and fro, with respect to some given basic line in relative and ever changing equilibrium; and they express their intracellular and extracellular cyclic transmutations, synthetic and analytic, irrespective of quality or quantity, in cyclic continuity through the reciprocal and interactive phenomena, summarized in temperature, rhythm, osmosis, reciprocal potential pressure, weight, and equilibrative ionizations between basic and acid-forming radicles.

Life and Evolution.—If, when giving consideration to the centripetal force, which, for example, centripetates the apple from tree to earth, the viewpoint is reversed, and some consideration be given to the centrifugal force, which centrifugates the said apple from earth to tree, some other and opposing force presents, with apparent and vital interrelationships with life so-called and its so-called evolution.

If the presentations of life are wholly evolutionary in character, there is no such thing as life without evolution; nor reversely, evolution without life; accordingly, these two factors are complementary; and when one is either positive or negative, the other is reversely negative or positive. Inductively, however, there is life without evolution and evolution without life.

The general analysis, synthesis, and orientation of matter, energy, and ether; the rotatory and revolutory character of the electronic forces in the atom; the decadence of radioactive bodies; the growth and decay of celestial bodies; the periodic law of the elements, with the ascending and descending cycles of their volumes and melting points and their reversely positive and negative and reciprocally positive and negative differentiations, through an infinity of chemical or electronic actions, reactions, and interactions; and reversions through mass actions; all establish ample evidence of not only an evolutionary movement without life, but coincidently, its complement, an involution as well. No life without death is a simple induction; mechanically then, the presentations of life and death are complementary; and hence reversely positive and negative. As death is recessive or negative when life is dominant or positive, then reversely, death is dominant or positive, when life is recessive or negative.

Unicellular organisms demonstrate not only an indefinite life without death, but reversely, an indefinite death without life; those types that are positive to Gram's test, in life, are negative in death; and reversely, those that are negative in life, are positive in death; consequently, there is no such thing as life *per se*, or death *per se*, either as dissociable entities or general principles; for their versional and reversional presentations, however illusively or mutually contradictory, demonstrate the reality of a single and reciprocal law in continuity. The perplexities and illusions which

naturally arise from efforts to induce general principles from such complex analyses as vegetable, mineral, and animal; heredity, adaptation, and environment; growth, metabolism, and reproduction; structure, metabolism, and function; health, metabolism, and disease, etc., are readily and simply clarified when reduced to their mechanic and basic terms; for from a simple mechanical viewpoint, they invariably disclose but one law, with three corollaries, viz., positivity, reciprocality, and negativity; in which when the first series of each group are positive or negative, the third are reversely negative and positive; and the second are reciprocally positive and negative with respect to the first and third.

For example: there is no such thing as heredity without environment, or reversely, environment without heredity; for every specific presentation of heredity is the invariable resultant of an interaction between actions and reactions pertaining to an unbroken continuation of the same general heredity and environment; and reversely, every specific environmental presentation is the resultant of an interaction between similar actions and reactions, pertaining to its heredity and environment; consequently when one is positive in analysis, its complement is negative in synthesis; and vice versa; for their contradictory presentations through versions and reversions, establish an interactive adaptive continuity through positive actions and negative reactions.

The same mechanical principles necessarily hold true with respect to the various properties of life; such as sensation, irritability, and motion; inspiration, respiration, and expiration; secretion, function, and excretion; arterial circulation, and venous; endosmosis, osmosis, and exosmosis; dynamic systolic pressure, reciprocal potential, and dynamic diastolic pressure; anabolism, metabolism, and catabolism; electronic associations, electronic interactions, and electronic dissociations; alkalosis, interactive neutrality, and acidosis; synthetic, reciprocal interactive, and analytic enzymes; hypofunction, equilibrative function, and hyperfunction; vasoconstriction, sympathetic interaction, and vasodilatation, etc., etc., for the first and third series of each group are reversely positive and negative; and the second are reciprocally positive and negative with respect to the first and third.

When mechanically analyzed, synthetized, and orientated, in accordance with the principles of any motion, as revealed in every type of mechanism, from the body falling through space to the reasoning processes of man, they can be demonstrated to be the resultants of the reciprocal interactions of positive centripetal and negative centrifugal; and reversely, positive centrifugal and negative centripetal forces; in actions and reactions; through versions and reversions in cyclic continuity.

That the foregoing induction is a self-evident proposition is obvious, for every phenomenon of change involves motion; and every motion is at the same time, both to and from any assumed and artificially fixed point, in virtue of the three principles of mechanics.

It is therefore a mechanical impossibility for the living cell to inspire, secrete, assimilate, or anabolize, etc., without the relative dominance of a centripetal over its complementary centrifugal force; and reversely, to expire, excrete, eliminate or catabolize, without the relative dominance of a centrifugal over a complementary centripetal force, in interactive and ionic versions and reversions.

Every cell then, living or dead, in relative rest or motion, in common with the elements and their positive and negative electronic motions which energize the same, is the seat of cyclic phenomena.

Mechanically, therefore, it seems to be perfectly clear why neither mechanists nor vitalists have succeeded in establishing a satisfactory explanation of universal normal intracellular transmutations with which universal abnormal intracellular transmutations are necessarily correlated.

(1) Relying entirely upon those branches of science, such as embryology, paleontology, comparative anatomy and physiology, which are merely descriptive in character, interpretatory efforts purported to be explanatory, remained purely descriptive.

(2) As the complex terms of biologic phenomena were not reduced to simple or mechanic terms, what would appear to be the universal design of universal phenomena, namely, "Polarity in Cyclic Continuity," was not completely analyzed and hence impotent as far as a resynthesis and orientation was concerned.

(3) Futile and abortive efforts were made to interpret the somatic or ontogenetic cycle from one point of view; for if its analytic presentations are positive and evolutionary in character; then reversely, its synthetic are negative and involutionary in character; and mechanically, they are necessarily reversible with respect to the first half-phase and the second half-phase respectively.

This seems obvious; for in the first half-phase of the somatic cycle, from germ-cell to mid-life, the synthetic processes of anabolism dominate the analytic of catabolism; a positive centripetal dynamic dominates a positive centrifugal, with an increase in cell potential; centrifugated or expressed in an increase in mass and in an extension in space, differentiated through structure and function, hence negatively involutionary and positively evolutionary in its presentations.

In the second half-phase, from mid-life to death so-called, just the reverse is true, for otherwise the organism would continue to differentiate and to extend indefinitely in space. On the contrary, however, catabolic processes dominate anabolic; analytic, synthetic; centrifugations, centripetations; and involution, evolution.

As the analyses and syntheses of these cyclic phenomena are illusively opposite in directions of space, although correlated through interactions, there could be no such thing as either evolution or involution *per se;* and their equilibration, being interactive, orientates or induces revolutions, in a synthesis from the parts to the whole; rotations, in an analysis from the whole to the parts; and a spiral line of continuity, from part to part.

In conclusion: the one universal mechanical law pertaining to universal biophysical and biochemical intracellular phenomena, is that of "cyclic continuity," universally revealed through "polarity," as regards qualitative and quantitative movements in space and time.

A simple mechanical analysis, synthesis, and orientation of such phenomena, universally manifest through structural and functional variations, in their ultimate and basic terms of matter, energy, and ether, in accordance with the three fundamental principles of general mechanics—positivity, negativity, and reciprocality, show that they are the deducible resultants of the interactions between universal centripetal and centrifugal forces, namely, the universal cosmic pull on the cell and solar bodies and reversely, the universal solar pull on the cell and cosmic bodies in reversible positive and negative actions and reactions through versions and reversions; and consequently should be inducible through universal biophysical and biochemical analyses, syntheses, and orientations.

If these mechanical principles are the universal ones pertaining to all normal transmutations through structure and function; or matter and energy; in virtue of the law of continuity, they are equally applicable to all abnormal, and therefore cancerous transmutations. This concludes the consideration of the general mechanic principles, with evident bearing upon the biomechanic problem of cancer.

The incorporation of these same principles, in what has so far been demonstrated to be a logical approach to a rational working hypothesis, and the application of the same in the treatment of cancer, will appear in a subsequent and complementary article.

40 East Forty-first Street.

THE CLINICAL COURSE AND PROGNOSIS OF THE PNEUMONIAS OF THE RECENT EPIDEMIC.*

By THOMAS F. REILLY, M.D., F.A.C.P.,

NEW YORK.

PROFESSOR OF THE PRACTICE OF MEDICINE, SCHOOL OF MEDICINE, FORDHAM UNIVERSITY.

The pneumonias that have been characteristic of this epidemic have been almost entirely of the catarrhal or bronchopneumonic type. It is unfortunate that we do not have another name for this type of pulmonary affection, because it is so entirely different from ordinary lobar pneumonia. One finds a great difficulty in making the layman understand that this is essentially a different disease from the ordinary pneumonias with which he is acquainted. At the beginning of the epidemic even many physicians could not easily grasp the different clinical picture, although we did have more or less of this bronchopneumonia during the past winter. The relationship of bronchopneumonia and lobar pneumonia might well be considered in the same light as rheumatism and chronic rheumatism —the two are essentially different diseases, although both affect the same tissues somewhat similarly. The confusion of names makes for much misunderstanding in both diseases.

In this epidemic the catarrhal pneumonia picture presented itself in one of three forms:

1. *The Malignant Type,* the history being that the patient was in perfect health, when he was suddenly stricken with chill, fever, cough, dyspnea, usually vomiting, and increasing cyanosis; death occurring in from 24 to 48 hours of the onset.
2. The patient was taken with the symptoms of a moderately severe influenza, *i.e.,* pains and aches, coryza and cough, and a temperature of 102° or 103°. On the third day there was no cessation, on the other hand the temperature rose somewhat on the fourth day and continued elevated throughout the course of the disease.
3. The patient had suffered from the ordinary influenza, and on the third day, as is common in uncomplicated cases of that disease, the temperature fell to nearly normal and remained there for one or two days, then on the 4th or 5th day a chilliness was experienced, the temperature gradually rose, and signs and symptoms of pneumonia appeared. Latterly this fall and rise has appeared frequently on the 4th and 5th days.

Diagnosis.—As a rule in the fulminating cases the subjective and objective symptoms were so marked that even without physical signs (and they were seldom present) one had no difficulty in pronouncing the disease pneumonia.

In the third class of patients the previous history of influenza, with the period of quiescence following and the secondary rise in temperature usually gave a clue of the condition to be expected, so that the greatest difficulty was in the second group mentioned. Here the early onset was not any more severe than in other cases of influenza but the failure of the temperature to fall before the 5th day called the attention of the practitioner to the fact that he was dealing with pneumonia. If one may except the presence of bloody sputum, this continuance of temperature was often the only sign of much value. It may be mentioned that this bloody sputum did not have the same diagnostic value that it has in lobar pneumonia, because the source of it was often due to the accompanying tracheitis. The patient did not seem any worse on the 4th day. On the other hand, mentally, he was usually bright and making light of his illness, so that unless the practitioner had formulated some such rule in his mind that four days of continued fever in influenza without any other well-defined cause means pneumonia, he was apt to continue the diagnosis of simple influenza through one or two weeks of fever, awaiting the appearance of definite signs of pneumonia. As in most catarrhal pneumonias the physical signs usually were very variable. This must be so because of the varied pathological picture presented in the lungs—a tympanitic percussion note, absent or diminished vocal fremitus, and showers of fine consonating râles, especially noticeable on deep inspiration and more pronounced on one side than on the other. Usually these signs were to be found in the area between the lower angle of the scapula, the base of the lung, and the vertebral column, being more marked on one side than on the other. In many instances there was an entire absence of breathing over these portions of the lungs. When this was present slight dullness could be elicited. In some cases there were present small localized areas of fine râles and when these persisted with fever much significance might

*Read at meeting of Medical Society of the Greater City of New York, December 16, 1918.

be attached to them, so that in early cases one listened for silence or for consonating râles, or both. Later on, of course, one might find slight impairment of resonance—bronchovesicular breathing and sometimes bronchial breathing, but at that time usually anyone could make the diagnosis on the clinical history alone without listening to the chest. A peculiarity about these physical signs was that they might be present on one day and absent on the next. In this respect they resembled the picture of acute miliary tuberculosis. In a general way it may be said that one made the diagnosis early either on the presence of continued fever and a few râles or on the presence of physical signs of consolidation and symptoms. Sometimes the general symptoms were surprisingly slight and only their continuance made one search carefully for signs of a pneumonia. In other words, the diagnosis was made on fever, râles, and symptoms, at least two of the trilogy being present. Of these symptoms the *early cyanosis* was the most striking as well as the most awful. It was unlike the cyanosis of any other acute disease, and the patient looked more like one who was suffering from illuminating gas poisoning than any other of the common disease pictures. The sudden onset, with this cyanosis and fever, often without anything else but a few râles, commonly sufficed for a diagnosis. The disturbed pulse respiration rate had not the same diagnostic value that it has in lobar pneumonia, where a 1 to 3 or 3½ rate is of such great diagnostic importance. Sometimes the respirations were exceedingly slow—16 to the minute—with a temperature of 103° and a pulse of 90. At other times the dyspnea was frightful. Ordinarily, however, the dyspnea bore some relationship to the amount of lung involved and approximated the pulse in a ratio of 1 to 3½. The slow pulse was characteristic of the disease and it commonly continued so until a short time before death and this slow pulse often caused one to forget to compare the respiration rate with pulse. The sputa were red and frothy, but not rusty and did not resemble the sticky sputa of lobar pneumonia.

I was forcibly struck by the frequency of a roughening of the first sound of the heart, from the base down along the left sternal border. This murmur, if such it could be called, was not transmitted and did not grow more marked during the progress of the case. It will be interesting to observe the after results in these cases, because Allbutt has insisted that influenza is one of the frequent causes of aortitis. The cough was frequent and usually distressing. Most of these patients suffered from nausea and vomiting at some period of their illness. The presence of nausea, vomiting, and excruciating pain in the epigastrium and later on in the right side of the abdomen was very strikingly suggestive of *appendix disease* and not a few of them have been operated on in the various clinics. In general, pain was for the most part not experienced over the affected area of the lung, although paresthesia was sometimes experienced there. A burning pain across the infrascapular region that appeared and disappeared was not unfrequent. This burning pain and the presence of tenderness on forcible percussion was of service sometimes in attracting attention to the side involved. The sternal pain was that of the accompanying tracheitis. The epigastric pain was sometimes due to the muscular strain of coughing and vomiting but for the most part was a referred pain from the accompanying diaphragmatic pleurisy. This could be easily determined by looking for the usual points of referred pain in this disease: (1) Tenderness and often pain over the trapezius or in other portions of the neck and chest supplied by the 4th cervical nerve. (2) Tenderness and pain were present over Muzzy's button, situated at the junction of the parasternal line and one drawn from the 10th costal cartilage. Nearly all of the cases showed a trace of albumin in the urine and some hyaline casts. For the most part the patients did not look sick. They often appeared bright, and were anxious to get out of bed and were usually making plans for the near future. This caused many of them to get out of bed with the first fall of temperature. In women the menstrual flow came on ahead of time, and if pregnant they miscarried. Many odd and bizarre symptom groups occurred but they were not nearly so common as in previous epidemics. Among these may be mentioned those who presented the symptoms of stupor, coma, loss of speech, and incontinence of urine, along with the signs of a bronchopneumonia. This made up a picture of cerebrospinal meningitis rather than pneumonia. While these patients were apparently moribund for days at a time, and most of them did die, still not a few recovered from what seemed to be a hopeless condition.

Empyema was conspicuous by its absence. When it was present it always raised the question *whether the antecedent pneumonia was not lobar rather than catarrhal.* The relapsing temperature after a period of normal temperature tempted many to aspirate. The physical signs were often strongly suggestive of *fluid*, but there was always something lacking in the physical findings so that one could not feel certain fluid was present. Sometimes this was because the flatness was too localized or the presence of an occasional râle, the absence of the Grocco sign, or the absence of displacement of the heart when the suspected area was on the left side.

The disease commonly ran on for 8 or 10 days and then came down by *lysis.* The temperature did not become normal for three or four days longer. Of course this was not always the case, and often the temperature ran on practically continuous for two or three weeks and sometimes longer. One of the striking features of this disease was the number of relapses. Patients whose temperature had come down by lysis, and by the 12th or 14th day was near normal, would have a rise again, continuing for from three to six days, then fall, and a similar relapse perhaps would occur. In one case I saw five such relapses. It was seldom that the relapse lasted more than six days. Past experience teaches us that resolution does not occur in bronchopneumonia, ofttimes for many months, and that until this does occur relapses are likely. An interesting clinical observation was made in the wards of Fordham Hospital that the males seemed to have most involvement on the left side, whereas the females showed most signs on the right. Of course, this was probably only a coincidence.

In the fatal cases death occurred: (1) By as-

phyxia and coma; (2) with the symptoms of acute pulmonary edema. This often occurred out of a clear sky in patients otherwise doing fairly well. (3) In a large number, however, death occurred with the *Romberg-Passler Syndrome.*

The abdominal distention, which had previously been a troublesome symptom, now became markedly worse. The patient had then the appearance of profound shock—the pulse became irregular, very rapid, 130 or 140; delirium, hallucinations, and restlessness were added. Sometimes pulse deficit could be made out, *i.e.*, there were more beats at the heart than pulse beats. Stupor and coma followed and *death* then closed the scene. In old people sudden death sometimes occurred. The patient was sometimes up and about when this happened.

Differential Diagnosis.—In the differential diagnosis there was commonly little trouble, because the showers of consonating râles at the base, which were so generally present, ordinarily clinched the diagnosis. I may say in passing that there are two other signs of some value to indicate that the patient is suffering from influenza of the respiratory type, even though he may have some other disease and they may serve in calling attention to an otherwise unnoticed pneumonia; these are:

1. The presence of an *enlargement of the puncta of Steno's duct* with a red hemorrhagic area at the point of opening. So far as I know this is an original observation and is present in 70 per cent. of the patients who are suffering from the respiratory form of influenza. It is commonly present on the first or second day, and sometimes disappears after three or four days, but in other cases is present for two or more weeks. It was not present as frequently in children as in adults. Commonly it was more marked on one side than on the other. In relapsing cases it was present longer than otherwise, and on a few occasions I was able to predict a relapse by its continuance. I am not sure that this is always the case.
2. *Redness of the arch of the palate* with a persistent cough is strongly suggestive of a previous influenzal attack.

The four diseases which occasionally cause trouble in the diagnosis are: (1) typhoid fever, (2) meningitis, (3) appendicitis, (4) tuberculosis.

Among the rarer causes may be mentioned: (1) dengue, and (2) acute miliary tuberculosis.

Of the latter two I did not see a case in the present epidemic. The sudden onset and the presence of coryza and râles were the common signs that served to rule out *typhoid fever.* In doubtful cases the Widal clinched the diagnosis. As for *appendicitis* the presence of a few râles and the absence of leucocytosis were the most convincing proofs that the disease was influenza. The pain was more intense than in ordinary appendicitis. The signs did not develop in rotation as is the custom in the Murphy syndrome so common in acute appendicitis. The frequency of unresolved pneumonias of a month's or more duration makes the differentiation from tuberculosis a real problem, so that given a patient who presented signs of bronchopneumonia of a month's duration with its attendant loss of weight and appetite, and other distressing symptoms, as sweating and cough, one in the past has been prone to regard it as tuberculosis, even though the bacillus was not isolated. In view of the commonness of this form of bronchopneumonia at the present time, it is wiser to regard all of these as influenza rather than tuberculosis until a positive sputum has been obtained. Commonly tuberculosis affects the upper lobes, whereas influenza attacks the lower lobes; yet, in this pandemic we have frequently seen both—the upper lobes on one side and the lower lobes on the other—involved in the same case.

Prognosis.—In no disease has the prognosis been more difficult than in bronchopneumonia, because what really seems like a fulminating case will change over night, whereas, a patient who is apparently doing well may suddenly become moribund.

In general, the mortality was: Below 5 years of age about 15 per cent.; from 5 to 15 years about 5 per cent.; from 20 to 36 years about 30 per cent.

In children under one year it was approximately 50 per cent., and yet there were comparatively few deaths because pneumonia was not so common in children as it was in adults. It was not so common nor so fatal in the aged as it has been in the past. Women had almost double the mortality of men. If the disease was contracted from a patient already suffering from influenzal pneumonia the outlook was worse than otherwise. If the first patient died of the pneumonia the second was likely also to die. When a double pneumonia could be made out the mortality was more than 50 per cent.

Cyanosis occurring early was almost invariably fatal, if marked and occurring before the 8th or 9th day it was generally fatal; it was perhaps the most terrible symptom of the disease.

Extreme prostration occurring early usually betokened death; even when it occurred late recovery was uncommon.

A "don't-care" attitude was of ominous import.

Incontinence of urine and feces usually meant approaching dissolution.

The pulse was of very little value in arriving at a prognosis. As a rule the pulse was quite slow and good until 24 or 48 hours before the end. When the pulse did begin to climb, whether early or late, and continued to do so for more than 24 hours, the patient usually climbed into Kingdom Come.

Extra-Systole and Sinus Arrhythmia did not have any prognostic significance. They were more common after the fall of temperature.

A low pulse pressure always suggested a failing circulation but other signs were quite as valuable.

A low respiration, under 30, carried a good prognosis; when it went to 40 or over recovery was rarer. A steadily climbing respiration rate was as bad as a steady climbing pulse.

As to the antecedent condition, fat people were poor subjects for the disease and the mortality was much higher than in wiry ones. Those with a pale, pasty complexion and with poor vasomotor response seemed to be poorer risks than others.

In my experience cardiacs who had already suffered from symptoms of broken compensation before this illness almost invariably died. Old patients suffering from renal disease usually died.

Those suffering from tuberculosis did not appear

to have the same high mortality that others have noticed.

In women the onset of menstruation during the pneumonia had a bad effect on the course of the disease. If the patient was pregnant the child almost never survived, and the maternal mortality approximated 80 per cent.

No one can give assurance to a patient that a relapse will not occur, because even after the temperature has been normal for several days a fresh outbreak may ensue. It is, however, very uncommon for such a return of the pneumonia after 10 days of normal temperature. In patients who suffered from trophic skin disturbances relapses were more frequent. On the other hand, patients who have had severe and prolonged attacks of this disease will suffer for years from the results, in the shape of repeated attacks of bronchitis and bronchiectasis. This is due to the anatomical results of the pulmonary fibrosis which follows in such cases. They have crippled lungs with areas of emphysema here and there which are aggravated with each fresh attack of bronchitis. One sees many such cases that have been suffering since the last pandemic 30 years ago. They are frequently mistaken for tuberculosis.

37 West Eighty-seventh Street.

A SHORT HISTORICAL SKETCH ON DEATH FROM DROWNING.*

By CHARLES GREENE CUMSTON, M.D.,

GENEVA, SWITZERLAND.

PRIVAT-DOCENT AT THE UNIVERSITY OF GENEVA; A VICE-PRESIDENT OF THE SECTION OF THE HISTORY OF MEDICINE OF THE ROYAL SOCIETY OF MEDICINE OF LONDON; MEMBER OF THE MEDICAL HISTORICAL SOCIETY OF FRANCE, ETC.

The most ancient opinion as to the cause of death from drowning is that which attributes it to a too large quantity of water in the respiratory and digestive tracts. In his commentaries on the anatomical writings of Hippocrates and Galen, Jacques Sylvius in his *Opera medica*, Genevae, 1630, lib. 3, cap. 23, makes the remark that like the latter he was in the habit of dissecting monkeys that he had suffocated under water in order to have the bodies in a good state of preservation, and that in the case of human bodies it is better to choose those that have been drowned, rather than those who have died from strangulation or from some wound or disease, because the structures are in a perfect condition, and by strongly compressing the stomach with the hands the water is expelled.

Waldschmit, in 1687, opposed the opinion that in drowning death resulted from the amount of water swallowed or that by entering the trachea and lungs it interfered with the respiratory junctions. According to this writer it is not the compression of the water on the organs that causes death but the want of air with interrupted respiration and secondly the circulation.

Waldschmit points out that respiration must cease at once because air cannot make its exit from the body of drowned subjects any better than water can enter. Therefore, he states that he has never found a single drop of water in the stomach nor in the chest of those dying from submersion.

In 1704, Becker published a little work with a long title: *Paradoxum medico-legale de submersorum morte sine potu aquæ, aliquot cadaverum sectionibus delectum, et e principiis mechanicis illustratum*, Giessae Hassorum, 1704, in which he maintains Waldschmit's teachings. He, however, adds that constriction of the neck in cases of drowning is so considerable, even after some time has elapsed since the submersion occurred, that it is impossible that water could penetrate the lungs or the intestines and that consequently death should be attributed solely to the cessation of the respiration.

The air contained in the thorax of drowned subjects expands, compresses the blood-vessels, and arrests "the movement of the blood," as he says. Therefore, blood is found in large amount in "the pulmonary cavities of the heart, while the aortic cavities contain hardly any."

In a letter addressed to L. Schroeckius under the date of May 8, 1774, George Detharding, on the treatment of drowning by laryngotomy, does not hesitate to uphold that the generally accepted opinion that the cause of death by drowning is due to the entrance of water into the respiratory and digestive tracts is false and devoid of any reason, although he has only a single personal case to offer in support of his thesis.

But these were glorious days, when an opinion could be supported on very little ground and yet find favor among many of our profession. Detharding is not at all at loss to suggest the true cause of death from submersion and he says that those who die from drowning do so because *they have too much air* and not for the reason that they do not have enough! They draw it in but do not expire. From this it results that the pulmonary vesicle becomes overdistended with air, the bronchi become elongated and the pulmonary vessels compressed.

His conception is that the epiglottis closely closes the glottis and consequently water cannot penetrate into the respiratory tract. Those of you who may have the curiosity to read this letter will find it in the second volume of Haller's *Disput. chirurg.*

Littré was of the opinion that the water which found its way into the lungs and stomach could not cause death because it was in too small a quantity. Pulmonary patients, asthmatics, and hydropic patients have water-logged lungs and yet they live on. This cause of death being eliminated in cases of submersion, one must look elsewhere. Respiration ceases. In all of his experiments, Littré never found that the air became excessively rarified in the lungs of drowned subjects as Becker maintained, and he believes that if the latter writer did not find water in the lungs and stomach of the subjects he examined post-mortem it was because death was not the result of submersion, because only a *living* man submerged in water can swallow.

Littré's paper was published in 1719 and in 1726 Senac's paper appeared. This writer was quite positive in his assertion that drowning persons were unable to swallow water and should they do so it would be in such small amounts that it would do no harm. But Senac believed that the want of air caused faintness and "convulsions of the trachea,

*Being the introductory lecture to the course on the History of Medicine, at the University of Geneva, for the academic year 1918-19.

rupture of the pulmonary vessels and expectoration of blood might be the causes of death."

Cerebral hyperemia results, according to Senac, in compression of the "origins of the nerves" and immediately extinguishes all sensation, so that death by drowning is similar to that from strangulation or to negroes who know how "to throw back their tongues and force the gustative organs under the velum palitinum."

After some experiments, Louis, in 1752, emitted the opinion that so soon as an animal is submerged the thorax remains in the same condition that it was before the animal fell in the water. But the necessity to breathe finally forces the animal to suspend movements of the thorax. By the movement of inspiration, water enters the lungs and forces the air contained outward.

In order to give a foundation to his assertions, Louis drowned several animals in colored liquids and he found their lungs stained the same color as the liquids in which they had been submerged, an experiment, gentlemen, which would do credit to any one of our present enlightened generation. He furthermore made sure that water did not enter the respiratory tract of an animal after death, a point upon which I desire to insist.

Louis' experiments on death from submersion were repeated in the presence of Morand and Bourdelin, a commission appointed by the Royal Academy of Sciences to examine his mémoire, and it would appear from all accounts that they were satisfied with the author's conclusions. But this was not enough for Louis that he should have proved that the entrance of water in the lungs of subjects dead from submersion; he still opposed the contrary opinion upheld of such men as Becker, Detharding, Littré and others and for your further instruction on this subject I would refer you to Littré's *Lettres sur la certitude des signes de la mort, avec des observations et des expériences sur les noyés, Paris,* 1752.

In his "Opuscules on Pathology," which was published at Lausanne in 1755, Haller tells us that he had formerly adhered to Becker's theory as to the mechanism of death from drowning, but that in 1748, having had the opportunity of making an autopsy of a female who had been drowned, he demonstrated to his own satisfaction that the lungs were filled with water, for he expressly says: *Omnibus nempé pulmonis pectorisque partibus integris, presso pulmone, aqua, quae in id viscus penetraverat, per asperam arteriam manifesto regurgitavit.*

He refers to experiments that he undertook at the beginning of 1753 on cats and dogs and of those still more numerous that were made at Gottingen that same year by Evers, one of his pupils, and which all offered the same result, namely, that there was much frothy water in the bronchi. To quote his words: *Aqua erat in pulmone, et ea cum multâ spumâ de asperâ arteriâ animalis expressâ opullulabat.*

As to the cause of death, Haller expresses himself as follows: *Et iis* (experiments) *aliqua non exigui momenti corollaria sequuntur; et primo quidem causa mortis in submersis animalibus ea potissimum videtur, quae ab aqua in pulmonem resorptâ atque anzii animalis ultimis nixubus cum aere asperal arteriæ et pulmonis concussâ, inque spumam agitatâ reperitur, eaque spuma nullâ porrô pectoris dilatatione expandi potest, cum minime se, ut aer, elastica expandat.*

In the appendix to the third volume of his Elements of Physiology, it will be seen that Haller had accepted a different opinion as to the cause of death from submersion because we find the following: *Haec theoria, mortisque ab impenditâ respiratione deducta causa, confirmatur experimento canisqui, submersis sub aquâ, vitalis superest, si, per longum tubulum ex asperâ arteriâ eductum super acquam, ei aeris commeatus reservatur.* In a note appended, Haller says that the name of the author of this ingenious experiment has escaped his memory, but I will tell you that it belongs to Gauteron, who published his research work in the reports of the Société de Montpellier, April 17, 1728.

A professor at Göttingen by the name of Roederer, published some observations on death from drowning in a dissertation entitled: *De suffocatis,* which appeared in 1760. In this opuscule he states that in 1753 he was present at Evers' experiments and he relates the findings of the autopsies of two females who had died from drowning which would seem to confirm the opinion emitted by Louis, Haller, Evers and others. I will quote him: *Os, nares, fauces, asperam arteriam cum bronchiis aqueâ spumâ ita exsuperantes, ut vel faciem conspurearet, et compresso pulmone copiosa efflucret.*

In 1762, the learned and exact Morgagni gave to the world the results of his animal experimentation and he candidly admits that, like Valsalva, he had never had an opportunity of performing an autopsy on a drowned person.

Morgagni states that he invariably found a frothy fluid (humor spumosa) in the trachea and lungs of the submerged animals, but never any water, in the strict sense of the word. He occasionally found a little in the stomach. He never remarked that the epiglottis fell back on the glottis.

In 1767, an accident occurred at Lyons which offered the opportunity to Louis to hotly uphold the opinion he advanced fifteen years previously, namely, that water entered the bronchii in drowned subjects. I refer to the case of death of one Claudine Rouge, and the experts appointed in the case were Faissole and Champeaux. During the same year in which they made their medico-legal examination of Rouge they undertook a series of interesting experiments which confirmed Louis' views.

In 1776, Portal published a work entitled *Observations sur la cause de la mort des noyés, et sur les moyens qu'on emploie pour les ramener à la vie.* He informs us that having autopsied several drowned persons and carried out a number of various experiments on animals submerged in colored water, he found a more or less considerable amount of frothy serosity of the same color as the water in which the animal had been drowned. This would seem to conclusively prove that the water entered the lungs.

In an article which appeared in the *Journal de Physique,* in 1778, Gardane advances the opinion that when animals are submerged they become asphyxiated the instant the last air bubbles leave the lungs, and that in consequence, since the subject died in the act of expiration, and without giving

any sign of inspiration, he believed that if any water entered the lungs this could only occur after the last expirating movement, and that, therefore, the water was not the cause of death.

The true cause of death appeared to Gardane to be the effect of the shock and graded expiration, which, by preventing the flow of blood to the brain, arrested the circulation and heart beats while at the same time it caused respiration to cease. Now, Gardane at the same time stated that he found no pulmonary areas stained black in dogs that he had drowned in water to which ink had been added, so that a commission appointed by the Academy of Sciences of Paris to examine the question repeated the experiments, with the result that it was found that more or less water entered the bronchii in submerged animals.

To confirm his opinion, Gardane drowned several dogs in colored water, and in some he found no trace. In the majority of animals he thought that the edge of the glottis was stained, and that some of the froth in the trachea and bronchii was tinted the same color as the water. However, he was undecided as to whether the water entered during life and suffocated the animal, or if, as he suspected, it did not enter the trachea at the moment of asphyxia. To settle the question, Gardane injected every third day, for a month, about an ounce of pure cold water into the trachea of two rabbits. The animals remained unaffected. The water introduced was always absorbed and never vomited, from which he concluded that it is less the presence and weight of the water in the lungs than the painful sensation produced in the nares and on the glottis, the general shock resulting from submersion, and to the violent convulsions that asphyxia is induced, and is quite independent of the more or less considerable amount of water entering the trachea and bronchi.

At just about this time, Macquer gave his opinion on the cause of death from drowning in his *Dictionnaire de Chimie*, Vol. I, and I shall quote him textually: "Animals who die under water perish by the same death as those dying in gas. In both instances they are in reality drowned, and if the same species of animals resist a little longer in water than in gas this is due to the fact that the pressure of the water being an obstacle to the exit of the air contained in the lungs at the time submersion takes place, this amount of air continues to keep up what life is left until it is entirely suppressed and has become incapable of aiding respiration."

Now let us turn to the *Memoires de la Société royale de Médecine de Paris* for the year 1779, and we will find the results obtained by Varnier, who caused a cat to inhale a large amount of cold water in order to ascertain the effect on the lungs. He found that the respiratory movements, which at first appeared to increase and then decrease, resulted in the complete absorption of the water.

From this the natural outcome was that he formulated the following corollary, namely, that since cold water neither arrested nor suspended respiration, it could be admitted that it is erroneous to suppose that death from drowning is the result of the intromission of water in the lungs, since it does no harm, and is absorbed with great facility.

Walter, who appears to have had the opportunity of examining, post mortem, a considerable number of drowned persons, says in his paper, published in the mémoires of the Royal Academy of Science of Berlin, 1782, that he never found water in the stomach nor froth in the lungs, the latter being greatly distended by air. He likewise found the epiglottis normal and the cerebral vessels greatly dilated with blood as in the case of hanging.

As to the rosy froth found in the lungs of submerged subjects, and which is mistaken for water swallowed, it is simply the natural outcome of an exaggerated pulmonary circulation which results in overdistention and consequent rupture of the arteriolæ, giving exit to a few drops of blood, which become mixed with the gelatinous matter of the bronchial tubes, and thus in turn changes into a reddish froth from the action of the greatly diluted air.

The continued dilatation of the lungs prevents the blood from making its exit from the venous system of the brain. The arteries, and especially the veins, are overfilled, they compress the brain and nerves, and consequently act on the entire system. All this indicates but one thing, namely, *that submerged subjects die of apoplexy.* For this reason, Walter believes that it is not only useless, but dangerous, to blow air, especially heated air, into the lungs, since according to his way of thinking a person falling into the water dies because the lungs are too full of air, from which it results that the pulmonary parenchyma is ruptured.

It would seem that John Hunter attributed the cause of death in drowning to a suspension of the respiration, which of necessity would bring about that of the circulation. Therefore, according to his manner of looking at the condition, it is more important to reestablish the cardiac function than that of the respiration.

In this respect, Hunter resorted to experiments on a dog after having removed the sternum in order to expose the heart and lungs, and he observed that when he ceased the insufflation of air, which he did by introducing the tip of a bellows into the trachea, the heart contracted with less force and less frequently, while the contrary took place when artificial respiration was resorted to.

He repeated this experiment ten times on the same animal, allowing from four to ten minutes interval between the insufflations, and each time he observed that the heart became excessively turgescent with blood whose color was quite as dark in the left cardiac cavities as in the right, which was not the case when insufflation was done.

Hunter considered that the situation of this dog was the same as that of a submerged person, and he points out that death in drowned subjects had been attributed by many to the fact that the blood, from want of air, was no longer in a proper condition to keep up respiration, and that, reaching the brain in a vitiated state, as well as to all parts of the body endowed with life, it was thus capable to act on the nervous system, from which would result cessation of all movement. He says, however, that he is convinced that this opinion is false, and that founding his idea firstly upon the experiments made upon the dog, in whom a considerable column of dark blood, namely, all that contained in

the heart and pulmonary veins, was pushed forward without any ill effects resulting; and secondly, on the return to life of drowned subjects and still-born infants, which should not occur unless the condition of the blood in the brain did not undergo some favorable change.

Hunter believed that the cardiac movements depended more upon the immediate action of the air on the lungs than the effects of the air on the blood, which he regarded as absolutely secondary. He is disposed to accord much to fright which accompanies drowning, and does not doubt that the probability of success in restoring patients depends much on this circumstance.

This really remarkable paper of Hunter can be found in the *Philosophical Transactions*, Vol. 66, for the year 1776, and has for title, "Proposals for the Recovery of Persons Apparently Drowned."

In 1788, the Humane Society of London awarded a gold medal to Dr. Edmond Goodwyn, offered to the author of the best essay on the cause of asphyxia from drowning, strangulation, and "nephritic vapours." In this essay, Goodwyn admits that in drowned subjects the left cavities of the heart, as well as the vessels reaching them, are half filled with blood, while the right cavities and veins are greatly overfilled. The right cavities are still susceptible of contracting and dilating if the body is soon opened after death, while the left ventricle and auricle have, on the contrary, lost all their irritability.

Finally, the essayist demonstrates by exact experiments that by drowning animals in colored fluids water entered the lungs during submersion, but in such small amount that he does not suspect that it contributes to the cause of death. Goodwyn bases his assertions on an experiment already done by Gardane and Varnier, and to which I have previously referred, namely, that if through an incision of the trachea four times as much water is introduced than actually takes place in drowning, these animals appear in the first place to be depressed physically, but after a few hours they become perfectly well again. From this Goodwyn attributes the asphyxia to the exclusion of air to the lungs by water, and consequently death, but as the difference of the capacity of the thorax differs one-fifth of an inch only between inspiration and expiration, this difference seems to him too small to suppose that it either prevents or delays the pulmonary circulation to any extent, and therefore he endeavors to explain the asphyxia by the chemical changes which the air undergoes when it comes in contact with the blood in the lungs.

In 1790, Robert Menzies upheld an inaugural dissertation at Edinburgh in which he maintained that the methods employed by Goodwyn for the estimate of the thoracic capacity were faulty. He resorted to numerous experiments undertaken to rectify this estimate by two quite different means.

He found that as a result of his experiments the mean volume of air inspired was 40 to 45 cubic inches, instead of 12, as Goodwyn concluded. Menzies then employed this datum to calculate, according to Crawford, Lavoisier, and de la Place, the quantity of oxygenated gas converted into carbonic acid gas and vapor at each inspiration. The quantity of caloric developed by this conversion, the different capacities possessed by these various gases, that which distinguishes the venous from the arterial blood, the amount of blood passing through the heart and lungs per minute, etc., he worked out, and he came to the conclusion that the temperature of the blood in the left side of the heart should surpass that in the right side to the extent of 0.8763° F. The essayist even appears to believe that it is to this increase of the blood heat after passing through the lungs, rather than to the chemical properties that the respiration imparts to this liquid, that should be attributed the power it possesses to cause the left ventricle to contract.

Desgranges, a most estimable surgeon of Lyons in his day, struck by the diversity of manners of death from drowning, with or without the entrance of water into the respiratory tract, tried to show, in a pamphlet published at his native city in 1790, that there are two kinds of death from submersion: one with entrance of water into the lungs, which he calls "submersion asphyxia with matter, from suffocation or obstruction," while the second, without the existence of water in the respiratory tract, he terms "nervous submersion asphyxia without matter, or from exhaustion." In the latter form, the organs being free, one may hope to obtain a recovery by medical aid, because syncope is a state which may be endured for some time without a lethal outcome.

In a dissertation on the suspension of respiration by submersion, strangulation, and suffocation, which appeared in London in 1791, from the pen of Edward Coleman, the writer just remarks that a misnomer is employed when, speaking of the state of the cardiac cavities, one says that they are more or less filled or more or less empty of blood, since, no matter what may be the quantity, they invariably contract on it, and there is never emptiness. Therefore, they are more or less distended because they do not contain an equal quantity.

Coleman undertook several experiments in order to exactly determine this difference, and to attain his end he drowned several animals, and opened them at once and then placed ligatures on all the large vessels, after which he carefully collected and weighed all the blood which was contained in both ventricles.

The mean result of his experiments gave thirteen parts of blood in the right ventricle and seven in the left. Now, Goodwyn thought that those who died submerged emptied their lungs more completely than in any other kind of death, because the efforts made to breathe only resulted in several successive expirations but no inspiration, while ordinarily life ends in a single expiration.

In order to settle this question experimentally, Coleman drowned several animals, opened them as soon as asphyxia had taken place, and passed a ligature under the trachea. The pharyngeal end of the trachea was then connected with a tube filled with water and placed in an overturned vessel and the ligature removed. The lungs were compressed in order to express all the air contained in them, and it was found that never so much as one-tenth of the volume of air they were capable of containing by insufflation came away. Occasionally, none came away at all.

Coleman repeated this experiment on animals suf-

focated by nitrous air with the same result, and, what was more surprising still, the experiment likewise succeeded in strangulated animals, a fact which showed that the muscles serving expiration contracted with sufficient force to overcome the obstacle that strangulation offered to the exit air, although the atmospheric weight was sufficient to allow the entrance of air into the trachea, although compressed by a cord.

Post mortems of strangulated animals, or those suffocated by nitrous air, offered the same appearances as those met with in drowned subjects, so that it appeared likely that the immediate cause of death was the same in each instance. In order to determine this question, Coleman entered upon theoretical considerations on animal heat, from which it resulted that if the contractions of the right ventricle subsist in asphyxiated subjects for a long time after those of the left ventricle have ceased, far from maintaining, as did Goodwyn and Curry, that the left ventricle is incapable of contracting from the stimulus of the blood before it has undergone the changes imparted to it by the oxygen in the lungs, this is due to the fact that the blood which is in this ventricle, having lost its "latent heat" by circulating in the lungs, is less capable of maintaining the irritability of the muscular fibers, with which it is in contact, than the blood contained in the right ventricle. Therefore, if the blood contained in the right ventricle of drowned subjects could be made to pass into the left, and *vice versa*, it seemed probable that the right ventricle would contract for a shorter time, because the blood contained in it would be less rich in caloric and overcharged with carbonic acid than that in the left ventricle.

From this you will see that Coleman supposed that it was principally by distention of the heart with blood that contraction of the organ was done, and that its *qualities* did not count. He also was of the opinion that the lungs of asphyxiated subjects were in a complete state of collapse which prevented the passage of the blood of the right ventricle to the left.

I shall not refer to the work of James Curry, as it does not advance the question under discussion, but before closing this lecture I would say a few words on a little opuscula published in 1800 by a Geneva surgeon of considerable local repute, although not generally a name found in works on the history of medicine. I refer to Pierre Fine and his work entitled *De la Submersion, on Recherches sur l'Asphyxie des Noyés, etc., Paris,* an 8 (1800).

I shall simply quote one paragraph from this little work to show the enlightened views of its author: "Quelles que soient les différentes opinions des auteurs sur la cause de la mort des noyés, rien n'est plus certain que c'est la privation d'air, la cessation de la respiration qui les fait périr en faisant cesser la circulation du sang. Si l'on veut pousser trop loin cette théorie, pour expliquer de quelle manière l'air est utile à la respiration, et conséquemment à la circulation du sang, comment enfin la respiration de cet air cause la mort, tout devient hypothétique: de la résultant des raisonneurs plus ou moins spécieux, tous susceptibles d'être affaiblis ou détruits par des objections plus ou moins fortes, parce qu'il n'est pas donné à l'homme de découvrir les causes premières; la nature lui en fera vraisemblablement toujours un secret. Ce qu'il y a de bien certain, c'est que la respiration est une condition essentielle pour que la circulation ait lieu; que, pour respirer, il faut de l'air; que lui seul est respirable; que le plus pur est celui qui convient le mieux."

Xavier Bichat's immortal work, *Recherches Physiologiques sur la Vie et la Mort* contained all the requisite explanation for death from drowning. Like John Hunter and Coleman, Bichat believed that the blood remained dark on account of an interruption of the chemical phenomena normally occurring in the lungs. Asphyxia does not occur, as Goodwyn and Curry thought, as a result of "black blood" being devoid of stimulating properties acting on the contractile function of the cardiac muscle, but rather because "dark blood" gives rise to death on account of a sedative action which it exercises over the nerves; while red blood, on the contrary, excites, and by its nature maintains life of all the parts of the organism.

Bichat then modestly adds that he simply offers this idea without attaching too much importance to it. He then goes on to say that no matter how probable an opinion may appear, so soon as careful and exact experimentation is unable to prove it, every judicious mind will attach no importance to it.

Such is, briefly, the history of the cause of death from drowning down to the year 1800, which brings us to the modern school of forensic medicine, with the well-known names of Orfila, Tardieu, Brouardel, Taylor, Christison, Casper, and a host of others.

3 Rue Bellot.

SURGERY AND PSYCHASTHENIA.*

By W. P. MANTON, M.D., F.A.C.S.,

DETROIT.

THE report of the following case might furnish text and exegesis for the subject which I desire to discuss, but further remarks are appended.†

Miss X., a farmer's daughter, aged twenty, was admitted to a State Hospital in December, 1907. A maternal aunt was insane; the father is eccentric, the mother "nervous" and vacillating; a sister had an attack of insanity from which she recovered; another sister is ill-balanced. The patient was in good health until twelve years of age, when menstruation was established. She then became very nervous and had cramps in the abdomen and pain at the end of the spine. These symptoms recurred with each monthly catamenia. Beginning at this time, and continuing to the date of her admission, she was subject to obsessions. She did foolish things that she knew she ought not to do, and worried over trifling matters. These obsessions became more and more marked, until they destroyed her comfort. As an illustration of this, on one occasion she felt that she must not look at her mother, and did not do so for a week, and was then unhappy through remorse. When she yielded to these impulses she at first experienced a sense of relief, but afterwards became miserable from giving way to them, feeling ashamed for her foolish actions. When she resisted them she became wretched and uncomfortable. She was unable to apply herself to any work, was ner-

*Read before the Detroit Society of Neurology and Psychiatry, Dec. 5, 1918.

†For the early history of the case, and hospital notes, I am indebted to Dr. E. A. Christian, Superintendent, and Drs. Morse and Bachelor of the Hospital Staff.

vous and could not properly carry out what she undertook, being obliged to do things over and over again. These obsessions and her dissatisfaction with herself led to several attempts at suicide. She concealed her condition from her relatives until about a month before her admission.

A diagnosis of Hysterical Insanity (psychasthenia) was entered. The physical examination on admission revealed a retroverted uterus pressing against the rectum. On account of the stiffness of the abdominal wall, the condition of the ovaries could not be determined but there was tenderness on both sides. From the history of repeated attacks at the menstrual epoch, and the local findings, it was decided that the pelvic pathology might have a decided relation to the mental manifestation, and surgical operation was undertaken in January, 1908. The uterine canal was thoroughly divulsed, the walls curetted, and the internal os incised. The left ovary was found destroyed by a cyst as large as a lemon and was removed; the appendix was bound down by adhesions and was also removed, and the round ligaments shortened by Gilliam's method to bring the uterus up into normal position. The patient made an uninterrupted and excellent recovery from operations. Menstruation set in on February 5, and it was noted that she "had not had any pain for the first time in her menstrual history." She was removed from the hospital in March, 1908, at which time she seemed quite comfortable. The day she returned home she was tired and could not eat or sleep. The following day she displayed something like pressure of activity—cleaned house and applied for a position. On the second morning she was agitated, the impulses reappeared, and she was brought back to the Institution. After her return she was hypochondriacal, suffered from impulses, and attempted to strangle herself. The morning following this episode she was depressed and disinclined to talk, but ate heartily. She had morbid impulses and thought there was no hope for her. Becoming more comfortable, she was allowed the freedom of the grounds, but her symptoms returned and she became confused and unable to decide upon things, and talked about not being willing to live any longer. She made several attempts at suicide by choking herself with a towel, but these digressions did not bear the aspect of sincerity. In August she was removed from the Hospital by her friends.

The following November she wrote from a Western city to one of the hospital physicians, that she was well and wondered why she could have wished to die. "I came out here," she writes, "on a six months' visit. I feel quite lonely, as I know only two people, my sister and brother-in-law. I am as free as a bird and happy as a lark; no more suffering either mentally or physically, and I owe it all to your skill and kindness. Shall never cease to be grateful to you for all that you have done for me." During the early summer of the next year (1909) in another long letter to ——, she describes her experiences as a pupil nurse in a hospital. It is understood that she subsequently gave up the course when she learned that a patient to whom she had engaged herself was already a married man. Following this she traveled in the West, and was not again heard from until Sept. 5, 1911, when she appeared in my office complaining of dysmenorrhea. She was very talkative and appeared to make much of trifling bodily discomfort. At the beginning of the interview she suddenly burst into tears caused, she said, by the fact that her mother had told her she might have to lose the remaining ovary, and she "wanted children." Her self control, however, was markedly better than formerly. The menstruation was regular, every twenty-one days, lasted two or three days, but was slow in starting, during which time she had "awful bearing down pains" and an "awful disagreeable feeling at the end of the spine." When the flow was fully established there was no further discomfort. While in the West she had had an operation on her nose, but it was not ascertained whether this was for the relief of the dysmenorrhea or not. She had no headache or backache, the appetite and digestion were good, and she slept well; she said that she was not "nervous," and, save for the temporary monthly annoyance, "felt fine." Examination showed the uterus to be in normal position, small and freely movable, but with sensitiveness at the internal os. A diagnosis of chronic endocervicitis was made.

The patient being desirous that something should be done for the relief of the painful menstruation, dilatation, curettage, incision of the internal os with the insertion of an intrauterine stem pessary were carried out at the Woman's Hospital. The stem was worn for three months, and the patient dismissed in satisfactory condition. Two years later she was married secretly, and nothing further was heard from her until, in reply to a letter of inquiry regarding her condition, under date of November, 1918, she writes: "I am feeling fine. I can do all kinds of hard work, such as lifting, etc. I do my own housework, and the only time I feel nervous is just before the period. I am naturally of an excitable nature. Menstruation is very regular and continues three or four days. The first day of the period I have quite a lot of bearing down pains, until the uterus is fully dilated; after that (generally the second day) I begin to feel fine. Fearing the results, have never allowed myself to become pregnant. I have never had any miscarriages. Have no family of my own, but have taken an infant to raise—a war orphan. Physically I eat and sleep well, also I am full of ambition. I feel very grateful to science, and had it not been for your skill I would no doubt to-day be at the asylum, hopelessly insane. The operation surely was a success."

The case recorded presents a typical picture of psychasthenia — obsessions, imperative impulses, "clear consciousness, the patient fully recognizing their abnormal nature" (White), remorse for foolish actions, endeavors to overcome them, and a will power weak, inefficient, and unable to control. Back of all a neurasthenic heredity, and prominent in the foreground a pelvic pathology capable of producing great somatic distress and suffering. Certainly here was an instance where, by the removal of the pelvic complications, surgery might be expected to effect immediate and marked results. The history of the patient subsequent to operation, however, does not appear to have fulfilled these hopes, and it will be observed that not until she was removed from the family environment (a separation which has practically continued up to the present), and was placed in new surroundings, amid new scenes, and engaged in new and unwonted occupation, were the mental manifestations apparently cleared. There can be no doubt that the surgical treatment did very much in promoting this end, and it is questionable if this could otherwise have been attained; but would it be a correct and logical deduction to assume that the surgery was the most important factor in determining the recovery?

Psychasthenia is curable in most cases if taken early—before mental deterioration has set in—and is usually best treated by asylum methods; surgery, although most important where indicated, should be considered only as an adjuvant in forwarding the convalesence. And this brings me to the intent of this paper: to protest against the unwarranted claims which are often advanced, and to reassert that after more than thirty years' experience, in spite of the declarations of certain surgeons and others to the contrary, I still maintain what I stated at the beginning of my investigations, that insanity is not curable by surgical means alone.

As the first in this country to take up surgery systematically among the insane, large opportunities have been offered for observation, and I have yet to see the instance where surgery has played more than a secondary, although often a most im-

portant, part. It is possible that difference of opinion may lie more in statement than in fact. I am a surgeon and not an alienist, and my bias, if such existed, would naturally be toward the achievements of surgery; but in the claims of others for curative chirurgical successes among the insane I see only a narrowed conception of the subject, and an inadequate credit accorded asylum treatment, which, from my point of view, should be considered first and paramount.

To the lay mind and, unfortunately, to the minds of many in the profession, the spectacular appeals most forcibly, and the ultimate recovery of the mentally afflicted patient who has been subjected to operation is credited to the latter rather than to the preceding and subsequent institutional care. I have always maintained that somatic irritation may be an important source of aggravation to the mental disorder, and that, in whatever part of the body it may exist, it should, as far as possible, be removed, either by surgical or other means—even in the most hopeless cases of mental degeneration. It is quite evident, however, that insistance that surgery is a panacea for insanity has done much harm among those who grasp at every straw which may appear to offer relief.

What is one to conclude from the following announcement which has been sent broadcast through the daily press? "Are we," says an editorial in *American Medicine*, "on the threshold of a new and revolutionary conception of the causation of insanity?" I quote from the newspaper clipping: "Cure of insanity by extracting diseased teeth, removing affected tonsils and clearing the gastrointestinal tract was announced here to-day by Dr. ———, Medical Director of the ——— State Hospital, in a report to the State Department of Charities and corrections. The report gives results of eleven years of experimentation on a number of deranged patients, and states recoveries are not only speedy under the new treatment, but that sanity has been restored in some who had been in the hospital nine years. Causes of infected teeth were charged by Dr. ——— to bad dentistry and promiscuous kissing." If our trust is to be put in the "legs of such horses," it will not be long before our institutions for the insane will be overrun with patients, toothless, tonsilless, and over-kissed (God save the mark), who have been promised mental cure, just as happened a few years ago when the removal of healthy ovaries was heralded as the unfailing remedy for all mental aberrations in women. Whether we regard them as true or not, such claims are mischievous because they are misleading.

Surely the causes of insanity are not limited to septic infections, toxemias, or to any other single factor.

The great importance of focal infections in relation to a large number of systemic and local diseases, so ably illuminated by Billings in his Lane Lectures of 1915, is now too well recognized to demand comment, and there is no reason to deny that the same relationship may and probably does exist to a greater or lesser degree between infections and certain derangements of the mind. This has been found to be so in the incidence of syphilis, in which Peterson suggests that the action on the brain may possibly be the result of toxines arising from the specific (syphilitic) microorganisms. In a recent communication, Duke has shown (Multiple Infections, etc., *Jr. Am. Med. Assoc.*, Nov. 23, 1918), that the coexistence of syphilis of the nervous system and chronic sepsis is common and very important, since the former may be rendered worse by the presence of the latter. The same is also true of tuberculosis and other conditions.

But—just as the early development of delirium in the course of typhoid fever is something of an index of the nervous and mental stability of the individual, so the broken mind in cases of septic infection may be taken as a mark of weakness in mental integrity. Thousands of people with carious teeth, pyorrhea, abscessed tonsils, pus tubes, and the like never show evidence of what White terms "lowering of the psychological tension," although they do frequently exhibit symptoms, general and local, secondary to the local or systemic poisoning. It is therefore reasonable to conclude that, in the few instances which may be thus affected mentally, there is an underlying stigma back of the acute or chronic processes. As long ago as 1892 I entered a plea for the amelioration of insane women suffering from local disorders. This was intended to cover both sexes afflicted with removable bodily conditions which could in any way prove a source of irritation to the mental disease; for the insane are as much entitled to relief from suffering as are the sane. I have never, however, urged that such relief would lead to mental cure.

The advertising of cures, such as mentioned, failing to distinguish between the forms of the psychoses, puts the matter in a false light before both the profession and the laity and engenders hopes which are doomed to disappointment.

Most observers will, in the main, agree with a recent writer (G. W. Brown, Tr. Medico-Psychological Assoc., 1917, p. 449), who declares: "It can be stated without fear of contradiction that a large number of patients who reach mental hospitals would not develop psychoses if their somatic diseases were diagnosed in their incipiency and the proper treatment administered."

What is desirable is not imaginary flashlight images of mental cures, but a more careful and critical investigation of cases and a saner analysis and interpretation of the part played by every remedy employed for the relief of the mentally sick.

32 Adams Avenue, West.

SPANISH INFLUENZA.

BENEFICIAL RESULTS OF CONTINUOUS STIMULATION OF THE HEPATIC DETOXIFYING FUNCTION BY MILD DOSES OF CALOMEL.*

By W. L. MANN, PH.B., A.M., M.D.,
Lt. Comdr. U. S. Navy.
Marine Barracks, Quantico, Va.

The pendulum of professional, as well as public, opinion presents a tendency to vary from one ex-

*This article is written under the assumption that calomel acts as an hepatic stimulant. Its mode of action and the correctness of this assumption are beyond the scope of this paper. Notwithstanding the results of experimentation, it appears to be the consensus of opinion among practising physicians, especially those with tropical or sub-tropical experience, that calomel exerts a certain hepatic influence.

treme to the other. This is especially true of therapy in certain diseases.

During the recent epidemic of influenza, with its sequela, pneumonia, the medical department of this Post had an opportunity to use as a routine measure one of the well-known remedies with gratifying results.

It has been the experience of the writer that recent graduates in medicine have been reluctant about the use of calomel, and have relied principally on oils and saline laxatives. The older school of medicine has probably gone to the other extreme, and has given such large doses of this medicine, on occasions when it was not required, that it is possible that this is explanatory of the fact that the pendulum of professional opinion has now appeared to have swung to the present extreme of conservatism.

During the above mentioned epidemic some rather striking results were obtained from calomel therapy on a few cases that were indirectly under my supervision. This was at first regarded as, perhaps, a coincidence.

After observing over three thousand cases of the so-called "Spanish Influenza," it appears to me that the disease is essentially a toxemia. Some of the cases considered as pneumonia appear to be more of a pulmonary congestion and edema, with expectoration of blood-tinged mucus; although there were many cases of purulent expectoration where typical symptoms of lobar or lobular pneumonia were noticed.

Detoxication is one of the many functions of the hepatic gland. For example, it appears that a larger amount of certain toxins may be injected into the portal vein than into the hepatic vein without fatal results. This is assumed to be due to the detoxifying action of the liver.

Acting on the assumption that the toxemia might be combated to some extent by stimulation of the hepatic function by mild doses of calomel, the following procedure was eventually adopted as a routine: (1) Calomel gr. ¼ given every half hour for six or eight doses, followed by a mild dose of magnesium sulphate in the morning, or preferably, if patient was very ill, an enema was substituted. (2) Calomel gr. 1/10 was then given four times a day for three or four days.

The above routine was made flexible and elastic so as to permit individualization of treatment. In many cases where the fever tended to show secondary rises, or to remain high, the administration of two grains of calomel in fractional doses was repeated with rather good results.

In some cases nausea may be caused by these fractional doses of calomel and, if so, it should be discontinued temporarily, although in many cases nausea and vomiting was one of the pronounced symptoms of the disease.

The routine use of calomel was not adopted until the fourteenth day of the epidemic, therefore the presentation of any statistics on the mortality rate before and after its adoption might lead to fallacious deductions, as there are other factors which enter into consideration.

It will suffice to state that the wards which first adopted this treatment presented a much better appearance and a lower mortality rate than the other wards. Also, since the adoption of this therapy as a routine, the ward medical officers are unanimous in their opinion that beneficial action has resulted from its use; however, their individual opinions, as to be expected, show varying degrees of enthusiasm about its success.

Notwithstanding the apparent beneficial action of this treatment, the total number of fatalities from this disease on this station is rather disappointing; however, the indications are that the case fatality rate will probably compare favorably with other places.

The best results were obtained in the early treatment of cases by this method. The cases of influenza that had progressed for some days failed to respond to calomel as readily as the incipient cases.

Of course, it is assumed that other remedies will be used in conjunction with this therapy.

Summary and Conclusions.—1. The influenza cases treated with an initial calomel purge followed by 1/10 gr. calomel, four times a day, presented less toxic symptoms, nausea was not so pronounced in many of the cases, and the mortality rate was not so high.

2. The beneficial results were rather striking, although no specific action is claimed.

Medicolegal Notes.

Testimony of Medical Witness Attending Plaintiff.—In an action for personal injuries to an employee it is held that the admission of testimony of a medical witness who treated the plaintiff nearly a year after the injury was not erroneous in giving a history of the case as given to the witness by the plaintiff, where the witness apparently testified from his own knowledge and examination. His statement that the plaintiff did in fact give him a history of the case was immaterial.—Plunkett-Jarrell Grocer Co. v. Johnson, Arkansas Supreme Court, 206 S. W. 677.

Action for Services, Etc.—The Supreme Court of California holds that a complaint, in an action for services and for medicine furnished, including an alleged indebtedness to two other physicians, who had performed services for the plaintiff with the defendants' consent, stated a single cause of action in favor of the plaintiff alone, and judgment for the plaintiff (174 Pac. 903) was affirmed.—Myers v. Canepa, (Cal.) 174 Pac. 906. The services of the two other physicians, as alleged in the plaintiff's complaint, consisted of consultation and advice, and assistance in the performance of surgical operations, their charges being made against the plaintiff personally, and not against the defendants. —Myers v. Canepa, (Cal.) 174 Pac. 903.

Insufficient Evidence of Negligence.—In an action for damages for personal injuries by negligence it appeared that the plaintiff, then between two and three years of age, suffered from hernia; that the defendant was consulted by the plaintiff's father; that hernia is not easily located in a child of that age, and there was some doubt as to which side it was on. It further appeared that the father decided that it was on the left side and directed an operation, which was successfully performed, a hernia being found. Two weeks later the defendant was called again to see the child, who, he was informed, manifested pain, but failed to discover anything. He told the parents to inform him if there was any evidence of hernia on the right side, as he thought that might be the trouble. Three weeks later the father called on the defendant and demanded a return of the money paid for the operation on the ground that it had been performed on the wrong side, and informed the defendant that a lump had appeared on the right side. The defendant offered to operate again without charge, but the father would not agree. It was held that this evidence was insufficient to support a verdict for the plaintiff.—Verbitzley v. Cunningham, 207 Ill. App., 128.

Military Medicine.

Wooden Limbs in the Making.—An industry which has unfortunately received an enormous impetus through the war is the manufacture of artificial arms and legs, and an interesting description of some features of the work was given recently in the *British Engineer*. In Great Britain, at any rate, the majority of artificial limbs are constructed of wood, and willow, of which cricket bats are made, has proved the most suitable for the purpose. One difficulty brought about by the greatly increased demand was the seasoning of the timber, which in the ordinary course of events would have taken two years. Messrs. Yarrow of Glasgow, the noted builders of naval craft, who have interested themselves in the matter, found that, if the trees were cut into two foot lengths and a hole was bored through the center of each, the lengths could be dried in a few weeks by circulating air round and through them. Some idea of the dampness of the wood when the trees are felled may be gathered from the fact that a sample piece was reduced in drying from 13 lbs. 6 ozs. to 5 lbs. 8 ozs. Various sizes of limbs are standardized leaving only the actual fitting to the stump to be done at the hospital. The metal parts, such as bolts for knee and ankle joints, and the steel springs for flexing the ankle, are standardized for all sizes. It is interesting to note that in Scotland, following Messrs. Yarrow's lead, no fewer than eleven engineering and ship building firms are making artificial limbs. Moreover, the work is being done at cost price, the only desire of the concerns engaged in it, being to help those who have lost limbs in the defense of their country.

Intravenous Injections of Hexamethylenamine.—The action of this drug on infections other than of the urogenital tract is a matter concerning which much difference of opinion has existed. There appears to be no doubt that when it is given in febrile conditions the usual febrile urine may not be in evidence. Many practitioners use it under one name or another as a routine measure in infections of all kinds, much as quinine was and still is used. Last summer two French physicians reported favorable results from the intravenous injections of the drug in medical infections. No untoward results were seen, and this is also true of intramuscular infections. In the *Progrès Médical* for November 16, Achard reports cases of injection of the drug in surgical infections. There were 7 cases of septicemia in which there had been for several days high temperatures. The patients were soldiers with gunshot wounds of bones or soft parts. The total daily dose was 1.25 grams. There was no immediate reaction, but on the following day a marked diuresis occurred. Patients who had been passing 500 c.c. of urine passed two and even three times that amount on subsequent days. The diuresis was progressive under the treatment, and eventually reached 2 liters. There was no corresponding fall of temperature, so that the phenomena of effervescence were incomplete. There were no complications or sequelæ on the part of the liver, kidneys, or other organs, after exhibition of the drug. This immunity may prove to be general, in which case the remedy should be hailed as a prophylactic against the complications and metastases of septicemia.

Harvard Unit Arrives.—The Harvard Unit, made up of 27 medical officers and 103 nurses, which was organized in 1915 and has since been in continuous service in France, arrived in Portland, Me., on the White Star steamship *Megantic* on January 30. Altogether the doctors and nurses of the Harvard unit cared for 126,000 wounded at General Hospital No. 22 and approximately 27,000 at clearing stations and on hospital trains. General Hospital No. 22 which was the base of the Harvard unit was raided from the air on many occasions. At one time thirty-eight medical officers were saved from certain death only because they were called out in the night to receive a large convoy of British wounded. During their absence their quarters were entirely demolished by a bomb from an airplane. Lieut. Col. Hugh Cabot was in command of the unit. Only one per cent. of the wounded cared for by the unit died.

Congress Will Probe Hospital Charges.—Statements by soldiers alleging brutal and inhumane treatment at various hospitals of the country have recently been given considerable newspaper publicity and are to be the subject of investigation by Congress. A committee of seven members of the House with powers of Court to compel attendance of witnesses and the production of papers has been proposed as the only means of getting at the truth or falsity of the charges. A resolution providing for such an investigation was introduced into the House and referred to the Rules Committee.

Red Cross Sends Relief to Poland.—The American Red Cross Council, of which Henry P. Davison is chairman, has decided to send a relief commission into Poland. Aside from the imperative need for food and clothing the opportunity for medical services, nursing, etc., is practically unlimited. The commission will carry drugs and medical supplies at once. Dr. Walter C. Bailey of Boston is head of the commission and Major F. E. Fronczak, Health Commissioner of Buffalo, has been detailed by the United States Army to the Red Cross specially for this mission. Several other physicians and twelve Polish-American nurses will accompany the expedition.

Serbia Needs Mobile Hospital.—Madame Grouitch, wife of the Serbian Minister, and herself a commissioner of the Serbian Government to this country, at a recent meeting of the American Women's Hospitals, made an appeal for medical assistance for the population of Serbia. She declares that there is a most pressing need of two mobile dispensaries, with ambulances, each possessing fifty beds, to go from town to town. Each mobile dispensary will require two doctors, one dentist, and six nurses. Madame Grouitch states that Serbia has only 140 doctors of her own left, the rest having been killed in war or having died of disease. The American Women's Hospitals, co-operating with the American Red Cross, will send a medical personnel to Serbia as soon as passports can be obtained. Those who

are going include the following: Dr. Minnie C. O'Brien of San Antonio, Texas; Dr. Katherine M. Cook, Pittsburgh, Pa.; Dr. Mary H. Elliott, Columbus, Ohio; Dr. E. F. H. Greene, Fergus Falls, Minn.; Dr. Lulu Hunt Peters, Los Angeles, Cal.; Dr. Helen F. Ratterman, Cincinnati, Ohio; Dr. Harriet Gervais, Dorchester, Mass.; Dr. Sarah Elizabeth Foulks, Burlington, N. J.; Dr. Edna Ward, Denver, Col.; Dr. Marie Hyndeman, New York City. The American Women's Hospitals has recently received a gift of an ambulance from the Patriotic Penny and the National Special Aid Society of Wilmington, N. C., and in addition donations of over $2,500. At this meeting a telegram was read from Dr. Caroline M. Purnell of Philadelphia, commissioner for the American Women's Hospitals in France, stating that Major Gibson, manager of the Red Cross in France, has allowed $50,000 for the maintenance of the society's hospital at Luzancy.

Influenza Takes Off Many Nurses.—The Red Cross Headquarters at Washington has made public figures covering the losses in the nurses' personnel here and abroad that have been caused by the epidemic of influenza. These figures show that more than 200 American Red Cross nurses have died of influenza contracted while ministering to soldiers stricken with the disease. It is also reported that there are returning to America many New York Red Cross nurses who have contracted tuberculosis at the front and whose condition demands immediate treatment.

Instructors Wanted for Disabled Men.—The Surgeon General's office announces that 10,000 disabled soldiers and sailors are now receiving educational training in forty-three of the army hospitals. A call has been sent out for additional instructors and supervisors. Officers and enlisted men desiring transfers to this service have been instructed to apply to the Division of Reconstruction in Washington. The House has passed and sent to the Senate the bill appropriating $10,000,000 for constructing hospitals for disabled soldiers and sailors.

Wounded Sixty-eight Times.—Sergt. John W. Grimmer, formerly a chauffeur of the Consolidated Gas Company of New York, who after all the commissioned officers had been lost took the remnant of his company through the Hindenburg line, is truly a battle scarred veteran. He was gassed and emerged from the fight with sixty-eight pieces of shell in his body, which have since been removed. Among his injuries were three machine gun bullet-wounds in right thigh. After receiving these wounds he lay all day under shell fire and was then carried four miles to a dressing station, but as they were too busy to care for him he was taken twenty miles further in an automobile to a tent hospital.

Rules for the Release of Sick and Wounded Soldiers.—Surgeon General Ireland has announced the policy of the War Department in reference to sick and wounded soldiers at military hospitals. They will be retained only long enough to restore their health to a degree which would permit them to return to their former occupations. The effort will be made to avoid exposing them to hospitalization. Men to be retained under military control are those suffering from acute diseases or unhealed lesions, from communicable diseases, from disabilities that can be corrected within the term of enlistment of the patient, and those suffering from chronic or permanent disabilities which are susceptible of improvement and who may be fitted for the industrial opportunities of the training course provided by the Federal Board for Vocational Training. Soldiers who have been blinded or their eyesight much impaired will be retained until they are able to care for themselves or are otherwise physically fit for discharge. Cases of amputation of the leg or arm are to be kept in the hospitals until provisional artificial limbs or arms are provided and reasonable proficiency in their use is reached.

Major Richard Derby, who has been serving with an American medical unit in France, has returned to this country and will resume his practice in New York. Major Derby has received the French war medal for bravery in visiting aid posts without regard to the artillery and machine gun fire. He was at one time knocked down by a shell.

Dr. Dudley Roberts has been released from military service and will resume his practice at 84 Remsen Street, Brooklyn.

Dr. Julius Dworetzky, formerly of the Otisville and Sea View Hospitals, who has been in service in France, has returned and will resume his practice of medicine in the specialty of tuberculosis, at 7 Law Street, Liberty, N. Y.

Deaths in the Service.—Lieut. Samuel Victor Rosenkranz, M. C., U. S. Army, of Los Angeles, a graduate of the College of Physicians and Surgeons, Los Angeles, in 1915, aged 28 years, died in the United States Marine Hospital in San Francisco, on October 20, from pneumonia following influenza.

Asst. Surg. Lieut. Thomas Joseph Courtney, U. S. Navy, of Worcester, Mass., a graduate of Tufts College Medical School, Boston, in 1912, on duty at Norfolk, Va., died on December 27, aged 32 years.

Lieut. Gerhard Frederick Hartwig, M. C., U. S. Army, of Young America, Minn., a graduate of the University of Illinois, in 1915, aged 29 years, who was on duty in France, was killed in action on October 31.

Lieut. Royden Benedict Roder, M. C., U. S. Army, of Northwood, Iowa, a graduate of Hahnemann Medical College, Chicago, in 1909, died at Camp Custer, Battle Creek, Mich., on December 9, from pneumonia following influenza, aged 33 years.

Lieut. Joseph Louis Schwarts, M. C., U. S. Army, of St. Louis, a graduate of the St. Louis University, in 1911, on duty at Fort Oglethorpe, Ga., died of pneumonia on December 24, aged 33 years.

Lieut. Guthrie Olaf Burrell, M. C., U. S. Army, of Bucyrus, Ohio, a graduate of the Ohio State University, Columbus, in 1916, aged 26, was killed in action in France on September 28.

Lieut. Lloyd Reuben Boutwell, M. C., U. S. Army, of Kansas City, Mo., a graduate of Washington University, St. Louis, in 1916, aged 29 years, is reported to have died of wounds received in action, in France, on November 14.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, February 8, 1919.

VAGABONDAGE AFTER THE WAR.

ALTHOUGH the Great War now apparently coming to a close will become less and less popular with the magazine authors (whose favorite representation of the war's influence on individual psychology is a young man who has always been timid, not to say cowardly, and who is suddenly inspired by some incident—the variation of this incident forming the material for more stories and more checks—and goes forth to fight and returns medal-decorated), serious students of both individual and collective psychology will find much material afforded them by demobilization and the return of soldiers for a day to the work of a lifetime. Having gotten safely through that sentence, we can be more specific. The complete alteration of an individual's whole habit of life can indeed be accomplished and has been in millions of instances in the past few years, but his life cannot so readily resume its old status. The urge of patriotism and the threat of national disaster have caused men in all the Allied countries to forsake the desk for the army tent—a sedentary life has been exchanged for the most active kind of outdoor one. For the past year or two or three these men have been tramping about in the open, eating plain food, and sleeping on hard beds, acquiring thus a superabundance of health and vitality, feeling as they have never felt since they were children.

The lure of the open has been sung by many poets, but to the average civilized man it is a pleasant myth to be considered as stories of Alaskan adventures are considered when one sits in the deep leather chair with the electrolier shedding its soft radiance over one's book and the open fire lending a touch of color to the steam-heated apartment. Now and then, to be sure, the city man camps out for a week or so to the accompaniment of aching muscles, mosquitos, poor coffee, and general ennui. Later on he looks back on the adventure as rare sport and recalls with his friends the night they sat and played penny ante with their umbrellas up because the roof of the tent leaked, and he talks of going camping again, but down in his heart of hearts he knows how well he likes the comfort of city life, or any life lived within four walls, and thinks the poet's song of the delight of the open is a sort of pleasant fiction, very much as when he tells the ocean to "Roll On!"

But the great war has put a new aspect on the thing. These same men have been taken out into the open and made to live there. They have not been allowed to quit. And from loathing it they have come to dislike it, then to endure it, then to like it, and finally they are fascinated by it. And now comes demobilization. These men can return and take up their sedentary occupations again. But will they?

It is a fact well known to students of sociology that following every great war of the past there has been an increase of vagabondage in the warring nations, nor is this one expected to be an exception. Psychology as it affects the individual and his life is very little known, after all. How many persons are thrown by destiny into foreordained paths and go from toys to school, from school to desk, and from desk to the grave with no possibility of kicking against the pricks unless it were by the exercise of a greater force of will than in them lies. They take the line of least resistance and follow the career mapped out for them. If they ever contemplate the delicious freedom from responsibility, it is only with a passing sigh and no actual appreciation of its delights. The iron bonds of custom, convention, and conscience are too strong for them and they go down to the grave highly respected citizens. But the war has given them physical health, self-reliance, and a taste of freedom. The Wanderlust grips them, the open road of Bliss Carman, the long trail of Kipling, the little voices sung by Service are calling them and they go forth into the open spaces. So we shall doubtless see as one of the many by-products of the war a rebellion against convention and civilization and an increase of society's Ishmaels.

THE COVENTRY SITUATION AND THE BRITISH MEDICAL ASSOCIATION.

So long as representative bodies, of whatever dignity and authority, are composed after all of ordinary men it must be expected that motives will be complex and actions not always well directed. Neither august name nor tradition apparently is sufficient to prevent the exercise of certain emotions and the carrying out of certain points of view which may rightly be questioned. It is necessary, occasionally, to submit to a broader test and a keener touchstone of progress and experience, some of the conventions of such bodies as the British Medical Association and its counterpart in our own country. Under the rationalizing guise of protection for their members and certain professional standards, they too often prohibit a more progressive individualism from establishing and carrying

on some new but most practical form of service. The standards need a frequent readjustment to changing conditions and the realism of social needs lest they prove utterly artificial, a hindrance rather than a safeguard to the actual ideals of these associations and a cover for petty individual feelings which are masking under such sanction.

Certainly there is occasion for serious thought and self-examination on the part of our American Medical Association in the judgment recently pronounced in the case of Pratt and others against the British Medical Association. This small group of doctors in Coventry sued the Association and three of its local members for "conspiracy, libel, and slander" exercised in restraint of the defendants' service upon the medical staff of the Coventry Dispensary, and extending to their professional and social discrediting. The matter had been pending for many years until through the judgment recently given the defendants were awarded over $18,000 damages and heavy costs, although the case will still be appealed.

The *British Medical Journal* published a very full report of the proceedings, including the principal features of the case, its history, and the protracted hearing, in its issues of August 3, 10, 17, 1918, and besides other notes upon the case devoted a supplement of seven or eight pages in the issue of October 26 to a full report of the judgment. It is the matter of this report which stimulates reflection and question as to the motives upon which individuals and organizations may act and with which they too often blind themselves. The British Medical Association and its individual members had all along taken the position that they must guard against dishonor to the profession and professional and financial loss to its members through such contract service as that in which the members of the Coventry Dispensary engaged. The defendants, while at the start conceding one important point in regard to securing members for this dispensary, maintained for the rest that no such evils resulted from their service.

Nevertheless, the British Medical Association in its procedures has secured for itself such a charge as the Justice felt, regretfully, bound to make. He considered the disciplinary manner of the association an improper assumption of power, that they had boycotted, punished, and pecuniarily damaged the defendants without just cause in law, that in fact their attempted coercion had been carried out not by legal means but by influence. More than this, they were governed in their method of action by personal spite and ill will. They seem to have manifested in the persistence and extent of their efforts "to make the ostracism as complete as possible," a curious though not unusual feature of power psychology, which is accountable for much zealous misapplication and much personal injustice to individuals or to organizations.

This is the thing which demands more rigid examination, with a courage which welcomes the exposure of possible self-blinded motives. For this will lead to greater fairness and tolerance with newer forms of service, such as constantly changing social conditions bring, and so prove truly protective and useful. Progress is, however, hindered and blocked under the cover of a too rigid protection and guardianship of that which already exists. It is a self-absorbed paternalism, of just that sort that claims that the father's word is law, merely because it has been long established and the unconscious power sense of the parent can see no room for other concepts, other responsibilities of action than his own. Such power runs strangely to cover and unintentionally disguises itself under the protection and other seeming advantages which it creates. And as in the Coventry case it gives opportunity too often for ends and methods of perhaps unconscious personal spite and envy.

So our own American Medical Association has set its face against a number of innovations from the mercantile world and from certain alert minds in the profession who can seize a truly greater avenue of usefulness by some extension of means and methods, and against some of the means of progress which could save the profession from the stagnation of too great conservatism. It, too, has fallen into the danger of so pulling the hood of its authority and of its high ideals over its vision that it fails in many instances to separate the true and useful from the false exploitation of drug, method, organization, whatever it may be that marks an actual progress and practical service in the field of medicine. Neither in Great Britain nor in our own country can the Medical Association lend itself to the exercise of restraints or of personal or organized influence in a manner which could never be legally tolerated in the world of commercial business integrity.

CASTOR OIL AND THE WAR.

At first thought, the mention of castor oil in connection with the war will bring to mind its therapeutic usefulness only. However, it may at once be said that it is not as a drug this oil has played a part in the downfall of the Central Powers, but as a lubricant of machinery. Before dealing with its superlative merits as a lubricating agent for the engines of aeroplanes it may not be out of place to discuss briefly the history of perhaps the best and the longest established aperient. Castor oil is easily one of the oldest drugs known. The castor-oil plant appears to be the gourd referred to in the book of Jonah. Hippocrates employed the root in medicine. It is also the κίκι or κροτών of Dioscorides, who observes that the seeds are powerfully cathartic. While κροτών was the name given by the Greeks, the analogous term ricinus was applied by the Romans, on account of a fancied resemblance of its seeds to the little insects known as ticks which bore this name. Its oil has been employed in medicine from the earliest times by Hindus, Egyptians, Greeks, and Arabs. Its use is men-

tioned by Aetius, Paulus Egineta, and Pliny. Different opinions are held as to the number of species belonging to the genus, although there is little doubt that several varieties have been raised to the rank of species. These are found in Java and throughout India, and in fact can be grown in any tropical or semitropical country. Two varieties of the seed are known, one large, the other small. The latter is thought to yield more oil and of a superior quality. The oil consists mainly of ricinoleic acid, together with other fixed oils, a resin, and possibly an alkaloid. The seed contains a drastic constituent, ricin, highly irritant, and therefore more powerfully purgative than the oil. The purer the oil the less active its purgative property.

As said before, its excellent aperient properties, although they may have been used with beneficial effect among the soldiers, have not contributed to any appreciable extent to the debacle which has overtaken our Teuton enemies. On the other hand, the remarkable properties of castor oil as a lubricant have effected much in this direction, in the judgment of those who are qualified to speak with authority. It seems to have proved itself to be the ideal lubricant for the machinery of an aeroplane, in fact, the *Motor Age* says, it is an absolute essential for rotary engines. The fact must be borne in mind that the propellers of flying machines revolve at a rate greater by far than the driving apparatus of any other machine. Consequently, there is developed within the cylinder of an aeroplane engine an intense heat, produced by gas of an extremely high temperature, which will attack and consume most mineral oils. If, by reason of the high temperature of combustion the lubricating oil is consumed, or so thinned out that it no longer fulfills its purpose of preventing or reducing friction between metal surfaces, the result is that the pistons become overheated, expand, jam, and the machine is "stalled." It is in this way that many if not most disasters to aviators occur.

Now, castor oil is not subject to these defects. It is not burned up or thinned out by any heat that the engine of an aeroplane may develop. It is more or less impervious to the effects of temperature, and will maintain its consistency and flow freely through the distributing system, be the temperature of the enveloping atmosphere what it may. Cold appears to have little effect on its lubricating properties, and indeed wide differences in temperature fail to make any marked impression upon it. Because, then, castor oil is the best-known lubricant for the engines of aeroplanes, and because a very considerable supply of the oil has been and is available for the allied airmen, and because the Germans were unable to procure it in sufficient quantities, it is no hyperbole to assert that castor oil has played no mean part in victory. Castor oil has showed itself as effective in lubricating machinery made by the hand of man as for generations it has proved itself one of the best means of regulating the digestive machinery of man himself.

MEDICAL USES OF PARAFFIN.

Before the outbreak of war paraffin had achieved a reputation from both the therapeutic and the esthetic standpoints. Paraffin solidifying at about the body temperature has been employed by subcutaneous injection to correct various facial deformities, and as a mechanical means of relieving chronic constipation, employed by mouth in the form of purified petroleum oil, it has given great satisfaction. In the opinion, in fact, of many authorities it affords a comparatively easy and assuredly harmless method of overcoming intestinal stasic and of preventing the occurrence of many and various diseases. Even if the views expressed as to the therapeutic efficacy of petroleum oil appear somewhat exaggerated, there is little doubt that this mineral oil provides a simple mode of relieving that common condition known as intestinal stasis and is an effective lubricant of the lining of the gastro-intestinal tract. Petroleum oil has also shown its usefulness employed as a spray in certain conditions of the nose and throat.

It may be further said that during the recent epidemic of influenza, liquid paraffin has been used in the treatment of the infection with good results. Dr. C. Muthu, writing in the *Lancet*, Dec. 7, states that he employed liquid paraffin as recommended by White Robertson in four cases of influenza. The bowels were kept freely open by aperients and liquid paraffin was applied to the chest, front and back. All recovered.

During the war, paraffin has demonstrated its value in surgery. Some few years before the war a French surgeon introduced a paraffin mixture with which to treat burns and to which he gave the name of ambrine. However, until the war occurred this method of treating burns gained but a slight foothold. With the advent of war and with the consequent frequent occurrence of burns this paraffin mixture was afforded unique opportunities for proving its worth. Its value has been referred to in the medical journals, and paraffin mixtures have been employed with conspicuous success not only in the treatment of burns but in the treatment of wounds with extensive loss of tissue. The efficacy of the treatment in such cases is said to be due almost entirely to the paraffin content of the mixture. With regard to another kind of wound treatment and one which has met with considerable success, in the healing of war wounds, paraffin has played a very considerable part. It is one of the ingredients of "bipp," which is one of the antiseptics that has been found efficacious in the treatment of war wounds.

INFLUENZA IN THE FAR EAST.

So far as can be gathered from the perusal of the literature of influenza, the pandemic of 1918 was the most widespread of any previously recorded. The disease has been especially rife in Asia, popularly believed to be the continent in which it first

originated and whence it was disseminated to other lands. Whether the outbreak of last year began in Asia is not known, although it is certain that it has raged through that continent and has been the cause of a vast mortality. The November issue of *Practical Medicine*, a publication of Delhi, India, is devoted to a consideration of influenza, and contains some instructive papers contributed by Indian and English medical men. According to Jaibaj Behari, B.Sc., writing on the influenzal type of fever at Lucknow, the first outbreak there in the early summer was mild while the one that was raging at the time of writing was very virulent. Deaths were mainly due to pneumonia which, when both lungs were involved, invariably proved fatal. Col. U. White expressed the opinion that the epidemic was in nearly all respects similar to that of 1890. Dr. W. E. McKechnie, Dr. Prem Nath Sim, and Col. Glen Liston held the same views, but one or two of the native medical men took the stand that it was by no means certain that such was the case, and suggested that it might be pestis pneumonica. Suggestions of this nature have been advanced previously, among others by Capt. J. J. King, M.C., U. S. A., in the MEDICAL RECORD of October 12, and it has been hinted that the influx of Chinese laborers in France may have been the agents by which the disease was conveyed to Europe, and spread. The majority of medical practitioners in India, however, appear to be strongly of the view that this pandemic of influenza resembles in its main characteristics that of 1889-90, and the greater number of medical men in Europe and in this country are of the same opinion. Of course, the type of pneumonia which has proved so fatal is extremely virulent, and is almost sui generis. This has been demonstrated by the pathological findings. Those of Professor John J. Mackenzie of Toronto, which were published in the *Dominion Medical Monthly* for December, 1918, to which we have previously referred, were especially instructive and suggestive. At the same time, there is little support for the view that the present epidemic differs in its essence from previous visitations of influenza.

UNMOTIVATED NERVOUS DYSPEPSIA AND TUBERCULOSIS.

IN a clinical lecture Professor Stahelin recently called attention to the masking of tuberculosis by some unmotivated gastric disorder. In a cited case the latter was expressed as a mild gastritis and the sequence was said to be not uncommon, the stomach disorder preceding the outbreak of tuberculosis. In such cases an *x*-ray unmasks the presence of old foci in the lungs. In an article by Aubertin and Joffe in the *Journal de médecine et de chirurgie pratiques* for December 25, a similar association is referred to. In a military case the first diagnosis was crises of recurrent dyspepsia of indeterminate nature. In this particular subject there was a mitral lesion which added to the symptoms, but certain attacks of dyspnea noted proved to have no connection with the heart's action. So perplexing was the picture that simulation was thought of. The *x*-ray showed a negative picture. Repeated sputum examinations revealed a few tubercle bacilli after several negative tests. A second *x*-ray picture showed suspicious foci in the thorax. The patient was now classed as tuberculous, and the crises of dyspepsia and dyspnea were regarded as of a decided nervous type. The possibility of an organic factor, such as neuritis of the phrenic, was not considered and the manifestations were regarded as purely psychogenic. It is apparent, however, that the case was of the type described by Stahelin. The latter in one case discovered and corrected a ptosis with apparently successful outcome, but tuberculosis rapidly supervened from an explosion of the latent form. These gastric troubles may be compared to the attacks of pseudoinfluenza seen in latent tubercle which will later become manifest.

LATIN AMERICAN CONGRESSES IN FRANCE.

THE first of these congresses was held in 1916 at Lyons, and the second, one year later, at Paris. Finally the third of the series has just been held at Bordeaux. Meanwhile the transactions of the second or Paris Congress of 1917 have been published. The entire movement is one of sympathy for France by Latin Americans and it is intended to cement post-bellum friendships between France on the one hand and Brazil and the Spanish-speaking American States on the other. The entire movement, in other words, is toward a centralization of the Latin races in both hemispheres, largely to oppose Teutonic kultur and practice. The rapprochement concerns particularly the universities, with reciprocity of all kinds, including exchange professors; but signs are not lacking of comity in the direction of commerce and international politics. While the ideals of North America are in agreement with those of Latin America, there is a sort of suppressed note that the Latin races must form a sentiment for self-protection which must not again be abused as the Germans abused it.

News of the Week.

Annual Report of the Surgeon General U. S. Navy.—In his annual report, the Surgeon General points out that the policy during the past year has been to concentrate every effort on the immediate physical needs of the Navy's personnel. This action was rendered all the more necessary by the great increase of personnel due to the war and also to the fact that large numbers of men were collected together, thereby augmenting the opportunities for spreading contagion. It is interesting, therefore, to learn that the percentage of men in the service infected with venereal disease is lower year after year than the percentage of males of corresponding ages in civil life. During the year ended June 30, 1918, the admission rate for venereal diseases, including syphilis, was 105.77, against the average rate of 157.9 for the nine calendar years 1909 to 1917. A part of this very considerable decrease can be attributed to interdiction of alcoholic liquors for men in uniform and the declaration of zones around numerous naval stations. The entire report is satisfactory and deflects much credit on

the Medical Department for the energetic and efficient manner in which its members have coped with the added difficulties of the past two years.

Amendment to Sanitary Code.—At a meeting of the Public Health Council of New York State on December 4, that part of Regulation 36 of Chapter 11 relating to the minimum isolation period for measles was changed to read as follows: "Measles, until at least five days after the appearance of the rash."

University of Pennsylvania Hospital Open to Women.—For the first time in its history the doors of the Hospital of the University of Pennsylvania are to be open to women. Two women students who will graduate in June have been chosen by the managers as internes and will assume their duties upon graduation.

Resolutions on Prohibition Amendment.—At the stated meeting of the Medical Society of the County of New York, on January 27, the following resolutions were introduced by Dr. John P. Davin. "Resolved: That the Medical Society of the County of New York oppose the ratification by the Legislature of New York of the measure now before it for National Prohibition as irrational, unscientific, and in opposition to the accepted usage of all civilized nations throughout the world. and as putting upon the Medical Profession the burden of prescribing and dispensing alcoholic beverages of proven therapeutic worth, while allowing the unlimited sale to the public of patent, proprietary and quack remedies containing alcohol in varying amount without control or hindrance by the officers of the State." In commenting on these resolutions Dr. Davin declared that this was an important question for the consideration of the profession, since there was a matter of health and morals involved, and while as professional men they had nothing to do with the morals part of it, they had a great deal to do with the health part. The use of alcohol in the treatment of pneumonia and other diseases demanded that the physician should not have the handicap imposed by the prohibition amendment. The resolutions were referred to the Committee of Public Health to be reported on at the next meeting.

Enforcing Narcotic Drug Control.—Plans for the enforcement of the law concerning the sale of narcotics have been formulated at a conference of the deputies of the Department of Narcotic Drug Control. The Department intends to have representatives visit every person or institution authorized to possess, dispense, or prescribe habit-forming drugs to ascertain if their records comply with the law, and in the case of violation, to enforce the law and take steps to have the offenders punished. In putting this law into operation the Department of Narcotic Drug Control sent a communication to the Medical Society of New York County, stating that the commission recognized that many narcotic drug problems were administrative, educational, and medical rather than legislative as was most clearly shown by the testimony brought out at a hearing before the Legislative Investigating Commission. The Commission therefore aimed so to administer the law that the honest physician would be hampered as little as possible in the care and treatment of drug addicts and other patients. It was also the purpose of the Commission to administer the law in a spirit of helpfulness to the unfortunate, but with such care and restriction that the growing evil of narcotic drug addiction might be effectually checked. The Commission therefore earnestly requested the cooperation and assistance of the medical societies of the State in its efforts to alleviate suffering and to provide remedy and care for the drug addict. It also asked the cooperation of the societies in restraining certain well-known evils and abuses which existed among some of those legally entitled to possess and dispense narcotic drugs. The Commission invited medical organizations as such and medical men individually to consult freely with the department, asking or offering suggestions or advice.

Gift to Broad Street Hospital.—An anonymous gift of $100,000 has been made to the Broad Street Hospital, New York, with the provision that the balance of $200,000 needed for the erection of the addition to the hospital be raised by March 1, of this year. A number of people interested in the hospital have pledged themselves as a memorial to the late Colonel Theodore Roosevelt to equip and maintain by endowment an elaborate suite of rooms in the new addition when it is erected. Contributions of $60,000 have already been subscribed. This hospital which was opened in September, 1917, with 35 beds found it necessary within three months to enlarge its capacity. During the first twelve months of operation 1,334 patients were admitted to the institution for treatment.

Venereal Disease Bureau Gives Lectures.—The Bureau of Venereal Diseases of the New York State Department of Health has outlined an extensive program on sex education and venereal control which is already under way throughout the State. It is planned to cover the State with an illustrated lecture which will deal with venereal disease problems. Later a campaign of sex education will be conducted for the instruction of parents in order that they may be able to instruct their children properly. While thus far lectures have been given largely to men only, it is planned to speak to mixed audiences and to mothers' clubs at a later date. Although the State will eventually be entirely covered by this program, the Department is especially desirous of getting in touch with any community which may feel the immediate necessity for a lecture of this sort and will be glad to supply an illustrated talk on a few days' notice.

Dr. Harry Friedenwald of New York City has been named medical adviser to the American Zionist Medical Unit, which is now in Palestine. and has sailed to join the unit in that country.

Plan for National Health Campaign.—At a meeting in the Municipal Building, New York, on February 1, of representatives of the American Red Cross and of the Community Councils of National Defense, plans were discussed for cooperation in carrying out the proposed health program of the Red Cross. The plan proposed is based on the idea that health being a social prob-

lem should be handled by the community as a whole, and that every citizen able to do public service is to be systematically enrolled in whatever capacity he is best fitted to work.

Skin Disease Epidemic in Paris.—A despatch from Paris to the New York *Sun* states that an annoying skin affection, something like the "seven years itch," is particularly in evidence in that city, having been brought there by soldiers returning from the battlefront. The parasite is said to be rampant at the headquarters of the American Mission.

New York Health Department Extends Work.—On the invitation of Health Commissioner Copeland, representatives of the Labor Sanitation Conference met him and conferred regarding the extension of the work of industrial hygiene. It was suggested that the work of the department be extended to fields of industry not heretofore included, such as stonecutters and marble cutters, sheet-metal workers, lithographers, printers, painters, and the shipbuilding industry. Dr. Copeland announced that the Board of Estimate had consented to make available at once the money for this work and that he would appoint ten temporary medical inspectors, and fifteen or twenty sanitary inspectors to begin the work immediately.

Motor Fatalities in New York.—The report of the National Highways Protective Society for the month of January shows that 49 persons lost their lives as the result of automobile accidents during the month. In New York State outside of New York City 19 were killed by automobiles and three by trolleys. The total number of street accidents in New York City was 58, the highest fatality figure yet recorded for January. In New Jersey 17 were killed by automobiles, four by trolleys, and two by wagons. Figures compiled for the year 1918 show an increase of fatalities from automobile accidents of 30 per cent. over 1917, with 1,189 fatalities for 1918 against 837 for 1917. An estimate of the economic loss through lives thus crushed out, on a basis of $10,000, the value the Federal authorities have fixed on a soldier's life, is $11,890,000.

Bill to Make State Sell Milk.—An amendment has been framed for introduction into the New York State Legislature to the Costillo bill, aimed at the producers' distributors' milk trust, which provides for a State commission which shall be clothed with authority to spend $250,000 or more yearly to establish agencies to sell milk at a fair price.

Addition to Volunteer Hospital.—An addition to the Volunteer Hospital, New York, consisting of four stories and a solarium to cost $175,000, is in the process of construction. This extension is in line with the original plans of the hospital but was temporarily abandoned because of war conditions. Last year the hospital gave 38,000 treatments to 14,000 patients and answered 4,000 ambulance calls.

Clinical Society of the Hospital for Deformities and Joint Diseases.—A meeting will be held at 41 East 123d Street on Tuesday net at 8:30 P. M. Papers will be read by Drs. Frauenthal, Kilmer, Michel and Rodman.

Charitable Bequests.—The will of the late Benjamin Blumenthal makes the following bequests: Mt. Sinai Hospital, New York, $15,000; Lebanon Hospital, $5,000; Hebrew Orphan Asylum, United Hebrew Charities, Home for Aged and Infirm Hebrews, and Hebrew Infant Asylum, $10,000 each; St. Vincent's and the Presbyterian Hospitals, and the Sanitarium for Hebrew Children, $2,500 each.

The will of the late Henry Joseph Duveen makes bequests of $5,000 to Mt. Sinai and the Woman's Hospitals, New York, and the Middlesex Hospital, London.

The will of the late Dr. William Mecklenburg Polk, whose estate was recently appraised at $875,121, makes a bequest of $5,000 to Cornell University.

Sir Arthur Pearson, who has come to this country for the purpose of assisting in the reeducation of American soldiers blinded in the war, was the guest of honor at a farewell dinner given in the Ritz-Carlton Hotel, New York, on January 31, by Dr. Schuller Skaats Wheeler.

Professors Alonzo Taylor and Vernon Kellogg are making a railroad journey across Germany to supervise the relief work that has just been established at Danzig. They have in their charge 10,000 cans of condensed milk for Poland. The care of a consignment of such a scarce article as milk across Germany at the present time is said to be a very hazardous undertaking.

Police Hospital Planned.—Police Commissioner Enright of New York is undertaking to build a $5,000,000 hospital for policemen and their families and for other persons who would otherwise not receive hospital attention. A campaign to raise the funds required is to be started in the course of a week or two.

Columbia University May Control Hospital.—It is reported that arrangements are under discussion regarding a plan for cooperation between the College of Physicians and Surgeons of Columbia University and the Lenox Hill Hospital. Details will probably not be made public until after the meeting of the trustees of the university in March.

Appeal for Nurses.—An appeal has been sent out from Henry Street Settlement, New York, for nurses and for money to bring nurses to the city to aid in the fight against pneumonia and influenza. The settlement's nurses have been caring for 2,000 patients a day and that is all they have been able to do. During the epidemic 189 nurses and 50 nurses' aids cared for 4,000 cases a day. On learning of this appeal Health Commissioner Copeland announced that the Health Department had from 400 to 500 nurses that could aid in this work and asks that cases for which care cannot be provided be referred to the Health Department.

The American Congress of Physicians and Surgeons will be held in Atlantic City, June 16-18, 1919. The change from Washington was determined upon because of the uncertainty in regard to hotel accommodations at Washington.

Medical Society Elections.—The NEW HAVEN (CONN.) MEDICAL ASSOCIATION, at its annual meeting held Jan. 15, elected the following officers for the ensuing year: *President*, Dr. L. M. Gompertz; *Vice-President*, Dr. R. E. Peck; *Recording Secretary*, Dr.

F. E. Phillips; *Financial Secretary,* Dr. S. J. Goldberg; *Treasurer,* Dr. F. H. Wheeler.

The New London (Conn.) Medical Society, at its annual meeting held Jan. 17, 1919, elected the following officers for the ensuing year: *President,* Dr. Joseph M. Ganey; *Vice-President,* Dr. Charles G. Barnum; *Secretary and Treasurer,* Dr. Ross E. Black.

The New Britain (Conn.) Medical Society, at its annual meeting, January 8, 1919, elected the following officers for the ensuing year: *President,* Dr. E. J. Dray; *Vice-President,* Dr. Robinson; *Secretary and Treasurer,* Dr. Mann.

The Spokane County (Wash.) Medical Society, at its annual meeting elected the following officers for the ensuing year: *President,* Dr. A. A. Matthews; *First Vice-President,* Dr. A. T. R. Cunningham; *Second Vice-President,* Dr. J. M. Gunning; *Third Vice-President,* Dr. E. H. Northrup; *Corresponding Secretary,* Dr. Carroll Smith; *Recording Secretary,* Dr. E. J. M. Lawrence; *Treasurer,* Dr. Sidney Oppenheimer.

The Kings County Medical Society, at its annual meeting, held in Brooklyn, December 17, 1918, elected the following officers for the ensuing year: *President,* Dr. Stephen H. Lutz; *First Vice-President,* Dr. R. L. Moorehead; *Second Vice-President,* Dr. John A. Lee; *Secretary,* Dr. Charles E. Schofield; *Treasurer,* Dr. Alfred Bell.

The Queens-Nassau (L. I.) Medical Society, at its annual meeting in Brooklyn recently, elected the following officers for the ensuing year: *President,* Dr. Howard L. Moss, Richmond Hill; *Vice-President,* Dr. Arthur D. Jaques, Lynbrook; *Secretary-Treasurer,* Dr. James S. Cooley, Mineola.

Obituary Notes.—Dr. George Newton Ferris of Brooklyn, N. Y., died of heart disease at the residence of a relative in that city, on January 28, aged 64 years. He was a graduate of the Long Island College Hospital, in 1879, and from 1881 to 1889 superintendent of the Kings County Hospital.

Dr. Clarence J. Blake, emeritus professor of otology at the Harvard University Medical School, died at his home in Boston, on January 29, aged 76 years. He was a graduate of the Harvard Medical School, in 1865, from 1870 to 1875 lecturer at Harvard, and from 1875 to 1888 instructor; he then became professor of otology.

Dr. Samuel H. Robertson of Princess Anne, Md., who retired from the active practice of medicine about fifteen years ago, died at his home, on January 21, aged 88 years.

Dr. Edward Sanders, a graduate of the New York University Medical College, in 1876, and attending physician to the Hebrew Orphan Asylum, died at his home in New York City on January 29.

Dr. Henry Griswold, a graduate of the Louisville, Ky., Medical College, in 1864, a member of the American Medical Association and the New York Academy of Medicine, died at his home in New York on February 1, aged 76 years.

Dr. Frank Blaisdell died at his home in Keene, N. H., on January 17, aged 66 years. He was graduated from Dartmouth Medical College, in 1876, was at one time president of the New Hampshire Medical Association, and served on the board of physicians and surgeons of the Elliot Hospital in Manchester.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

London, January 10, 1919.

Demobilization of the Medical Profession.—A conference has been held between representatives of the Central Medical War Committee and other bodies interested in the demobilization and resettlement of doctors. Deputations have been sent by the Committee to the Ministry of Labor on the same subject. From a great deal of thought mostly well directed, a scheme has now evolved, though what is actually done will depend also upon the actions of other Government Departments. Just before Christmas the National Insurance Commissioners sent a circular letter to each Insurance Committee in England dealing with the subject, while a letter in similar terms was issued by the Welsh Insurance Commissioners to each Insurance Committee in Wales. The letter to the Committees pointed out that a substantial number of medical men were required to meet the urgent needs of the civil population in those areas in which a breakdown of medical service appeared imminent or might at any rate be feared during the winter months. The National Insurance Commissioners, it is true, anticipated that the men already released, together with those under orders to return would meet the more urgent needs, but they considered the question of how to reestablish at the earliest date at which military exigencies would permit, an adequate health service, was one that should be answered at once. At what standard such reestablishment should aim presents some difficulty. The increasing shortage of doctors in civil practice during the greater part of the period covered by the war precluded the statutory scheme of medical benefits to insured persons from being maintained at its normal, and undoubtedly, despite large annual exchequer grants paid towards the cost of medical remuneration under the National Insurance Acts, many complaints of inadequate attendance and improper medical certification have been justified. The rights of insured persons have been curtailed, and although this may be regarded as a necessary sequence of war conditions, it is felt that the position should be remedied at the earliest opportunity, for, after all, the matter is one which concerns directly or indirectly 30 per cent. of the population. The National Insurance Commissioners upon these grounds approached the Ministry of National Service, with the result that that Ministry agreed to secure priority for the release of medical men who are prepared to resume their old practices under the National Insurance Acts or to take up new practices in the districts where such assistance was particularly required. The result has been definite instruction from the Ministry of National Service to each Insurance Committee in England and Wales to review the medical situation in their areas, district by district, and to report in detail on the following points: Approximate number of the population and the nature of the country and its road and rail communications; *Cadre* of local doctors doing insurance work before the war or ready to do it now, with any

special information as to their qualities; methods of restoring the service to efficiency where it seems clear that importation of new doctors, engagement of partners, and so on, are required. These detailed reports are to be sent in without delay, and the hope is expressed that the doctors themselves will assist in the drawing up of the reports, a personal request of this nature having been addressed to medical men. In this request special attention is drawn to the question of the adequacy or inadequacy of the insurance service in the locality, and the doctor is asked to advise his Insurance Committee if he requires any measure of relief owing to the work that will presently fall upon him. The net result is that the National Commissioners are anxious to get the Insurance Committees and the Panel doctors into agreement on the fairest and readiest ways of restoring Panel practice to its proper state of efficiency.

In the meantime the Central Medical War Committee has drawn up a scheme for demobilization which deals with the question of priority of release on personal and professional grounds of all medical officers serving temporarily with the Forces. The scheme has received the approval of the Ministry of National Service and runs as follows:

Part I.

MEN OVER THIRTY YEARS OF AGE AT DATE OF ARMISTICE—VIZ., MEN BORN ON OR BEFORE NOVEMBER 11, 1888.

I. The following points will be awarded on the grounds of length of service and age:

Men Mobilized at the Outbreak of War (*e.g.* R.N.V.R., R N.R., R A. M.C.(T.), and R.A.M.C.	Points.
Over 45	30
40-45	29
35-40	28
30-35	27

Men with Over Three Years' Service.	Points.
Over 45	26
40-45	25
35-40	24
30-35	23

Men with Over Two Years' Service.	Points.
Over 45	22
40-45	21
35-40	20
30-35	19

Men with One Year's Service.	Points.
Over 45	18
40-45	17
35-40	16
30-35	15

Men with Less Than One Year's Service.	Points.
Over 45	14
40-45	13
35-40	12
30-35	11

II. The following points will be added or subtracted in respect of the following modifying conditions:

	Points.
(1) If in whole-time salaried post, subtract	6
(2) If with no paid appointment or N.H.I. work, add	3
(3) If in single-handed practice, add	3
(4) If all members of partnership are on service, and no member of the partnership is otherwise entitled to more than — points, add, in case of one partner	4
(5) If married, add	4
(6) If dependents, children or otherwise. 1 point for each dependent up to a maximum of	4

III. Additional points may be awarded in respect of financial or other circumstances of an exceptional character which justify a claim to a higher order of priority than that determined by the foregoing provisions. The award of any such additional points would be the subject of special assessment by the committee, and any man who deems that he has suffered special hardship on such grounds should apply to the committee for a special consideration of his case on the facts.

IV. The order of priority of men of thirty and over shall be according to the net number of points accruing to each man under this part of the scheme, men with a greater number of points ranking before men with a less number of points.

Part II.

MEN UNDER THIRTY YEARS OF AGE AT DATE OF ARMISTICE—VIZ., MEN BORN AFTER NOVEMBER 11, 1888.

V. The order of priority determined under Part II shall be in continuation of the order of priority determined under Part I.

VI. The order of priority of men under thirty years at date of the armistice shall be according to their age, the older before the younger; no priority being, however. accorded as between men born in any one calendar year:

Provided that, in the event of the Central Medical War Committee deciding upon a special application, that financial or other circumstances exist of an exceptional character which justify a claim by the applicant to a higher order of priority than that accorded under the foregoing provisions, the committee may award that the applicant should be classed either on a level of priority (under Part II) with men born in a specified earlier calendar year, or on a level of priority with men entitled to a specified number of points (under Part I).

The main object, it will be seen, has been to devise a plan which is at once simple, capable of amendment at any time, and easily explained to those concerned. As soon as provision is made for areas in which the medical service has been dangerously depleted, demobilization of medical officers will proceed briskly. It will be seen that special claims on financial and other personal grounds will not be taken into account in the method of classification, but such claims can be submitted to the Central Medical War Committee for special assessment.

There is an obviously different point of view in the proposals of the Central Medical War Committee and those of the National Insurance Commissioners and the Ministry of National Service. The government departments are concerned with getting back the doctors previously employed in public services or in private practice, while the Central Medical War Committee, as the body which recruited most of the temporary medical officers for the army, is especially anxious that decommissioning should follow in fairness the lines dictated by the individual urgency of cases.

The Treatment of Rabies in England.—The outbreak of rabies in Cornwall and Devonshire, which, without being exactly serious, has none the less been of considerable duration, has been made the subject of official memorandum lately by the Local Government Board, from which the interesting fact appears that, under the ægis of the Board, a Pasteur center for treatment has been set up at Plymouth. It is understood that about thirty persons have actually been bitten by dogs definitely ascertained to be rabid since the outbreak was discovered, and the first series of these patients were sent to Paris under elaborate arrangements to be treated by Professor Emil Roux at the Pasteur Institute. But, it being practicable, in Professor Roux's opinion, to rely upon preservatives—cold and glycerin—to maintain the virus at a proper degree of potency for some weeks, the Local Government Board decided to conduct the antirabic technique on this side of the Channel. The Pasteur Institute has accordingly consented to supply to a center at Plymouth spinal cords representing fixed virus of different ages, from which emulsions can be prepared and treatment administered on lines exactly corresponding with those followed in Paris. All the organization has been placed under the su-

perintendence of Dr. Pethybridge, pathologist of the South Devon and East Cornwall Hospital. District Councils, acting under the direction of the Local Government Board, pays reasonable sums for the maintenance in Plymouth of persons requiring treatment, and who cannot afford the expense of the sojourn at an expensive port, for the treatment is spread over a course of three weeks. This provision of antirabic treatment in England is very wise, while rabies is known to exist in France, for during demobilization no effective blockade can be established for certain.

The Great Men of the Seventies.—The occurrence in the British medical press during the first week of the new year of obituary notices of Sir William Dalby, the famous aural surgeon, and Dr. Thomas Buzzard, the equally famous neurologist, point the way to certain reflections on the position of the medical men who reached the zenith of their fame at the beginning of the last quarter of the Nineteenth Century. Between the years 1875 and 1885—the dates might be for purposes of argument extended in both directions—the doctrines of aseptic surgery were received, revised, perfected, and accepted, and thereupon, through bacteriology, the whole foundations of surgery and medicine were reconsidered. Clinical experience as well as the teachings of physics and biology had given to medicine both a stable foundation and a vast record of pathological pictures equally stable; but, on the one hand, the meaning of those pictures was now incalculably enlarged, and, on the other, a door was opened for such an extension of clinical practice that the experience of the past could be no comprehensive guide to the procedure of the future. What was the position of, for example, men like Timothy Homes in surgery and Russell Reynolds in medicine, of Dalby and Buzzard and a very large list of distinguished men who have died, at ages varying from 60 to 80, during the last 25 years? The great revolution found them at the top of their fame. Homes, for example, was the editor of the classical symposium of surgery, Reynolds was the editor of an inclusive dictionary of medicine, and their names were typical of contemporary wisdom. Suddenly contemporary wisdom was seen to be still wisdom but very partial wisdom and equally suddenly undreamed of developments in the clinical side of pathological medicine and surgery passed into easily realizable possibilities. Obviously the position of these clinical leaders was to some extent what they could make of it. Some were flexible enough to learn the meaning of the new wisdom and to become students while they were still leaders, associating themselves with what was to come. Others marked time and were content to be links between the past and the future. A few, a very few, were recalcitrant. Buzzard belonged to the flexible type, Dalby to the more conservative, but both were far too great not to recognize that the new was a vast improvement on the old and held out promises of untold good for the science of medicine. Sir William Dalby was a great aural surgeon at a time when cranial surgery was in its infancy and when such procedure as the complete mastoid operation was attended with huge risks. He decided not to relearn operative surgery, while without it he could still be of great use to a large range of patients, so he promptly associated himself with younger otologists, by consultation with whom he was able to secure for his patients that operative interference which he declined himself to give them. His general teaching on the diagnosis and treatment of the deaf remained sound, while one special piece of work which he initiated in England came to fruition under his care. It was Dalby who introduced into England the method of lip-reading whereby he provided for thousands of born-deaf children the opportunity of becoming happy, normal, and efficient citizens. Buzzard was more progressive. He realized that in bacteriology we might have the clue to the mastery of many nervous diseases. Originally mainly interested in hysteria, hypochondriasis, and the tics, he used the clinical material provided for him at the National Hospital for Paralysis and Epilepsy to popularize the doctrine that microorganisms and their toxins would be found to have a basic influence in the production of diseases of the nervous system; and, while whole generations of younger workers have achieved practical results along the lines of what was then largely a theory, to Buzzard there accrues the credit of having promulgated and started the theory, and to that extent of having inspired the future work. Sufficient credit is not given in this country to the work of the great men of the seventies placed embarrassingly between the new learning and the old, too habituated to lead to make it easy to follow. During twenty years it was their lot to hold the fort of established learning against too rapid and violent reformers; and it was also their duty to admit that the new teaching was both right and in no sense a derivative of the old.

Progress of Medical Science.

New York Medical Journal.

January 25, 1919.

1. Development of Colon Surgery. Edgar R. McGuire.
2. Influenza Epidemic. Major Philip A. Loomis and Captain Joseph Walsh.
3. Flat Feet and Weak Feet. H. Scheimberg.
4. Secondary Sutures in War Wounds. Adrien A. P. Piollet.
5. The Endoscopic Treatment of Laryngeal Stenosis. Henry Lowndes Lynah.
6. Empyema, Abscess, and Gangrene of the Lung Following Epidemic Influenza. Moses Behrend.
7. Perodactylism, Syndactylism and Cleft Extremities in a Child. J. Epstein.
8. Case of Mental Imbecility with Absence of the Sella Turcica: Improvement by Organotherapy. Joshua H. Leiner.

6. Empyema, Abscess, and Gangrene of the Lung Following Epidemic Influenza.—Moses Behrend gives the results obtained by resection of the ribs in 19 cases of empyema, abscess and gangrene of the lung following epidemic influenza. The diagnosis of these cases presents many difficulties. The distinguishing feature, however, in abscess of the lung was found to be the dullness in a localized area, whereas in the large empyemas the entire chest was flat, usually posteriorly and involving the axillary region. Another distinguishing feature was that in abscess of the lung breath sounds could be heard about the entire involved area, while in large frank empyemas breath sounds and tactile fremitus as a rule were entirely absent. It must be remembered, however, that all breath sounds heard over a pneumonia may be elicited over an empyema, the one outstanding factor being the prolongation of symptoms and physical signs beyond the period allotted to a pneumonia. These difficulties of diagnosis may be largely overcome by the use of the aspirator or Luer Syringe. The aspirator is the better instrument and, in the author's opinion, it is not used often enough; it can

do no harm if used in an aseptic manner and even a dry tap has been followed by good results. The *x*-ray may be of service in locating the fluid, but in the author's cases the *x*-ray was incorrect in a number of instances. The operation of choice is resection of the ribs. This procedure permits of an operative diagnosis differentiating between an empyema and a lesion of the lung. Thorough drainage is instituted, which cannot be obtained by any other method. In infants and children up to two years of age, thoracotomy may be done, but from the surgeon's point of view this is at best an inefficient operation. There is no objection to aspiration before operation. It cannot be curative, but it is beneficial since it allows for expansion of the lungs by equalizing the pressure within the thorax before the ribs are excised.

Journal of the American Medical Association.

January 25, 1919.

1. Psychoses Associated with Influenza: I. General Data: Statistical Analysis. Karl A. Menninger.
2. Atropin and Induced Antianaphylaxis as a Protection Against Acute Arsphenamin Reactions. J. H. Stokes.
3. Ventricular Drainage by Puncture of the Corpus Callosum in Acute Obstructive Hydrocephalus Due to Epidemic Cerebrospinal Meningitis. De Witt Stetten and Dudley Roberts.
4. Cardiovascular Examinations of Recruits at Camp Lewis Mustering Office, April 20 to October 1, 1918. Donald Cass.
5. Effect of Cardiac Distress on the Work of Recruits. Gordon E. Hein.
6. Relation of Meteorological Conditions to the Prevalence of Pneumonia. David Greenberg.
7. Reaction of Leucocytes After Vaccination with Army Triple Typhoid Lipovaccine. J. Wheeler Smith, Jr.
8. Histopathology of Superficial Burns. H. G. Weiskotten.
9. Drug Addiction. W. A. Bloedorn.
10. Rational Drug Therapy. Jacob Diner.
11. Influenza at the United States Naval Hospital, League Island, Pa. F. J. Dever, R. S. Boles, and E. A. Case.
12. The Relation of Bronchopneumonia to Influenza: A Preliminary Report. Camp Lewis Pneumonia Unit.
13. Anthrax at Embarkation Hospital, Newport News, Va. Otis T. Amory and B. Rappaport.
14. Anthrax at Camp Dodge, Iowa: Report of Three Cases, with Bacteriologic and Blood Studies. Carl G. Dennett.
15. Hemolytic Streptococci: A Serologic Study of Strains Isolated During a Recent Epidemic at Camp Wadsworth, S. C.: Preliminary Report. C. D. Hamilton and L. C. Havens.

3. Ventricular Drainage by Puncture of the Corpus Callosum in Acute Obstructive Hydrocephalus Due to Cerebrospinal Meningitis.—De Witt Stetten and Dudley Roberts report a case of epidemic cerebrospinal meningitis which, after running a relatively normal course, rather suddenly developed signs and symptoms pointing to an acute obstructive hydrocephalus. As the condition of the patient was extremely critical, being little short of moribund, it was decided to establish ventricular drainage by puncture of the corpus callosum. This was done some ten days after admission to the hospital, the patient being in a raving delirium. About 25 c.c. of very slightly turbid, blood-stained fluid was obtained, which was entirely different in character to the fluid obtained by lumbar puncture four hours previously, when 40 c.c. of cloudy fluid were withdrawn. Diagnosis of ventricular block was conclusively proved by the manner in which the fluid gushed from the cannula. Examination of this fluid showed no evidence of active meningococcic inflammation with the ventricles. The immediate postoperative improvement in the patient was almost miraculous. Subsidence of the protruding intracranial contents shortly after operation, as the patient's condition improved, corroborated the view that recovery, which eventually became complete, was due to the relief of the ventricular distension. The authors feel justified in advocating puncture of the corpus callosum for ventricular drainage as a rational, life saving procedure when the clinical picture of ventricular obstruction observed in the case in question appears in the course of a cerebrospinal meningitis. If, in addition to ventricular blocking, there appears to be actual infection of the ventricle—turbid or purulent fluid or isolation of diplococci—intraventricular administration of antimeningitis serum should be combined with puncture of the corpus callosum. Care must be taken to inject less fluid into the ventricles than the amount of fluid withdrawn.

5. Effect of Cardiac Distress on the Work of Recruits.—Lieut. Gordon E. Hein contributes the results of observations on 300 men returned to the development battalion from various line organizations because of complaints of "heart trouble." The largest proportion of these cases occurred among farmers and laborers, the next largest group being that of clerks. With exception of measles and whooping cough, acute rheumatic fever was the most common illness. The conclusions drawn from this series of cases are: (1) That few organic valvular heart lesions escape during the routine examination of recruits. (2) That men with persistent tachycardia due to various causes form the largest group slipping by the examiners, later to return unable to perform full military duty. (3) That the number of alcohol and tobacco users among those complaining of cardiac distress seems high. Sedentary occupation seemed to have little to do with the cases examined. (4) A large number of men with enlarged thyroid glands develop cardiac symptoms when put under severe physical strain. Soldiers with enlarged thyroid glands should be kept under observation. (5) A certain percentage of the persistent tachycardias are fundamentally nervous conditions and can be eliminated by the neuropsychiatrists. (6) The persistent tachycardias are a group of conditions, the etiology of which must be determined before a rational plan of treatment can be prescribed.

British Medical Journal.

January 4, 1919.

1. Observations on the Severe Anemias of Pregnancy and the Postpartum State. Sir William Osler, Bt.
2. Observations on Influenza and Its Complications. Robert Muir and G. Haswell Wilson.
3. The After-Results of Gastric Operations. J. Lionel Stretton.
4. A Case of Valvular Disease of the Heart, Showing Unusual Powers of Physical Endurance. Robert D. Rudolf.
5. Nasal Diphtheria and the Epidemic of Influenza. E. Marten Payne.
6. Spontaneous Pneumothorax in the Course of Influenzal Pneumonia. F. Parkes Weber.

1. Observations on the Severe Anemias of Pregnancy and the Postpartum State.—Sir William Osler divides these cases into four groups: (1) Anemia from postpartum hemorrhage. Two types may be seen—(a) Those in which bleeding is profuse and rapidly fatal; everything may have gone well and the doctor may have left, feeling that all was satisfactory; patient suddenly becomes restless, there is pallor, and dressings are found to be soaked with blood; symptoms soon become those of acute anemia, with convulsions and sudden collapse. (b) Those in which anemia follows repeated small hemorrhages, not infrequently after abortion and more rarely after delivery at term; the general appearance may be that of an ordinary Addisonian anemia. (2) The severe anemia of pregnancy. Although Channing and Lebert recognized that the so-called chloro-anemia of pregnancy might pass on to a grave and fatal form, it was the publication of Gusserow's five fatal cases that drew the attention of the profession to the seriousness of severe anemia in pregnancy. (3) Postpartum anemia. After a normal delivery without excessive loss of blood, the patient begins to get pale; within a few weeks the blood count may fall below 2,000,000 per c.mm. and the anemia prove fatal in from 8 to 12 weeks. Clinically this form is indistinguishable from true Addisonian anemia except as regards absence of recurrence. The presence of continuous fever may lead to error in diagnosis and even suggest typhoid fever; or the fever may be associated with chills and suggest malaria. (4) The acute anemia of postpartum sepsis. In no condition is there such rapid hemolysis as in postpartum sepsis, a form of anemia not sufficiently recognized or studied. In acute endocarditis the anemia with a large spleen may completely mask the clinical picture, as in the cases reported by the author in 1913. Such cases may be rapidly fatal and, as an example, the following case is cited: Blood loss at delivery was not severe; patient was seen hy author on the seventh day, when in a state of profound anemia; there had been an unusually foul but slight discharge for some days; red blood cells were 1,000,000 per c.mm. and leucocytes 20,000. Chief complaint was throbbing of aorta. Death occurred on the twelfth day. There was diphtheritic

endometritis, septic thrombi in pelvic veins; no endocarditis. Commenting on these cases Sir William Osler remarks that as yet there is no clue to the nature of the hemolytic agent involved. This agent differs in one all-important particular from that which causes the anemia of Addison, since, when recovery takes place, it is permanent and the woman may escape in subsequent pregnancies. In one of the author's cases the patient, after recovery from a severe attack, bore two children and was well thirty years after the attack. In the hands of skilful students the blood picture should be of value in prognosis. Signs of active regeneration are present, indicated by blood crises and a large proportion of red cells with signs of recent formation, basophilic granulation, mitochondria, and reticulation. The number may rise from 1 to 20 to 25 per cent., with marked bone marrow stimulation. A high color index is the rule in pregnancy and postpartum cases. Absence of platelets is a feature of the common idiopathic anemia in contrast to the posthemorrhagic and septic forms. Osler states that his experience is exceptional and much more hopeful than is indicated in the literature, and particularly in works on obstetrics. From records of other observers and from his personal experience he believes that the danger of a grave anemia, progressive in character, is not great after fairly profuse hemorrhage. On the other hand, repeated small losses of blood after abortion or normal delivery may be followed by an anemia out of all proportion to the quantity of blood lost. In some cases the starting point of Addison's anemia seems to be repeated epistaxis or bleeding piles. Treatment indicated is fresh air, rest, food, iron, arsenic, and transfusion if required. In regard to the latter, though the newer technique has many advantages, in Addison's anemia the results do not appear to be more favorable than with the Aveling or Roussel apparatus.

Crónica Médico-Quirúrgica de la Habana.

October, 1918.

1. Pan American Scientific Interchange. F. M. Fernandez.
2. The Change in the Progress of the Medical Profession. J. Santos Fernandez.
3. Trigger Finger. A. B. Judson.
4. Medical Aspects of the Great War. F. M. Fernandez.
5. Memoirs of a Hygienist. Emilio R. Coni.
6. Sanitary Legislation in Peru. C. E. Paz Soldan.
7. The Problem of Education in Ecuador. A. Espinosa Tamayo.

1. **Pan American Scientific Interchange.**—Fernandez replies to those who want to have the expansion of Latin America in conjunction with Spain, and in a way against the United States. Fernandez justly claims that all or mostly all the Latin American countries should be in favor of scientific interchange with North America. The small Republics of Latin America had hoped that the mother country (Spain) would have come back to her ancient heroic times and fought side by side with them in the titanic struggle against Teuton militarism, and they were dismayed when instead of that, they saw that Spain was arm in arm with the war lords of Germany and did not criticize such barbaric acts as the sinking of the Lusitania, the murder of Edith Cavell, and the wanton destruction of scientific and historic monuments. Now it is too late to invoke blood attachments that will, however, never be forgotten, but in the future, the scientific guidance of most of the Latin American countries, and especially that of Cuba, will be in her great free neighbor to the north.

Crónica Médico-Quirúrgica de la Habana.

November, 1918.

1. Peace. F. M. Fernandez.
2. The Presidential Message. F. M. Fernandez.
3. Medical Pan Americanism. J. E. Lopez Silvero.
4. Primitive Intradural Tumor of the Orbital Portion of the Optic Nerve. Martin Cohen.
5. Brief Exposition of My Recent Trip to the United States. Juan Santos Fernandez.
6. Rural Hygiene. Francisco Fernandez Oliva.
7. The Cuban Scientific Papers. F. M. Fernandez.
8. Pan American Medical News. J. E. Lopez Silvero.
9. Popular Hygiene. A. Espinosa Tamayo.
10. Social Hygiene. C. E. Paz Soldán.

Berliner medizinische Wochenschrift.

November 25, 1918.

The Clinical Picture of Suprarenal Apoplexy.—K. Löwenthal has met with a case of double pneumonia and pleural collection which was followed by the following clinical syndrome: intense abdominal pain, constipation and slight meteorism, profuse sudation, normal temperature and a slow, irregular pulse. At autopsy the writer found a hemorrhage in both suprarenals; the medullary substance was entirely destroyed in one, and greatly involved in the other. The cortex of the glands was preserved. The writer points out the concordance between the clinical signs offered and the physiological data known, which show that the disturbances arising in this case resulted from a lack of tonus of the sympathetic, that is to say, from an adrenalin insufficiency. The differential diagnosis from ileus or peritonitis should be based above all on the pulse, which in these circumstances is rapid, while in suprarenal apoplexy there is a tendency to slowing of the pulse rate. In the case reported by the writer there were 44 beats to the minute.

The Influence of the Thymus Gland on Regeneration of Bone After a Traumata.—K. Glaesner has carried out the following experimental work. Young rabbits belonging to the same litter were each trephined on the tibia. Some of the animals were fed on thymus gland, the others serving as control animals. The evolution of the bone trauma in each was controlled by regularly repeated radiographic examinations. The writer concludes that the exhibition of thymus gland hastens regeneration of bone traumata. At a given time in repair the difference consisted in the presence of a smaller bone defect, a normal osseous configuration and a moderate callus, while the control animals offered an inverse condition.

Münchener medizinische Wochenschrift.

November 19, 1918.

The Value of Provocative Injection of Adrenalin in Latent Malaria.—A. Schittenhelm and H. Schlecht remark that among the various procedures proposed for bringing out latent malaria that of adrenalin is the most constant in results, and they do not hesitate to recommend it for general use. In cases offering an uncertain clinical picture but giving rise to a suspicion of latent malaria, the patients are first of all placed under observation for their temperature, combined with repeated blood examination. Following an injection of one milligram of adrenalin when the result is positive there is a rise of temperature and at the same time the plasmodium appears in the blood. The effect of the injection is not always immediate and several days may be required before it manifests itself. It may also happen that the first injection remains negative but positive results are obtained after a second. The writers estimate that the procedure results in positive findings in 90 per cent. of the cases, but a negative result does not eliminate the possibility of a latent malaria being present. No complications are met with from its use.

Kypho-Scoliosis in Tetanus.—E. Becher has observed a soldier who developed tetanus three months after the receipt of his injury. The affection lasted two weeks and was followed by a contracture of the vertebral muscles which lasted for several weeks. A kyphoscoliosis resulted, the patient's height decreasing six centimeters. The contracture was lessened by intramuscular injections of novocain, while adrenalin appeared to increase it. The contracture was not overcome under deep narcosis. Radiography showed a regular incurvation of the spine without any decrease in size or sinking of the vertebræ.

The Formation of Gibbosities in Tetanus.—Eberstadt records a case similar to the above. During the evolution of a chronic tetanus a gobbosity progressively developed. The patient died two months after the development of the tetanus and autopsy revealed a gibbus resulting from compression of the fourth vertebra and flattening of the third and fifth vertebræ. The deformity was not the result of any pathologic process. There were no traces of syphilis or tuberculosis. The writer concludes in favor of a direct action of the tetanic toxin

on the vertebræ to which a permanent spasm of the spinal muscles became added from which the deformity resulted.

Deutsche medizinische Wochenschrift.

November 21, 1918.

Serum Treatment of Influenzal Pneumonia.—U. Friedemann has employed a polyvalent antipneumostreptococcal serum in twenty cases of influenzal pneumonia. Of these twenty cases thirteen would have been very serious or even fatal if they had been treated by ordinary methods. In reference to the results obtained five cases are to be eliminated, as death occurred on the day the first injection was given, while two others died in spite of the injections. In six other cases the results were favorable. The writer insists particularly on the remarkable sedation of the symptoms and remarks that the effect of the serum was "surprising and sudden." In seven other cases the effect was good, although not so evident as in the six cases referred to. The treatment consisted on an intramuscular injection of 50 cc. of the serum in two successive days.

A Case of Varioliform Hemorrhagic Exanthema During Pneumonia.—O. Löwy reports the case of an Italian prisoner who developed a suppurating pneumonia and on the ninth day of the process presented a pustular eruption with umbilicated vesicles, some of which were hemorrhagic. Post mortem examination of the pustules showed a hemorrhage in the chorion, while some of the pustules were found to be formed by intraepidermic cavities. Bacteriological examination revealed the pneumococcus.

Comparative Mortality from Typhus Fever Among a Christian and a Jew Population.—E. Marsini states that the Jewish race has been supposed to possess a lesser receptivity for typhus fever and offers statistical tables derived from his personal experience of 1164 cases. He concludes that Jews offer a greater resistance to the disease than Christians. On the other hand, in the two races the women offered a much smaller mortality than males. In order to explain these facts the writer suggests that the Jews often have the disease in infancy when typhus is much less fatal. On the other hand, women come under medical treatment sooner than men, which increases the possibility of recovery.

El Siglo Médico.

November 9, 1918.

The Pandemic in France and Spain.—Maranon, Pittaluga and Ruiz Falco devote an important analytical study to this subject. Not until the end of September did the epidemic of Spain begin to show extreme malignancy through bronchopneumonic complications. Not until then did the lay press begin to agitate the view that the disease was not influenza but some one of the great malignant plagues. An investigation showed that absolutely no difference existed between the French and the Spanish outbreaks. The parallel was complete in every detail. The superior mortality in women was attributed to indoor life and less pure air than that breathed by men. The earliest cases of bronchopneumonia with their extreme virulence had caused suspicion of typhus or the lung pest. The suspicion of cholera came from cases of abdominal type. Every syndrome, every unusual behavior, every rare complication noted in Spain had its counterpart in France. The bacteriology of the disease in the two countries was no less identical. The theory of a filtrable virus has supporters in both countries. The pneumonoseptic type was isolated in both as was also one due to activities of the streptococcus hemolyticus. Pneumo- and streptococci were at times associated in the same case. Upon such a background the pathogenicity of Pfeiffer's bacillus makes a relatively weak showing. This germ per se has never caused a high death rate in the white race, although able to devastate some of the darker races, who are often doomed in advance by its discovery in the secretions. The question of filtrable virus or the germ of Pfeiffer as the initial cause is as yet unsettled, the latter having the prestige of the pandemic of 1889 behind it. One or the other must pave the way for the lethal action of the familiar cocci. To cite a few statistics the number of deaths in Paris from October 3-10 was 1445; from October 10-17 it was 1944. The normal mortality was almost trebled. Nearly half these deaths were imputed to the epidemic. Corresponding figures for Spain are difficult to obtain. Figures for the large cities in the North of Italy are analogous to those of Paris in suggesting three fold the normal mortality.

Finska Läkaresällskapets Handlingar

September-October, 1918.

Aplastic Anemia.—Willebrand describes completely two cases of aplastic anemia of the cryptogenetic type. Such cases would be placed by most authors under subdivisions of pernicious anemia. He further describes briefly 14 other cases from literature which belong in the same category as his own. He then proceeds to analyze the combined 16 cases. The course and symptoms are depicted as well as the finds concerning the blood making organs. There are points of resemblance as well as of difference between the author's type and typical Biermer's anemia. Aplastic anemia is a rare affection and one of great interest because the hematology throws much light on the subject of anemia in general. There is some evidence that the materies morbi of aplastic anemia is identical with that of Biermer's anemia. The points of difference could be explained by the operation of secondary factors. A study of the 16 cases shows that the prognosis is of the worst and that death comes about in from 18 months to 2 years. In that sense the disease is entitled to be included in the pernicious anemias. In fact, it is even more pernicious than many cases which go under that name. The treatment is naturally identical but there is no example of any temporary benefit. The arsenicals exert no influence over the affection. Blood transfusion was practised in four cases, but the benefits were quite insignificant.

Wiener medizinische Wochenschrift.

November 2, 1918.

Data on the Feeding of the Vienna Population.—A. Durig, in his inaugural lecture delivered on Oct. 31, gives estimates and statistics on the feeding conditions of the Austrian population during the preceding year. The general picture is that of a rapidly progressing famine, as much by the reduced number of calories as by the limited albumin intake, so that the population has undergone a prolonged inanition. The loss of weight has reached as much as eighty pounds in some cases.

Wiener medizinische Wochenschrift.

November 9, 1918.

This issue is devoted to papers on influenza by von Wiesner, Erdheim, Böhm, von Ortner, Götze, and Knöpfelmacher, who offer little that is new. However, the following statistical data may be worth while recording. Females represent 75 per cent. of the fatal cases and 95 per cent. of pneumonias of the suppurating types. Childhood seems more predisposed to this complication, while nephritis, endocarditis, meningitis and pyemia are very uncommon at this age. Domestic servants offer the largest number of cases among all the professions. Among the fatal cases in women 23 per cent. were pregnant. Deaths occur more commonly between the ages of 20 and 30 years, after which come the decades of 10 to 20 and 30 to 40 years. Of the fatal cases 85 per cent. were between the ages of 17 and 40 years. One writer estimates that up to Oct. 18, 1918, the total morbidity of the population was 5.6 per cent.

Rubber Shortage in Germany.—The use of automobiles and bicycles for unessential purposes is interdicted and tires of metal spring are substituted for rubber. Rubber nipples are made in smaller sizes and are also replaced by glass, etc. Synthetic rubber is in use and new processes for rubber regeneration.—*La Presse Médicale.*

Book Reviews.

HYGIENE OF THE EYE. By WM. CAMPBELL POSEY, A.B., M.D.; Ophthalmic Surgeon to the Wills and Howard Hospitals; Professor of Diseases of the Eye in the Philadelphia Polyclinic; Ophthalmologist to the Department of Physical Education of the University of Pennsylvania; Chairman of the Commission on Conservation of Vision of Pennsylvania. 120 illustrations. Price, $4.00. Philadelphia and London: J. B. Lippincott Company, 1918.

THE war has brought the question of sight into special prominence and has focussed the attention of the general public upon the importance of treating eye affections scientifically. Injuries to the eye have increased in proportion as foundries and factories have increased, and it is essential that knowledge should be diffused and carried into effect with regard to preventive measures. In "Hygiene of the Eye" Dr. W. Campbell Posey deals with the subject of sight from all standpoints, and in writing avoids as far as possible technicalities. Four of the chapters are contributed by well-known eye authorities. The book is excellently illustrated and is likely to prove of service to medical practitioners.

NEOPLASTIC DISEASES. A Text-book on Tumors. By JAMES EWING, A.M., M.D., Sc.D., Professor of Pathology at Cornell University Medical College, New York City. With 479 illustrations. Cloth, $10. Philadelphia and London: W. B. Saunders Company, 1919.

THIS is an ambitious work in which the author has set himself the extremely formidable task of the differentiation of tumors regarded from the standpoint of their origin, structure, and natural history. It is somewhat astonishing that a good deal of ignorance exists with regard to the exact nature of the several members of the tumor family. Or rather, perhaps, it will be more correct to say, that the medical practitioner has looked upon tumors from a broad aspect and has considered fibromas, sarcomas, or cancers as, to all intents and purposes, the same and has treated them accordingly. Moreover, the causative agent of all malignant tumors has been deemed identical which, in the opinion of Dr. Ewing, has greatly retarded progress of knowledge and, what is more, has militated very considerably against successful treatment. This has established a state of confusion, almost of chaos, which the author has endeavored in this work to illuminate. While he does not claim that he has entirely succeeded in his effort to present tumors as specific diseases, he does claim that the effort is, at any rate, in the right direction. The work is distinctive and will undoubtedly serve as a guide to a further and more intimate knowledge of tumors, which, after all, means better methods of treatment. The book is artistically and profusely illustrated.

ABSTRACTS OF WAR SURGERY. An Abstract of the War Literature of General Surgery that has been published since the Declaration of War in 1914. Prepared by the Division of Surgery, Surgeon-General's Office. Price, $4.00. St. Louis: C. V. Mosby Company, 1918.

AS a result of the war, many new surgical measures have been introduced, and many old procedures have been modified. There has been published quite an extensive literature on the subject. But before we can appreciate at its proper value the result of these changes and innovations, it is necessary to have a summary of what has been done. The present volume supplies, to some extent, this need. The reader has, here, an abstract of over one hundred papers bearing on War Surgery. These are classified under the general headings of: General topics, Wound infection and treatment, Tetanus, Gas gangrene, Abdomen, Chest, Cardiovascular surgery, Joints, Fractures, Burns, Anesthesia in warfare, Trench foot, Foreign bodies, Peripheral nerve injuries, and Jaws and face. The whole volume is well worth reading; but we would draw special attention to the two articles at the beginning of the book: The development of British surgery at the front, and Development of British surgery in the hospitals on the lines of communication in France. Each of these papers give an interesting and authoritative account of what was done in the war, and of the aims of those in charge of the wounded. This is a useful volume, and should have an extensive sale.

A COMPEND OF PHARMACY. By F. E. STEWART, M.D., Ph.G., Phar.D., Charter Member of the American Therapeutic Society; Formerly Professor of Materia Medica, Medico-Chirurgical College, Lecturer and Demonstrator of Materia Medica and Pharmacy, Jefferson Medical College, Medico-Chirurgical College, and Woman's Medical College of Pennsylvania, Philadelphia; Quiz-Master in Chemistry and Theoretical Pharmacy, Philadelphia College of Pharmacy, and Chairman of the Section on Materia Medica and Pharmacy of the American Medical Association; Associate Editor of the Therapeutic Gazette; Editor-in-Chief of Merck's Archives, etc. Based upon Prof. Joseph P. Remington's "Text-Book of Pharmacy," the United States Pharmacopœia IX and the National Formulary IV. Ninth Edition. Revised and Enlarged by HEBER W. YOUNKEN, Ph.G., Ph.D., Professor of Botany and Pharmacognosy and Director of the Microscopical Laboratories in the Philadelphia College of Pharmacy; Professor of Biology, Ursinus College; Formerly Professor in Charge of Botany and Pharmacognosy and Quiz Master in Materia Medica, Medico-Chirurgical College. Price, $1.50. Philadelphia: P. Blakiston's Son and Co.

THIS little compend contains much information concerning the official products and preparations. In a condensed, yet clear, manner the reader will find in this volume much of the chemistry and materia medica of the Pharmacopœias and the numerous tables summarize the various preparations referred to in our two national authorities. Many physicians who might be deterred by its size and cost from consulting Remington's Pharmacy will find the present volume of more than ordinary value. In spite of its numerous chemical formulæ and equations, we have found very few misprints in the book.

A MANUAL OF GYNECOLOGY. By JOHN COOKE HIRST, M.D., Associate in Obstetrics, University of Pennsylvania; Obstetrician and Gynecologist to the Philadelphia General Hospital; Obstetrician to St. Agnes' Hospital; Gynecologist to Mt. Sinai Hospital; Gynecologist to the American Hospital for Diseases of the Stomach; Fellow of the College of Physicians, Philadelphia. With 175 illustrations. Price, $2.50. Philadelphia and London: W. B. Saunders Company, 1918.

THIS volume presents in concise form the subject of gynecology from the practical point of view. In several sections he has dealt with the matter from the standpoint of the obstetrician and the gynecologist. A feature of the book is the attention paid to the operation of dilatation and curettage of the uterus, which in the author's opinion is an important operation. The book is graphically illustrated which serves to make clear the text. It is a work that should be useful to the practitioner and student.

A MANUAL OF DISEASES OF THE NOSE, THROAT AND EAR. By E. B. GLEASON, M.D., L.L.D., Professor of Otology, Medico-Chirurgical College Graduate School University of Pennsylvania. Fourth Edition. Thoroughly Revised. Price, $3.00. Philadelphia and London: W. B. Saunders Company, 1918.

THIS Manual was written in the first instance to supply students and general practitioners with the essential facts of rhinology, laryngology and othology in as concise a form as possible. It has been so well received that it has run into four editions, which shows that it has fulfilled the purpose of the author and has been well appreciated. The present edition has been very carefully revised and brought up to date and affords an excellent, brief but comprehensive, text-book for nose and throat and ear specialists, medical practitioners and students. A feature of the book is a full formula at the end of the volume of the therapeutic treatment of various forms of nose, throat and ear affections.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held November 21, 1918.

THE PRESIDENT, Dr. WALTER B. JAMES, IN THE CHAIR.

Tuberculosis Among European Nations at War.—Dr. JAMES ALEXANDER MILLER, Associate Director of the Rockefeller Commission for the Prevention of Tuberculosis in France, delivered this address, in which he reviewed the results of the extensive study and practical work conducted by the commission in the year 1917-18. He stated that the problems of civilian disease and mortality had come to loom very large in their association with the resources of nations behind the armies in the field. Tuberculosis had always played a leading rôle among the preventable diseases, and from the campaign against it many of the fundamental principles of public health had been developed and applied widely to other diseases, particularly in this country. With these fundamental principles in mind and forming sources of information at the command of the members of the Commission, the task of instituting in France a vigorous modern public health program offered the possibility of striking results. In addition, the relation between cause and effect in such a program promised to be more susceptible to critical analysis than was possible in countries like America, where the campaign for better hygiene had been a more gradual development. Complete information of conditions obtaining in France and, though less complete, knowledge of the situation in Great Britain, Belgium, Germany, Austria-Hungary and Servia, had been secured. The influence of the war upon tuberculosis problems fell into two general categories, first in the armies, and secondly among the civilian populations. The situation as regarded tuberculosis in the French army had been very much exaggerated, and a careful estimate based on the official figures of examinations for tuberculosis showed that in reality the maximum amount of tuberculosis necessitating discharges from the army was 1.75 per cent. in the early months of the war, and .63 per cent. in the later months of the war after the large numbers of cases of active tuberculosis which had been mobilized had been eliminated to a great extent. The number of cases of tuberculosis developing in the French army during active service had been found to be no greater than that in a similar group of men taken from civilian life in America. The physicians and surgeons of the French Army had without exception declared that the physical condition of the soldiers was much better than among similar groups who had been mobilized into industry, or than it would have been in their normal civilian life. Many examples of early or latent tuberculosis becoming arrested after two or three years of military service had been brought to the attention of the speaker. Some interesting data had been secured regarding the experience of the British army, through the courtesy of the War Office and of the Medical Research Committee which was conducting an analysis of all the cases of sick and wounded in the British army; and it was known that up to Dec. 31, 1915, pulmonary tuberculosis had formed only 1.1 per cent. of the whole number. This equaled the figures obtainable in peace times, since for fifteen years pulmonary tuberculosis had been almost a constant factor in the British army, and it would therefore seem justifiable to conclude that the conditions of the present war had not tended to increase the percentage of tuberculosis in the British army. The information supplied concerning tuberculosis in the Belgian army before and after the war showed that Belgium, with an extremely low incidence of tuberculosis in its army before the war, nevertheless had had this rate distinctly lowered during the war. Turning to the American army, short and inconclusive though experience concerning it had been, nevertheless tuberculosis had proven to be in no sense a large problem, only a few cases of pulmonary tuberculosis having been returned to the United States from the army in France, and comparatively few cases had developed in France. The effect of gas warfare and of chest wounds upon the subsequent development of pulmonary tuberculosis had been watched with great interest and it had been definitely proven that contrary to expectations based upon currently accepted notions, pulmonary tuberculosis did not develop as a result of these severe mechanical irritations of the respiratory tract. From all the sources available to the Commission, it therefore seemed entirely justifiable to conclude that tuberculosis had not been increased because of the influence of the war upon the armies in the field, and that if anything the effect of army life was to diminish the hazard from pulmonary tuberculosis.

For any effect of the war toward the increase of tuberculosis it was necessary to look to the conditions among the civilian populations, and therefore studies were conducted along this line. In France the tuberculosis situation among the civilian population was truly a serious one in the cities, but in the rural sections the mortality statistics were comparatively low. The war could not be proven to have materially increased the tuberculosis death rate generally throughout the country, as was shown by the comparative mortalities before and during the war in the city of Paris. The conditions in France having their influence upon the tuberculosis problem were (1) the tremendous overcrowding in the larger cities due to the influx of refugees from the invaded districts, the unprecedented development of war industries in these centers, and the total lack of new housing construction since the beginning of the war; (2) the excessive industrial pressure which had drafted thousands, especially women, into unaccustomed industry and usually under the most unfavorable hygienic conditions of long hours, excessive strain, and special hazards of the working environment itself; (3) the prolonged physical and mental strain incident to the war, nowhere more noticeable than in France; and (4) excessive alcoholism in such cities as Paris and Marseilles and certain country districts as Brittany and Normandy. It was both interesting and important to note that there had been no real problem of undernourishment in France. Food in general had been sufficient and available to the working classes. During the latter part of the investigation, however, reports had come in of more general malnutrition seen among dispensary patients. This condition would lead to serious results if continued.

In England the antituberculosis campaign had been well organized and along similar lines to those in America. It had, of course, been disturbed by the war, but the system of state organization with special tuberculosis health officers for each county, had in general held it in line most admirably, handicapped but not interrupted. The public health records were also kept in most excellent form. Reports for the year 1917-18 showed a distinct increase in pulmonary tuberculosis in 1915, 1916, and 1917, but other forms had not increased. This increase was more marked among women. This excessive mortality among women was attributed to their extensive employment in munition and other industrial occupations under conditions of exceptional stress and strain, often associated with crowded lodging accommodation. The most striking increase was among women of the age group 15-25, and it was most evident in the industrial centers. Certain occupations among city dwellers showed results only explicable by the assumption that such employment introduced a special factor which favored the development of tuberculosis. In general it might be said that poverty among the working classes of England did not appear a striking war condition on account of high wages and plenty of work, and that also here, as in France, the food factor was not important. Food in England was most carefully distributed by an efficient rationing system, but the supply was sufficient so that malnutrition had not increased even among the poorer classes. Their experience in France, therefore, was strikingly corroborated by that of England, so that the effect of the war among civilians appeared to be a problem of industry in the larger cities, especially among young women, with overcrowding an important although possibly a secondary factor, and with no influence attributable to insufficient food.

In regard to conditions in occupied Belgium, a very full and remarkable report as to the health conditions therein had been made by the Inspecteur de Service de Santé, M. Hulot. From all the numerous sources which went to make this report, the testimony was

unanimous in stressing infant mortality and tuberculosis as the urgent problems. There was a startling increase in the comparative mortalities of Brussels, Antwerp, and Liege, especially in 1917, the increase of 1917 over 1912 being 91 per cent. in Brussels, 94 per cent. in Antwerp, and 102 per cent. in Liege. The report did not indicate any unusual distribution of this alarmingly increased mortality among the different age and sex groups, although the great increase of tuberculosis among children was indicated. The story of food conditions was the same from all parts of Belgium. The food ration accorded to them for the households, counting only adults and young people, was altogether insufficient from the point of view both of quantity and of quality. The average adult daily ration for all of occupied Belgium had averaged between 1,800 and 2,000 calories for a period of over a year. The correlation of the increase of tuberculosis with the insufficiency of food in Belgium afforded a striking contrast with the conditions noted in France and England. Belgium, in spite of the appalling condition of affairs within her borders and staggering under her frightful ordeal of four and a half years' duration, had drawn up a program to combat tuberculosis that was modern, complete, and admirable in every detail and which was worked out before peace was declared and held ready for immediate operation as soon as the country was evacuated by the Germans. And what was most astonishing, the Ligue Nationale, struggling under its heavy burden of supplying relief of all sorts, had in addition raised a fund of 6,000,000 francs for tuberculosis with which this program was to be launched.

Accurate information from Germany was, of course, scanty, but the official publications of the Imperial Health Office, showing births and mortality among 27,000,000 people, or about one-third the total population of Germany, gave comparative deaths from tuberculosis in 1913 of 40,625, in 1916 of 48,446, and in 1917 of 67,208. The percentage of tuberculosis deaths and total deaths were 11.2, 13.3, and 12.7 respectively for these three years. There was a rise in the tuberculosis death rate from 1.51 per 1,000 in 1913 to 2.31 in 1917. The general death rate had risen from 12.2 to 17.9. The big increase in both did not occur until 1917, and another point of interest was the tremendous fall in the birth rate, 1917 being about half of that of 1913. A circumstance difficult to understand was that the infant mortality rate in 1917 was not very marked and that of 1916 was below that of 1913.

The only available data upon conditions in Austria-Hungary included figures for Vienna, Prague, Triest and Budapest. In the period shown, which was only from thirty to thirty-five weeks, the deaths from tuberculosis increased from 7,311 in 1913 to 11,755 in 1917, or over 60 per cent. Conditions were far worse in Austria-Hungary than in Germany. The probability was that bad food conditions were primarily responsible.

Little was known of conditions in Serbia, but such indications as were available showed 15 per cent. of the population to be suffering from tuberculosis. Thirteen per cent. of the Serbian refugees in France were suffering from tuberculosis. The remnant of the Serbian nation in exile showed an enormous incidence of tuberculosis as indicated by the figures given for those in France. The situation was probably of equal seriousness in Russia, Poland, Roumania, and Armenia, to say nothing of the enemy nations themselves, and there could be little doubt that tuberculosis would be one of the most frequent consequences of the terrible suffering and disease which war had brought to hundreds of thousands of the civilian population.

There were seven lessons to be learned from this brief review of the tuberculosis situation in Europe as occasioned by the war: (1) The experience of the armies indicated that there was less hazard than supposed in hard physical exertion and exposure, as regarded the breakdown of resistance to tuberculosis, provided these conditions were combined with open-air life. (2) There was relatively infrequent development of pulmonary tuberculosis as the result of the exposure to poisonous or irritating gases and of chest wounds. (3) Following the system developed in the American army of rapid but systematic chest examinations in the elimination of tuberculosis suspects, large groups, especially industrial workers, could be detected early. (4) Food is a very important factor in increasing mortality from tuberculosis, and the effects of long-sustained malnutrition are cumulative. (5) The tuberculosis situation in France and England, and its analysis as an industrial condition among young women, would indicate the importance of the place in economics of industrial hygiene. Systematic supervision of working conditions should go hand in hand with home supervision and sanitation of workers. (6) Two phases of the experience of the Tuberculosis Commission in France possessed value for adaptation to the general tuberculosis problem; they were the organization of the educational propaganda and the training of health visitors for tuberculosis and child hygiene. Regarding the former, the combination of American ideas and French art had produced effects that deserved imitation. The training of health visitors had proved a great success in France, proving that it was unnecessary to employ only graduate nurses in this work. There was need for a very much larger number of such workers, a one-year course fitting them for very effective medical social service. They were in no sense nurses, but rather inspectors and supervisors of home and living conditions, teachers of hygiene, and agents for social reform or care. They should have training for these special duties, which would require at the longest two years. The functions of visiting nurse and health visitor being distinct, their training should become so also. (7) The last suggestion to be presented from this war experience was that of reeducation and vocational training for the tuberculous. The industrial colonies developed in France and England presented possibilities not only for the disabled soldiers but for the tuberculous civilian as well. The after care of the discharged sanatorium cases was as yet an unsolved problem, which was largely due to economic conditions, the patient being under the necessity of supporting himself and perhaps a family as well as soon as possible, and reeducation of the tuberculous would be a long step in the direction of a solution. A beginning had already been made in this direction, and the movement should enlist the support of all interested in antituberculosis work.

Dr. David R. Lyman, president of the National Association for the Prevention of Tuberculosis, related the circumstances under which he went to France to assume charge of the antituberculosis work which Dr. Miller had established and which he said he had found more fascinating than any work of the kind with which he had ever come into contact. In the district where he was stationed Dr. Miller had had to combat a strongly entrenched phthisiophobia, yet he had succeeded, by a wise selection and combination of the best features of antituberculosis work from many sources, in building up a very complete program for handling the tuberculosis problem in France. As a result he had the French people in love with the Americans and with their methods of combating tuberculosis. By telling the French people that the plans they were putting into operation were the ones followed in America they had been enabled to put into effect a very complete program and to do what they felt should be done with no one to say "no" to them. If the public health workers of America could see what was regarded as the American plan they would be greatly surprised, for the plan included a comprehensive program for giving complete relief to the families of tuberculous individuals. When a case of tuberculosis was reported the Tuberculosis Commission sent a trained social worker to look after the economic condition of the family. If the person affected was the breadwinner and he had been compelled to stop work, his wages went on; every member of the family was given a physical examination, and it was seen that the family, and particularly the children, had sufficient food of the proper kind to build them up, and that all other necessities were supplied. In this way the children were put in good condition and could acquire an immunity to the disease. When a victim of tuberculosis was found in a house that was in bad sanitary condition and the Commission was asked what they were going to do about it, they replied that in America they would rent another house for the family and if one could not be rented they would build one. In this way it was brought about that when such a case was reported the mayor sent the village archi-

tect to see what could be done to remedy the situation. If possible the house was put in sanitary condition, and if this could not be done better quarters were found for the family. The Tuberculosis Commission had been the means of saving the lives of many refugees who had come to France, and while they had saved the lives of many children, there were also many who would always have impaired physiques as a result of their suffering and privation. In order to alleviate the results of the hardships these people had suffered, in so far as possible, this work must be carried on until the world was back on its feet again. Dr. Lyman said he believed the American Red Cross had done more than anything else to win the war until our boys actually got into the trenches. He related specific instances showing how the relief work had served to hearten the men in the trenches by making them feel that their families were well cared for. If the Red Cross was to keep on with this work we would have to continue to dig down into our pockets as deeply as we possibly could until the job was completed, for what remained to be done was fully as important as what had already been done. Dr. Miller had visualized what the war would do in awakening and shaking us up and making us take stock in all lines of endeavor and especially in public health work, and had called attention to the necessity of adjusting ourselves to a new viewpoint. Dr. Lyman said he hoped that we would come out of the war with all our doctors in touch with the tuberculosis problem, and knowing what was active tuberculosis and what was not, as their experience in the camps had taught them a great deal in this respect. He hoped we would have tuberculosis back as one of the problems of public health and one belonging to the general practitioner instead of a specialty of medicine of which one half the medical profession and all the general public were scared to death. In France when a man or woman came to them and they diagnosed the condition as tuberculosis, they had told them that in America under similar circumstances the children would be cared for and the parent who was suffering from tuberculosis put in a general hospital, and then the French people permitted such a plan to be carried out; he hoped to see the day when this could truthfully be said of America. He desired to bring a realization of the fact that tuberculosis could not be considered a distinct and separate disease in the handling of which all one had to do was to find the infecting micro-organism and then lay down rules as to its management: this could not be done since the tuberculosis problem was woven into everything that came into our lives, working conditions, housing conditions, occupation, amusements, everything. It was a big problem of general medicine and it was to be hoped that the general practitioner would get it back. The experience with tuberculosis in the army had staggered them all. He, however, had a little hesitancy in ascribing the good results that had been observed to open air alone. In explaining these results one must not forget that other factors had entered in and contributed to the results that they had observed. The men were under control and regular discipline, and they had plenty of good food. Having had, as a boy, experience on a farm, he had never thought much of the so-called light farm work that was recommended for the tuberculosis patient, but his experience in the camps had taught him that these men with incipient tuberculosis could do out-of-door work if their lives were regulated and they had good food at regular hours and did not kill themselves during play hours. Food and late hours are important factors in relation to the tuberculosis problem among civilians. A man naturally thought that it was his work that was killing him, because that was the part of his life that as a rule he did not like. The truth of the matter often was that the man kept late hours, slept a few hours, then got up and rushed off to work not properly fed. The basis of alcoholism was that the average woman knew nothing about food values or cooking. More men were driven to the bar-room to help forget what their stomachs were trying to digest than for any other cause. This matter of food and cooking was a great vital question. In our system of education we should see that our girls knew how to buy, care for, and cook proper food for the family on a basis of scientific training instead of trying to pick it up in a haphazard way after they were married. No other question was as important as proper food and proper nutrition. As to the trained nurses and trained house visitors, he thought we should let down the bars so far as public health work was concerned, as nine out of ten women were born nurses anyway. He had had experience with a great many women who had had little or no training who had done excellent work in this field. In closing, Dr. Lyman emphasized the fact that there was a great expansion of public health work ahead and that we should learn our lesson from the experiences abroad. If we did not get the most out of this experience that we possibly could we were not fit to be called Americans.

Dr. WICKLIFFE ROSE, General Director of the International Health Board, called attention to two or three points in Dr. Miller's paper as worthy of special emphasis. The most important of these was that suggested by the charts exhibiting the relation of death rate to birth rate in the several warring countries. The most serious problem which these nations would have to face during the period of rebuilding was the necessity of restoring their lost man power. Houses might be built, destroyed farms reclaimed, industry and commerce reestablished, and the nation's prosperity restored—provided the nation had the men. All depended upon productive man power. The charts showed that in Belgium, France, Germany, Austria, Serbia and Poland, the death rate for the last three or four years had been far in excess of the birth rate. And conditions would seem to indicate that in some of these countries at least the birth rate would continue relatively low for many years after peace was restored. To this fact of declining population must be added the further significant fact that war had taken its toll of men in their prime. These nations had lost in killed and permanently disabled a large percentage of their producers, their leaders in industry and commerce, in science and art, and the whole field of thought and action. Of that portion of the population not engaged at the front, particularly in the invaded regions, war had borne most heavily on the children. In Belgium, northern France, Poland, Serbia, and in Austria-Hungary, the death rate among children, due to lack of food and of proper care, had been high. In the work of rebuilding which these nations were facing, foremost place therefore must be given to the conservation of life and health and working efficiency. And for at least a generation the conservation of children must be given first consideration. Dr. Miller's paper had made it clear that in undertaking to restore their lost man power these nations would have to reckon with tuberculosis—a serious menace in times of peace, made vastly more serious by the conditions of war. And tuberculosis also took its heaviest toll of children during the first two years of life and of men and women in their prime. The fight on tuberculosis to be successful would involve the essentials of a general public health program. Some diseases, as malaria or yellow fever, might be controlled by specific measures without raising the question of personal hygiene and with but slight effect on general public sanitation. The prevention of tuberculosis was not so simple. The disease was too organic, had woven itself too intimately into the fiber of social and economic life to be controlled by any specific procedure. A study of tuberculosis in this country and of our fight against it (undertaken some months ago and still in progress) seemed to indicate that our tuberculosis rate had varied not with the special measures which have been directed against it, but rather with more general social and economic conditions and with progress in personal hygiene and public sanitation. It was of great significance, therefore, that most of the countries engaged in the war were now projecting national programs of public health. In our own country, Congress had greatly increased its appropriations for public health purposes and the Treasury Department had under consideration a reorganization in the interest of greater efficiency of our Federal health service. For months England had been formulating a plan for the unification of all health activities under a ministry of health. In France, where nothing approximating an efficient health service had existed hitherto, opinion was forming in support of a national health program as one of the

foremost measures of reconstruction. In both France and England the importance of adequate institutes for the cultivation of hygiene as a science and the training of workers for the public health service was receiving intelligent consideration. Belgium even under the severe strain of German occupation, had raised a considerable fund with which to begin a fight on tuberculosis as soon as peace brought freedom, and proposed to back this with measures of general sanitation.

Austria had begun a reorganization of her national health service just before disintegration set in, and a letter just received from Serbia stated that the organization of a national health service with child hygiene and the prevention of tuberculosis as a part of its program was now under consideration by the Serbian Government. This focusing of attention as never before on the importance of conserving life and health was one of the best fruits of this life-destroying war. And we might derive the greatest satisfaction from the thought that after four years of bitter conflict these same nations might find in a program of health a common meeting ground where the gain of each would be a contribution to all.

Dr. HERMANN M. BIGGS said he merely wished to express his appreciation of Dr. Miller's remarkably interesting and inspiring paper and to voice his gratification that this country was represented abroad by the men who did represent it, Dr. Farrand, Dr. Miller, Dr. Lyman and their assistants, the best products of the tuberculosis campaigns that had been going on here for the last thirty years. There was just a word to be said of the International Health Board. The work of the Rockefeller Foundation in establishing the International Health Board was the best example of broadminded, far-seeing philanthropy which he had ever seen. This work was an example all over the world in extending public health programs and demonstrating methods of control of infectious disease and in teaching people to help themselves in evolving their own health programs. It seemed to him that the work of the International Health Board was the greatest achievement of the time. The excess of death rates over birth rates to which Dr. Miller had called attention was the most portentous problem that confronted France and it was further enhanced when we recognized the fact that the population of France had been almost stationary for a century. Dr. Biggs quoted statistics in confirmation of this statement and also showed that the death rate had declined but little for a number of years and was above that of this country and of Great Britain and indeed of most other foreign countries. He felt great apprehension for the future of France unless the whole economic life of the people could be altered and the birth rate quickly increased; if that could not be accomplished the future of France was certainly dark.

Stated Meeting, Held January 16, 1919.

THE PRESIDENT, DR. GEORGE D. STEWART, IN THE CHAIR.

THIS meeting was held in cooperation with the Orthopedic Section.

Remarks on the Value of: (a) The Moving Picture in Teaching Surgery; (b) The Moving Picture with Time and Distance Records; (c) The Animated Diagram; (d) Femoral Hernia Operation.—Colonel WILLIAM O. OWEN, M.C., U. S. Army, made this presentation, in which he first described three varieties of moving pictures, each of which had its own advantages when taken at the normal rate of sixteen to one second and a fourth by a slow or rapid take. Up to the present only one of these methods had been used to any very great extent, that was the sixteen to one, or the old style, the common method in which the operator was taken with his patient and with his assistants, but oftentimes the blood blocked out the field so as practically to obliterate the very things it was desired most to see. Another method, much less well known, was that which had been taught the writer by a friend, Frank Gilbreth of Providence, R. I., which consisted in taking the picture of the scene you wanted upon a background and floor of four-inch squares (one decimeter approximately), so that the four squares appeared in every portion of the field at all times. In the field at the same time was placed a clock in which there was no escapement, since the fractions of time involved were very small and the escapement introduced a dead point which might possibly interfere with the accuracy of the work. This method would be of particular value in the medical world when it had been developed as it had been in the engineering world, for the examination of spasmodic seizures, of limps of various characters, of the reflexes, etc. One might imagine the patellar reflex explained by stop-motion when teaching the student his physiology and this followed by a moving picture of the reflex in the living individual. By using the device known as a simultaneous motion chart, taking the pictures from sixteen to sixty or eighty per second, as the necessities of the work required, and then throwing these pictures on a screen and charting in vertical sections the time element of the cycle of movement; and on the horizontal the distance moved in each fraction of time by each individual portion of the body involved in the cycle of movement which it was desired to study, and as either the time element or the distance traveled in the cycle changed, the quadrangle of each cycle of the individual part changed its shape, being lengthened or shortened in one or the other direction, so when one had charted two or three cycles of the movement, the irregularity became instantly visible upon the simultaneous motion chart even though they were not seen on the screen in the picture. By means of a simultaneous motion chart it was possible to make direct and positive diagnosis of limps, spasmodic seizures of hysteria, and reflexes, by means of the regularities and irregularities shown. There was yet a third kind of moving picture that was, perhaps, as a teaching method, of far greater importance than either of the other two, or perhaps than the two combined. This was what the speaker had chosen to call the "animated diagram"; it was what was constantly seen in the moving pictures in the so-called Mutt and Jeff picture. As an illustration of this kind of picture Colonel Owens cited the femoral hernia operation by the inguinal route. One watched the artist's hand appear drawing in the torso of a woman; then the bony pelvis appeared; then Poupart's ligament; then Gimbernat's ligament. One could see the aorta subdivide, the internal and external iliacs drop into place, and the femoral artery go through under Poupart's ligament to its own place. It was, to say the least, interesting to see the knife march into place, make the proper incision, march out; the retractor come in and open up the tissue, and layer by layer the operation proceeded with the moving diagram ever changing and making a perfectly clear outline of every detail of the operative procedure one might wish to explain. One of the speaker's ambitions, he stated, was to make a moving picture show in detail the nerve impulses and the effects which followed in the heart, and the irregularities of action resulting therefrom, indicating the difficulties in the ventricles when there was an interference with the function of the bundle of His, etc. He had also had the ambition to make a transparent image of the child in growth, to make the organs grow under the eye, in their definite relationship one to the other. It would be very interesting to see the stomach and intestines grow and increase in length, and to see the forming of the peritoneum in place, to see the stomach and duodenum turn, fall back, and form the lesser curvature, and to see the blood-vessels grow down into and with the mesentery, etc. One of his friends desired very much to make an animated diagram showing the cell changes in the growth and repair of bone. He had begun the work, his diagrams were in the hands of the artist, but the war ended and both the artist and the doctor were anxious to return to civil life, and another dream was gone. The speaker pictured that as a method of teaching he put on the screen an animated diagram of just what his idea was of the operative procedure he wished his students to know, and he then performed the operation as nearly as he could like the animated diagram, and had the picture taken. He would then have the student read over the description of the operation, see the

animated diagram, see the motion picture of the actual operations, and then when he saw the operation at a clinic he would carry with him a very much clearer picture of what the instruction was than he could possibly receive in any other way with many times the amount of study. One's own ability to think in diagram was his only limit by this method and with a camera one could make the negative in his own hours. Making this negative was quite easily accomplished by remembering the principles upon which these animated diagrams were put into movement. When the eye received an impression it lasted only a fraction of a second, less than one-eighth, and then another impression of the same object within one-quarter or one-half inch of the same position, and the series of these were impressed upon the retina. The result was that the eye saw a continuous movement. For instance, one of the pictures shown was that of a chisel being driven into a bone by a mallet. To produce this, pictures of the chisel and the mallet were drawn upon a piece of cardboard. These were then cut out in the black lines of the drawing. The next step was the drawing of the foot and the bone to be cut. The drawing of the chisel cut out of paper was laid upon the drawing of the foot and the picture was taken. The picture of the chisel was then moved a short distance, another picture taken, and a series of these pictures taken with a picture of the chisel gradually approaching and assuming its position to cut the bone. Then when this was done the mallet picture came in by the same process, and when it got into the position from which the blow was to be struck a picture was taken; then the next picture represented the mallet in the position to strike, then it was placed on top of the chisel, and since two blows were to be struck the next picture was taken by putting the picture of the mallet back into place from which the original blow was struck. The writer described the teaching of physiology with an animated diagram of the blow on the tendon, the impulse flowing up the nerves of the thigh to the centers, and the reflexes back down the nerve to the muscle with the muscular contraction. One could then show an individual giving this reaction in a moving picture; then the student would not forget it when it was shown to him at the clinic. Heart studies with the animated diagram and reflexes studied in the same way would certainly reward the student and enable the teacher to explain in a far more satisfactory way to beginners than otherwise would be possible. Colonel Owen suggested that a very valuable study would be to show the cripple at work, particularly those men who had trained themselves so that they could carry their own weight. He knew of a one-armed bricklayer who earned more in laying brick than the two-handed did in the majority of cases. It would be of very great value to get a rapid motion picture of this man with time and distance; then his automatic motions would be registered. The simultaneous motion chart would solve his motions and they could be analyzed slowly and deliberately and other one-armed bricklayers taught his method, and thus his automatism would become theirs.

Abstracts from Lectures on: Deviation from the Natural Function of the Foot—Exercises for Flat Foot—Fallacies of So-called Arch Supports. Tendon Transplantation for Flat Foot: (a) Animated Diagram: Taylor's Technique; (b) Moving Picture of Taylor's Operation; (c) Moving Picture of Leo Mayer's Operation.—MAJOR R. TUNSTALL TAYLOR made this presentation. He stated that as supervising surgeon it soon became apparent to him in lecturing at various cantonments or to any large body of students that simply the verbal lecture, with the limitations of the human voice and absence of illustrations or clinical material was inadequate for attention and retention by the memory; charts and slides were impractical, so that the moving picture on his initiative and with the hearty cooperation of Colonel Owen, was established in the Surgeon General's office and the other specialties soon availed of it. In creating these lectures he had in mind not only military instruction, but adding teaching facilities available for use in our civil medical schools, upon request to the Surgeon General. It soon became apparent to Colonel Brackett, Director of their Division, and the rest engaged in this instruction that it was expedient to go into the most rudimentary facts regarding locomotion, the prevention of avoidable disability, and the recognized treatment of the more common affections of the lower extremities. The writer has prepared some thousands of feet of film on this subject alone and the exhibition of the evening gave only disjointed snatches of them here and there. Their efforts were to portray in detail the technique of surgical reconstruction in tendon, muscle, bone work, etc. He would also show a portion of their work on posture, even now incomplete, as they looked to New York as the home and Dr. Henry Ling Taylor as the father of the American Posture League here. The moving picture film would bring the student into closer touch with clinical material, certain symptoms, such as neuroses, epileptic seizures, tics, etc., than were oftimes available in hospital routine instruction and difficult to describe, but the so-called close-ups as shown by the movies would bring the student intimately in contact with the operating table, which was often not possible from an amphitheater seat. The details of arterial nerve or intestinal anastomosis, bone grafting, application of mechanical principles of direction and technique in tendon and muscle transplantation for deformities and application of deep sutures were brought home and fixed in the memory as by no other means of instruction, save actual experience later in the procedures themselves. This mode of instruction in conjunction with didactic lectures had been found to yield a higher average mark per student than any other mode of teaching. The moving picture possessed the advantage over the lantern slide in that the component parts of a lecture could not be disarranged, broken, or lost, nevertheless inserts or additions could be made, almost unlimited positives could be printed from the original negative at the same cost as slides, and films were lighter and more easily transported than slides. A simple modern attachment was now available for stopping the moving picture machine at any point, without burning the film, where it was desired to emphasize some special feature. By means of the moving picture in comparative teaching of the future, the medical student would also be able to see the modifications of several surgeons in performing a given procedure; thus a class might see the technique employed at the clinics of this and other countries at the same sitting and appreciate the value of the points made in each. It was thus very broadening in its educational possibilities. Or a clinical professor who wished to illustrate his systematic course of lectures, but was lacking in clinical material, could resort to a moving picture record of the desired cases, symptoms, signs, operation, etc.

The films of the Army Medical Museum would be available to teachers in the army and medical schools and the profession, just as the books in the Surgeon General's library were for study or reference, provided transportation, safe handling, and return in good order or replacement were guaranteed. Those who wished to own prints could purchase at five cents a foot. It was hoped that the profession would cooperate in giving films to this department or allow it to make copies of existing negatives. It had been brought to the attention of the Surgeon General's office that certain commercial film companies, having made medical films, wished to charge this department for copies or the profession for exhibition purposes on a commercial basis. Physicians could easily and should specify, when approached to demonstrate a new procedure for a "movie" company, that a copy be sent the Surgeon General for the profession at large before permitting it to be made.

Many facts in the prevention of acute foot strain, the so-called flat foot, and the explanation of a large number of torn ligaments at the knee and ankle in trench jumping at the cantonments had been explained by this department, and moving pictures prepared showing how to jump correctly and prevent such disabilities. Also as a result of this film, instruction in standard foot examinations, shoe fitting, correct balance and marching, to be used in the Army, had been or would shortly be issued by the General Staff as general orders. By diagrammatic or "stop-motion" line-drawing or "animated drawings" as they were called, a most valuable instructive preliminary was at hand to precede a picture of an actual operative procedure. Demonstration of details in brace construction, fitting, and therapy, and

especially in recording, charting, and measuring departures from normal gait was an additional aid to orthopedic surgery, divested of the costly obstacle which had heretofore prevented its addition as a routine in the teaching of standard methods by many. The writer's plan in teaching students any given operative procedure was to show them the "animated drawing" first, then a "close-up" of an actual operation, another surgeon's technique in that condition, and, finally the operation itself, on the living subject, with illustrative cases before and after the operation. It was felt that with this method the knowledge would stick. Orthopedic men were under great indebtedness to Colonel Owen for having all these films made, which were of such direct and practical value in their work.

After this introduction Major Taylor gave a motion picture exhibition on the topics mentioned in his subject.

WESTERN SURGICAL ASSOCIATION.

Twenty-eighth Annual Meeting, Held in Chicago December 20 and 21, 1918.

THE PRESIDENT, DR. JAMES F. PERCY OF GALESBURG, ILLINOIS, IN THE CHAIR.

Our Duty to the Industrial Army.—Dr. R. W. CORWIN of Pueblo, Col., said our duty as surgeons to the industrial army might be considered under two heads: (1) Treatment after injury, and (2) treament before injury—surgical prophylaxis. In the army much stress had been placed upon keeping men fit and their power of resistance high. Very largely prophylactic treatment had been left to the welfare and to the medical department. The war had emphasized that physical resistance was of vital importance, especially in patients suffering from shock and wounds, and that a person in the best physical condition was in the best condition to endure operations. While in Belgium and France he saw soldiers, seriously wounded, brought to the hospital and they underwent extensive operations, and cases of profound shock rapidly recovered and returned to the front for active duty. We were told that of the wounded reaching casualty stations 95 per cent. recovered and 70 to 80 per cent. returned to the firing line within forty days. The war had further demonstrated that regular physical exercise, proper amount of sleep, rest and recreation, good food and minimum dissipation, were far superior to the go-as-you-please habits of the industrial army. What were some of the prophylactic duties of the surgeon? In a broad sense to educate the employee, obtain the endorsement of the employer, urge national and State cooperation, make known the laws of eugenics, and insist that the breeding of man is as important as the breeding of cattle. Specifically we should teach first aid, surgical hygiene, and sanitation. We should teach the nature of wounds, the process of wound healing, the process of wound poisoning, the importance of early attention, and the relation of health to wounds, the importance of not bandaging tightly, and the importance of the care of the feet. We should teach the importance of properly fitted shoes and the importance of position in lifting so as to prevent sacroiliac injuries. The industrial army demanded surgical protection as well as surgical treatment. Were we not to protect as well as save? Was not the surgeon best qualified to satisfy this demand? Had not the surgeon been too modest and permitted others to occupy his territory? Was it not time for the surgeon to assert his rights? Was not his duty to the industrial army plain? Now that peace was here, we should become instructors, not for war but for work.

Dr. JAMES F. PERCY of Galesburg, Ill., said that he never understood until the last few months why the soldier had so little respect for the civilian, but if you put a civilian in the army and train him he had not much respect for his civilian brother. To obtain the things outlined in this paper many conditions would have to be considered.

Dr. D. S. FAIRCHILD, Sr., of Clinton, Iowa, stated that he had examined some 16,000 men for army service and some 5,000 for railway service, and his conclusions were that we needed to inquire first into the ways of living. If every industry could establish a plan of examining the men received into service and then ascertain how these men lived, we would have something to go on in judging how to improve conditions. It was found in his State that 20 per cent. of the men rejected because of physical disability were under thirty, and over that age more than 30 per cent. were rejected, or about the same as the men for railroad service. It was thought that on account of war conditions it might be necessary for our railroad people to employ men who would not be accepted under ordinary conditions, and he took the opportunity of visiting the homes where many of these men lived—the older men who would not be taken under ordinary conditions—and he found the homes filthy and vice prevailed to a large extent. If we could start out with a plan of physical examination and follow this up by finding out how these people live, we would know what we must do in order to improve conditions.

Dr. JOHN P. LORD of Omaha said that we all realized the great amount of physical disability that had prevented men from being accepted in the military service, and these men were very anxious to have that physical disability removed in order that they might enter the service. The physical requirements were made in the various branches of the military service, and this had intensified the interest of people in their own physical conditions and they had tried to remedy them. Nurses ambitious to enter the nursing service would seek to have foot defects relieved so that they could get into service. If large corporations exacted these things, and many of them did, just as soon as these requirements were exacted the individuals were going to see to it that they were made fit for their jobs.

Dr. GEORGE N. KREIDER of Springfield, Ill., said he had examined 800 medical men and had been very much surprised to find a large proportion of medical men who were handicapped and were unable to get into the present war on account of overweight. At least twenty of these men had appeared before him and he refused to let them go in. They were very anxious to get in, and when he told them that it was possible for them to lose that weight and fit themselves for the service in a great number of cases—70 per cent. at least—they undertook to do it. In regard to shoes, he would say that cases of gastroptosis, heart trouble, and many other conditions were caused by bad shoes, and it was important for a surgeon to have this in mind and lend his assistance to any effort to get better shoes.

An Ambulatory Chair.—Dr. FRANK NIFONG of Columbia, Mo., said that the ambulatory chair which he showed inspired confidence in the convalescent and cripple and quickly gave self-reliance, which was such a necessary factor in promoting recovery. The patient soon went alone, without attendants, and much more quickly than if he depended on them. He realized that he was supported by a broad base and had no fear that he might fall. He sat down as soon as he was tired. He entered the chair from his bed with ease and might be encouraged to take care of himself from the beginning of his efforts, which was so important psychologically. The patient needed much less assistance from attendants and very soon might do without them. There was no danger from disastrous falls, from pressure paralysis and consequent wrist drop so often seen when weak and emaciated patients had tried to use crutches. It was well known how much delay in recovery was experienced when such an accident supervened.

The Surgical Treatment of Exophthalmic and Thyrotoxic Goiter, with Special Reference to Bilateral Resection.—Dr. NEIL JOHN MACLEAN of Winnipeg, Manitoba, said that the advantages of bilateral resection over unilateral lobectomy with partial lobectomy of the opposite lobe were (1) Minimum of injury to the parathyroids. (2) Absolute safety for the recurrent laryngeal nerve. (3) If for any reason further removal of the gland should be indicated, such as for recrudescence of symptoms of thyrotoxic activity or the rare but possible occurrence of malignancy, the one side could now be completely removed with an assurance that some portion of the gland remained. (4) It was a physiological fact that where there were paired organs, should one be removed the other underwent hypertrophy. This, while desirable in normal conditions, was what

we wished to avoid in the case under discussion, and this end was best obtained by double resection. (5) For cosmetic purposes, in the operation of lobectomy there was a well marked depression on the side from which the lobe had been removed, and on the other side the portion of the gland left produced an undue prominence, while in bilateral resection the neck was obviously symmetrical.

Purgation Before and After Abdominal Section.—Dr. HENRY T. BYFORD of Chicago condemned routine purgation before and after operations, because of the differences in the conditions of the patient and in the character of the operation. In abdominal surgery it was often required, but should be prescribed according to the condition of the patient and not by a routine method. The reason why it often did more harm than good was because the right dose of the right laxative was not given at the right time and under the right conditions. With regard to the question of purgation after abdominal section he divided the cases into four classes: (1) Those cases required early purgation in which a large incision in the middle or lower zone of the abdomen in connection with considerable displacement of intestinal coils, and sufficient intraperitoneal traumatism to cause subsequent adhesions to form. Under such conditions adhesions of displaced or kinked intestinal loops were liable to form and interfere with through and through peristaltic action, and resulted in obstruction and death. Early purgation helped to maintain a permeable canal until the adhesions had formed and the danger of obstruction had passed. (2) Cases in which there had been resection or extensive repair of the intestines usually required dieting and delay in purgation until a certain amount of protective exudate had had time to seal up the intestinal suture lines. (3) Cases in which sutured or denuded areas had been left were not so liable to the formation of extensive or permanent adhesions if peristaltic action was kept fairly active from the time of the operation. Early purgation might not be necessary, yet might be desirable. An accumulation of gas might require it in one case, while in another dieting or washing out of the stomach or a postural treatment might suffice. (4) Cases in which the incision had been small, with but little exposure or manipulation of the intestines, and in which all ligatures or denuded surfaces had been covered, would require purgation or abstemption from purgation for conditions that might happen to present themselves, without reference to the fact that the abdomen had been opened. When such patients had not been dieted, either before or after the operation, they might have early spontaneous bowel movements without laxatives or might merely require enemas to assist nature, while others who were accustomed to depend upon laxatives might require early purgation for relief. Patients who had been dieted before the operation and in whom the anesthetic had disturbed the stomach would have but little substance to the alimentary canal and might do better without a bowel movement for two or three days.

Dr. HOWARD HILL of Kansas City, Mo., said that no cathartic was necessary immediately before operation. Many people were found who were chronically constipated and they should receive the proper treatment, but not just before operation. Generally speaking, he felt that a person whose bowels had been moving normally up to the time of operation did not need a cathartic at that time.

Dr. C. H. WALLACE of St. Joseph, Mo., said that he had not been giving cathartics before operation for several years as his experience taught him that it was rather harmful. If a patient came with a history of regular bowel movements every day, never constipated, he got no purgative but an enema the next morning, and he believed that these patients suffered much less from postoperative vomiting than when purgatives were given beforehand.

Dr. A. J. OCHSNER of Chicago said that he had made a practical study of the use of purgatives before operation for the last thirty-two years. He had tried all of them, from calomel to castor oil, and had come to the conclusion that the principle laid down by the essayist was the correct one. If one gave cathartics, one must not give anything that would fill up the intestine again before the operation.

Dr. JAMES F. PERCY of Galesburg, Ill., stated that there was one thing that had not been mentioned, and that was the practice that some men had of giving an enema about four o'clock in the morning, so that the lower bowel was cleaned out at that time. It was not a very agreeable experience.

Fibrosarcoma of the Skull.—Dr. EARLE R. HARE of Minneapolis reported the case of a man, Mr. C. E., aged forty-six, Swedish, farmer by occupation, who presented himself, and in his case a diagnosis of fibrosarcoma or endothelioma was made. He had been advised against operation and *x*-ray therapy suggested. After careful consideration of all data obtained, operation was advised, accepted, and the tumor was removed, under novocain anesthesia. The tumor was largely limited below by the bones of the skull, but it had eroded through at two areas and passed downward between the cerebral hemispheres. It was necessary to resect an area of the dura, including a portion of the longitudinal sinus 7.5 cm. in length, to remove the entire tumor mass. The patient made an excellent recovery and was able to leave the hospital in six weeks. During the five months since that time he had worked hard on the farm and suffered no discomfort at all, except an occasional pain in his lower extremities. There was no evidence of recurrence. The tumor appeared to have originated from the injured pericranium and to have infiltrated the bone. From the microscopic examination the tumor was a fibrosarcoma, with some epithelial pearls and much hyaline degeneration present.

The Empyema Problem.—Dr. EMIL G. BECK of Chicago in his paper answered the following questions: (1) How should we explain the unusual virulence and high mortality of pneumonia and empyema? The causative factor was not definitely known. An ultramicroscopic and filtrable microorganism had not yet been demonstrated. The influenza bacillus might prepare the body for the pneumococcus or streptococcus infection. Lack of immunity against a new type of organism might be the cause. Robust adults were more susceptible than children and old people. Alcoholism, chronic bronchitis, or asthma were not disposing factors, rather the contrary. (2) How should we recognize an empyema early? Stereoroentgenograms would corroborate the diagnosis very early. Unresolved pneumonia with fluid accumulations was not empyema. The fluid must be purulent before it was regarded as empyema. Puncture with the needle cleared up the diagnosis definitely, but this was not without danger. (3) How should we differentiate an empyema from a lung abscess? Lung abscess appeared later than empyema, was centrally located, and localized by stereoroentgenograms. If it ruptured into a bronchus, the diagnosis was absolutely clear. Lung abscess and empyema might coexist. (4) What other means, aside from operation, might be employed to cure empyema? Repeated puncture and withdrawal of small quantities of fluid might cure empyema. Injections of formalin and other substances were not being advocated in the acute stages. (5) How soon should we proceed with an operation after we had made a diagnosis? No operation should be performed in the very acute stages when the fluid was still serous. A few ounces of the fluid might be removed by puncture to relieve distressing symptoms; drainage was to be reserved when the secretion was distinctly purulent and would furnish about 50 per cent. sediment in twenty-four hours. (6) What operation was the most desirable, resection of a rib or drainage between the ribs? Local or general anesthesia? (7) What method of drainage should be introduced? Introduction of a catheter through a cannula at the lowest level posteriorly most desirable. Withdrawal of two or three ounces daily without allowing any air to enter into the cavity was the best treatment. He advocated a counter-drainage in the lowest part of the cavity anteriorly, passing a catheter through both openings. If resection of rib was done, it should be the eighth or ninth rib posteriorly. This afforded best drainage for the patient sitting, standing, or lying down. Local anesthesia was advocated in all cases. (8) What should be done to produce disinfection and closure of the pleural cavity in the shortest possible time? Irrigation with Carrel-Dakin solution was advised for the first few days to dissolve fibrinous adhesions. Further irrigation was discontinued, if possible,

and spontaneous dry drainage was allowed to follow. (9) What were the causes of non-closure of the drained empyema? Injections of bismuth paste would close 80 to 90 per cent. of the cases if employed properly. A mixture of oil and bismuth was dangerous because the bismuth subnitrate would settle in the most dependent crevices in a few hours, from which it might be difficult to remove and thus cause bismuth poisoning. The bismuth in a vaseline mixture would precipitate and thus would not be dangerous. (10) What should be done with chronic suppurative cases with sinus or lung abscess or empyema which had persisted in spite of treatment? Skin sliding flap operation was reserved for these cases, since it was much easier and less dangerous and more effective than the Estlander and similar procedures. Before incising the skin a rubber catheter was introduced into the existing sinus and kept there as a guide during the first part of the operation. The skin incision depended upon where the abscess of empyema was located. He had employed three different types, the Y-shaped, the X-shaped, and the trap-door incision. Each of these incisions formed one or more flaps of skin, which were intended for inversion into the lung abscess after it had been exposed. From three to five ribs overlying the abscess cavity were then resected, as seemed necessary to expose the lung abscess to its full extent. A small incision of the thickened pleura was made along the catheter, the finger was introduced into the abscess cavity, and the cavity explored. The incision of the pleura was extended upward to the highest point, without cutting into the lung, and then the cavity was fully exposed to ocular inspection by removing as much of the parietal pleura as possible. In most cases of chronic empyema the lung would be found retracted upward and inward. At times the apex would contain functionally normal lung. In the cases of lung abscess, however, the matter was different. The globular or multilocular cavity, with thick septa, existed into which frequently opened one or more bronchi. In one of his cases seven bronchi opened into one lung abscess. The cavity being exposed, it should be swabbed with dry gauze, rubbing it roughly or even resorting to a mild curettage. This was done for the purpose of producing a favorable condition for adhesion of the skin flap. The cavity being dry, the tips of the skin flaps were drawn into the very deepest recesses by means of forceps. Gauze was packed tightly against them to keep them in contact with the raw surface of the abscess cavity. The denuded surfaces from which the skin flaps were taken were then covered with sterile gauze and no attempt was made to reduce the size.

The Surgical Complications in 1,030 Cases of Influenza.—Dr. C. J. ROWAN of Iowa City stated that the 1,030 cases of influenza in which arose the surgical complications to be considered occurred in the student body of the University of Iowa during the month of October, 1918. The barrack life of the Students Army Training Corps was responsible for so many cases among a student population of slightly over 3,000, and permitted an early and close observation of the cases. Of the surgical complications empyema was the most important, which occurred only in the pneumonia cases, of which there were about one hundred, and which was the cause of death in each of thirty-three fatal cases. Appendicitis was not a common complication. Many of the patients had the gastrointestinal form of influenza, and in quite a number of these there was finally pain, tenderness, and rigidity localized in the right lower quadrant. This was marked enough in some cases to have led to the diagnosis of acute appendicitis and to have indicated operation in ordinary times, but he felt that it was extremely important to avoid unnecessary operations in these influenza patients, that the involvement of the appendix was only a part of the enteritis of influenza; that recovery would take place unless secondary infection of the appendix occurred, and that secondary infection would be shown by the development of leucocytosis. Two of the patients did develop leucocytosis, showing respectively 14,000 and 18,000 leucocytes. As soon as it appeared, appendectomy was done in each case under gas and oxygen anesthesia. Whatever the primary cause of the influenza might be, the bacteria mostly concerned in the complications were pneumococci and streptococci.

Carcinoma of the Small Intestine.—Dr. E. S. JUDD of Rochester, Minn., said that in reviewing their records he found five cases of primary carcinoma of the duodenum. In one of these cases a gastroenterostomy was done for an inoperable obstruction which relieved the patient for a time. At autopsy, several months later, pathologists reported carcinoma of the duodenum extending up to the pylorus. In the second case there was a carcinoma of the pyloric end of the stomach, and beginning just above the pylorus, independent of the pyloric tumor, was a malignant papilloma of considerable size. In the third case, the original tumor was presumably of the first portion of the duodenum, although the ampulla was obliterated, and from the extent of the trouble it was difficult to determine at what point it originated. The fourth case was quite similar to the third and was an extensive malignancy. The fifth case was a large carcinoma originating in the first portion of the duodenum. Primary carcinoma in the region of the ampulla, if it obstructed the biliary and pancreatic ducts, presented the same clinical picture, no matter where the growth originated, namely, painless jaundice and great emaciation. Carcinoma in the mucous membrane of the ampulla was the most frequent type, and also probably offered most in the way of treatment. Carcinoma in the infra-ampullary part of the duodenum occasionally occurred as a primary constricting lesion. Such cases were often diagnosed as instances of pyloric obstruction, although the clinical features were different in that the patient with duodenal cancer and obstruction usually vomited a large amount of material which contained bile and pancreatic secretion. The tumors were usually small and produced a marked degree of obstruction. Carcinoma occurred in the jejunum either as a degenerated polyp or as a ring carcinoma, quite similar to the ring carcinoma frequently seen in the large intestine. These tumors rarely became so large as to interfere with the lumen of the intestine. Carcinoma of the ileum occurred in the annular contracting, or ring, type, also as a sprouting polyp or carcinoma, in which case the growth was a broken-down papilloma. Comparatively few carcinomas had occurred at the ileocecal valve. In nearly all of the cases the lesion originated several inches from the valve and was not associated with it in any way. In the present review were twenty-four cases collected from the records of the Mayo Clinic. The records also showed that during the same period there were 1,689 cases of carcinoma of the stomach and 1,822 cases of carcinoma of the large intestine. As compared with twenty-four cases of carcinoma of the small intestine, this would seem to be a smaller percentage than had been reported in other statistics. They had had eleven cases of carcinoma of the jejunum; the average age of the patients was forty-six years. They had had six cases of carcinoma of the ileum and the average age of the patients was fifty. In four of the six cases of carcinoma of the ileum the symptoms were of short duration, being present from one to twenty-one months. They had had two cases of multiple carcinoma of the small intestine, one of which died from pulmonary embolism following operation and the other died following operation. At the autopsy there was revealed a papillary cystadenoma of the jejunum, which was removed at operation; a papillary cystadenoma of the duodenum, cirrhosis of the liver, cholangitis and chronic cholecystitis of the strawberry type with papilloma.

Dr. ARTHUR DEAN BEVAN of Chicago said that he had had no case of primary carcinoma of the duodenum which had been recognized as such and operated upon. He had, however, had a number of cases of primary carcinoma of the small intestine—that is, in the upper jejunum—and they had presented some very interesting problems, both from the standpoint of diagnosis and of therapy. Carcinoma of the small intestine gave much the same picture as a pyloric obstruction, but some points were very different, one of which was the vomiting of a large amount of material that had accumulated in the stomach and entire jejunal loop. Another thing was attacks of partial obstruction resembling very greatly the partial obstruction that one had in the large intestine which had been temporary and recovered from, but which had been fairly acute. As to the diagnosis, one could make it with much more certainty

by means of the *x*-ray than any other way. As to therapy, he had given up the idea of making an end-to-end anastomosis in these cases. A lateral anastomosis was three or four times safer for the patient in these cases of carcinoma of the small bowel. Carcinoma of the small intestine, when early diagnosed, gave a favorable prognosis. He had three cases that had been well for a number of years after circular resection for carcinoma of the small intestine.

Are We Justified in Removing a Comparatively Healthy Gall-Bladder?—Dr. W. H. MAGIE of Duluth, Minn., said that his experience was based upon 300 operations upon the gall-bladder and bile ducts. There was no department of surgery in which there was a greater difference of opinion than in surgery of the gall bladder. He made a plea in favor of saving the gall bladder in at least a majority of the cases. He had never seen an empty or collapsed gall bladder when examining it during the course of operations in the upper abdomen. The fact that it was always filled with bile went to prove that it had much to do with keeping up and regulating the pressure in the bile ducts and liver. This theory was supported by the results of experiments upon animals. Eisendrath and others had shown that when the gall bladder was removed in dogs the remaining cystic duct dilated, as did the common and hepatic ducts. The dilatation of the cystic ducts took on the appearance of nature making an effort to reproduce the gall bladder. This same dilatation of the cystic duct had been observed in man after cholecystectomy. This effort of nature to reproduce the gall bladder was evidence that the gall bladder not only had the function of storing bile, but also had a pressure regulation function upon the biliary system. These facts should be taken into consideration where the question of cholecystectomy versus cholecystostomy was to be decided. In his early experience, before we were removing as many gall bladders as we were now, he was astonished to see a great majority of the empyemic gall bladders get well and stay well after drainage. If such results could be obtained from empyemic gall bladders, we could expect a mildly diseased one to recover and become again a functioning organ. It was generally conceded that cholecystectomy had a much greater mortality than cholecystostomy. If so, this consideration should bear weight in making up our decision. He had had no mortality in his cholecystostomies, while his mortality following cholecystectomy had been about the average mortality, if not greater than that of other surgeons. His cholecystostomy cases had not required reoperating in more than 5 per cent., and in every case where reoperation was necessary it was on account of overlooked stones or structure of the cystic duct. When should cholecystectomy be resorted to? (1) In all cases of hydrops with structure of the cystic duct. (2) Many cases of acute gangrene or threatened gangrene of the gall bladder. (3) All cases complicated with embedded stones in the cystic duct with ulceration produced by contact with the embedded stone that when healed would probably cause stricture. (4) All very thick walled gall bladders due to fibrous or calcareous degeneration. (5) All cases of ulceration due to pressure of large stones. (6) In cancer of the gall bladder where the disease was limited to the gall bladder.

Factors Which Determine the Relative Degree of Cure in Biliary Surgery.—Dr. B. B. DAVIS of Omaha believed the following to be the most frequent causes of lack of complete relief: (1) Impediments, as the result of structures, torsions, and lessened elasticity of the common or hepatic ducts to the free passage of the bile to the duodenum. (2) Lack of elasticity and contractility of the gall-bladder wall, resulting in stagnation of the bile in that viscus and continuous infection, and a tendency to reinfections. (3) Adhesions of the gall bladder to the pylorus, transverse colon, omentum, and liver. (4) Stricture or kink of the cystic duct. The avoidance of postoperative distress in all cases was more than one could reasonably expect. The amount of pathology present before the operation might be too great to permit complete restoration of function, but he believed care and skill would count a great deal in preventing or mitigating postoperative symptoms. In his early work he had occasionally removed the gall bladder because of pathology which seemed too extensive to permit of a continuance of normal function. It was early noted that many of these cholecystectomies produced more complete relief than the less radical cholecystostomies. He had been gradually led to the conclusion that a large part of postoperative distress was due to gall-bladder adhesions, and that if we could avoid these adhesions postoperative distress would be greatly lessened. Efforts at more careful handling were redoubled, but with only slight improvement in results. The gentlest handling of the gall-bladder peritoneum seemed often to produce dense adhesions. The only effective way to avoid pericholecystic adhesions was to remove the gall bladder, and he believed this was the most potent argument in favor of indiscriminate cholecystectomies. Surgeons had been compelled to resort to this measure because of the very unsatisfactory results following the more conservative operation. If any effective means could be found for preventing post operative adhesions, most of the gall bladders now removed could be profitably retained.

Fracture of the Skull; Diagnosis, Treatment, and End Results.—Dr. W. D. HAINES of Cincinnati, Ohio, said that head injuries were prone to take their toll either immediately or at some future time. The former would entail shock, hemorrhage, and fracture, while the latter would find expression in persistent headache, abscess formation, epilepsy, or insanity. The great discrepancy between the clinical findings, symptoms manifesting, and the extent of fracture was well illustrated in the case of a patient, a man thirty-four years of age, powerfully built, and slightly demented, who was confined to a private sanitarium. During the momentary absence of his attendant the patient butted his head repeatedly again the radiator. When admitted to the hospital a few hours later the patient was rational, answered questions promptly, and expressed regret that he had not succeeded in destroying his life owing to his disordered mental state. The temperature, pulse rate, and respiration were little at variance with the normal, notwithstanding the presence of multiple, extensive fracture of the vault, with one large detached triangular piece of bone driven some distance into the substance of the anterior part of the left lobe of the brain. Uneventful recovery followed removal of the depressed fragment. Some of the most extensive and fatal brain and cord lesions had followed injury wherein no fracture was found in the ward, *x*-ray room, or dead room. Skull fracture patients were almost without exception suffering from some degree of shock, ranging from slight depression to profound unconscinusness when admitted. Infinitely more good would be accomplished for the patient by employing measures to relieve shock than by immediate operation, the one exception being the presence of active hemorrhage, and even here there was room for argument. Linear fractures of the skull without displacement would require evidence other than that obtained by palpation in their recognition. In suspected cases wherein the *x*-ray was not available, exploration or lumbar puncture, preferably the latter, would aid in establishing the diagnosis. Percussion was of value in such instances, but evidence thus obtained should be confirmed. Shock and altered reflexes entered into the scheme of diagnosis and must be given careful consideration in determining the management of the patient. Pressure symptoms were the most insistent for relief. Their presence, extent, and gravity might be very accurately determined by studying the fundus of the eye. Notwithstanding the desperate conditions embodied in fracture of the base of the skull, about 50 per cent. of the patients surviving the first forty-eight hours following receipt of the injury made a final recovery. The treatment should be directed with a view of relieving shock, stopping hemorrhage, preventing infection, and controlling pressure.

Volkmann's Contracture.—Dr. E. M. Sanders of Nashville said that when patients presented themselves for treatment and the diagnosis was made of Volkmann's contracture without complications, there were three avenues open to the surgeon: (1) The method of Jones, where gradual extension was applied to the fingers and wrist by a specially prepared splint, using progressive extension from time to time, accompanied by vigorous active and passive motion, hot applications, and electricity. Mild cases could be satisfactorily managed by this method. Sayre and others had used this line of

treatment with good results. He had used it with surprisingly good results in some cases and all were greatly benefited. The value of this method of treatment depended largely upon the promptness of its application, the co-operation of the patient, and the persistence with which it was carried out. (2) The more severe cases could not be so treated with any degree of satisfaction, and should be subjected to the operation of tenoplasty, where elongation of the tendons of the affected muscles was accomplished by using the LL incision on the tendons. This should not be done earlier than three months from the establishment of the contracture, as it took about this length of time for the maximum damage to be done. In treating these cases one should never overlook the necessity of capsulotomy, where the anterior capsule of the wrist joint was permanently contracted. (3) In the more severe cases, and especially in children, resection of both bones of the forearm, as done by Mikulicz, was justified and had given a fair percentage of good results in apparently hopeless cases. Before either of these operations was advised, one should remember the increased risk of infection because of the deficient nutrition of the parts, and the resulting adhesions between the tendons, and where the bones were dealt with also the danger of nonunion and deformity. The prognosis should be guarded, as the end results were apt to be far from ideal. As a rule, surgeons were in too great a hurry to reduce fractures and apply dressings, and this was especially true of fractures of the forearm and about the elbow in children.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

ANNUAL REPORT OF THE SURGEON GENERAL, U. S. NAVY 267 pages. Published by the Government Printing Office, Washington.

LEÇONS DE CHIRURGIE DE GUERRE. Edited by CL. REGAUD. 393 pages. Illustrated. Price, 9 fr. Published by Masson et Cie., Paris, France.

YEAR BOOK OF PHARMACY AND TRANSACTIONS OF THE BRITISH PHARMACEUTICAL CONFERENCE. 516 pages. Published by J. A. Churchill, London.

PATHOLOGICAL TECHNIQUE. By F. B. MALLORY, M.D., and J. B. WRIGHT, M.D. 555 pages. Illustrated. Price, $3.75. Published by W. B. Saunders Company, Philadelphia.

A MANUAL OF DISEASES OF THE NOSE, THROAT AND EAR. By E. B. GLEASON, M.D. 616 pages. Illustrated. Price, $3.00. Published by W. B. Saunders Company, Philadelphia

A MANUAL OF GYNECOLOGY. By JOHN COOKE HIRST, M.D. 466 pages. Illustrated. Price, $2.50. Published by W. B. Saunders Company, Philadelphia.

PRINCIPLES AND PRACTICE OF OBSTETRICS. By JOSEPH R. DELEE, A.M., M.D. 1,027 pages. Illustrated. Price, $8.50. Published by W. B. Saunders Company, Philadelphia.

NEOPLASTIC DISEASES. By JAMES EWING, M.D., Sc.D. 1,027 pages. Illustrated. Price, $10.00. Published by W. B. Saunders Company, Philadelphia.

A TEXT-BOOK OF PHYSIOLOGY. By WILLIAM H. HOWELL, Ph.D., M.D. 1.059 pages. Price, $5.00. Published by W. B. Saunders Company, Philadelphia.

STATE HOSPITAL COMMISSION. Twenty-ninth Annual Report. 577 pages. J. B. Lyon Company, Printers, Albany, N. Y.

TRANSACTIONS OF THE AMERICAN CONGRESS ON INTERNAL MEDICINE. Edited by JOSEPH H. BYRNE, Assisted by EDWARD E. CORNWALL. 110 pages. Published for the Congress by the Burr Printing House, New York.

WAR SURGERY FROM FIRING-LINE TO BASE. By BASIL HUGHES, D.S.O., M.A., M.B., F.R.C.S., Temporary Major R.A.M.C., T.F.. and H. STANLEY BANKS, M.A., M.B., Captain R.A.M.C., T.C. 623 pages. Price, $9.00. Published by William Wood & Company, New York.

Miscellany.

Forensic Medicine in Lima, Peru.—The medical profession in the South American States seems to us to show an unusual interest in forensic medicine, which is praiseworthy but not altogether intelligible to us. Rather perhaps our own indifference to the subject is what should really be hard to understand. We have repeatedly called attention to this tendency in the MEDICAL RECORD. Bahia has apparently a unique research institute devoted to the subject of forensic medicine, and the medical societies which exist in Brazil and elsewhere for the prosecution of these studies have a membership of high order. Many student theses are devoted to subjects which belong under legal medicine. In this connection, therefore, it will be of interest to abstract an article from the May-June number of the *Anales de la Faculdad de la Medicina* of the University of Lima, from the pen of Dr. Avendaño on the history of legal medicine in Peru. In 1570 a bull of Philip II was responsible for the institution of a tribunal for the solution of medicolegal questions, whether administrative, civil, or criminal. This tribunal was not suppressed until 1851. In the sixteenth century it was occupied chiefly with inhumation and embalming; in the following century sudden death was the dominant subject and in the eighteenth, abortion and abortifacients, which led to many autopsies. During the entire period sexual aberrations and rape were frequent and received due attention. In the nineteenth century the individual subjects began to be more numerous and varied and a more scientific tone is in evidence; so that eventually a so-called scientific "morgue" with a laboratory annex for toxicological work came into existence. This institution was initiated in 1889-1891, and in 1897 a refrigerating plant was added. But this did not satisfy the ambitions of the Peruvians, so that the present "morgue" is virtually a new institution. It takes charge of the cadaver and identifies it. All resources for preservation are available, so that delay cannot defeat justice. Autopsies are conducted with all accessories in the building—there is no need to send off specimens and exhibits to this or that remotely seated expert. The morgue is also a center of police activity and serves for the instruction of the university medical students. Credit for the scope of the institute is said to be due in part to the ideas of Professor Zangger of Zurich who has long advocated such a centralization and affiliation of activities. But the idea strikes us as quite like that of the Nina Rodriguez Institute of Bahia, which while operated by a foundation is partly under the control of the State.

Curative Vaccination of Influenza.—Cépède has attempted to treat this affection with a vaccine made from mixed cultures of the pneumococcus, streptococcus, and enterococcus. This vaccine is carefully prepared, and standardized at 100,000,000. The minimum dose is 1 c.c. He alleges favorable results in three cases of influenza in children. Although the paper was read before the Academy of Sciences, the reporter seems very sceptical, as the author recently announced the discovery of a curative vaccine for tuberculosis.—*Le Progrès Médical.*

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 95, No. 7.
Whole No. 2519.

New York, February 15, 1919.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

SYPHILIS AND PARASYPHILIS OF THE CENTRAL NERVOUS SYSTEM; DIAGNOSIS, PROGNOSIS, AND TREATMENT.

By M. NEUSTAEDTER, M.D., Ph.D.,

NEW YORK.

LECTURER IN NEUROLOGY, NEW YORK UNIVERSITY AND BELLEVUE HOSPITAL MED. COLLEGE.

With the advent of the Wassermann reaction in the diagnosis and salvarsan in the treatment of syphilis in its various manifestations, a reconsideration of our knowledge of the histopathology of the various forms of the disease and their clinical phenomena becomes imperative, since the question of diagnosis is of paramount importance.

In a discussion of the differential diagnosis of cerebrospinal lues, tabes, and paralytic dementia, we must take due cognizance of the histopathology of syphilis in its relation to parasyphilis and its probable modus operandi in giving rise to the respective symptom complexes. It is only upon such basis that one can venture to discuss reasonable prognosis and a rational treatment.

Syphilis of the central nervous system manifests itself as the tertiary type in: (1) vascular involvement, (2) gummatous exudates in the meninges, (3) gummatous deposits in the substance of the brain or cord, and (4) the so-called paraspyhilitic affections.

1. The vessels may suffer through the mechanical pressure exerted upon them by the syphilitic deposits of the meninges or nerve tissues surrounding them, thus giving rise to an obliterating endarteritis or phlebitis. The syphilitic inflammatory process may involve the vessels through contiguity, involving the outer coats first, and give rise to a periarteritis and later to a mesoarteritis and a panarteritis. And finally the vessels may become diseased as a result of the direct influence of the syphilitic virus by its irritation of the vessel walls and the consequent inflammatory reaction. The adventitia and media become involved first and the intima secondarily. The endothelial cells proliferate first. The vasa vasorum become inflamed and a proliferation of the connective tissue cells in the adventitia, followed by deposits of round cells into the new formations of the intima. The proliferation of the intima may continue until the lumen of the vessel is partially or totally occluded. This form of vascular change is most commonly met with. Partial or total occlusion may also be brought about by thrombosis. As a result of this obliteration we have a complete or partial absence of nutrition of the parts supplied and, of course, there ensue a necrosis and softening. Although the vessels of the base as well as those of the convexity of the brain may become affected, the softening of the cortical areas and those immediately at the base are usually not affected in as marked a degree as the more remote parts in the interior of the brain. The reason for this is the fact that at the base and convexity a collateral circulation is easily established, while in the interior there are chiefly end-arteries without anastomoses. This is especially true of the internal capsule, the pons, and medulla. And it is quite common to have areas of softening in these places as a result of vascular involvement. Hemorrhages into the brain and cord as a result of this form of periarteritis and endarteritis are not uncommon although rather rare. The tears of the vessels result where the elastic tissue becomes rather thinned and the muscularis of the adventitia is supplanted by a less resistant connective tissue. A high blood pressure will under such conditions break the vessel wall and the blood will exude into the neighboring substance.

2. The meninges of the brain and cord are more frequently involved than the vessels. The contiguous parts may or may not be affected in this process. This is due to the vascular and lymphatic richness of the leptomeninges. The syphilitic virus and toxin find their way into them through the circumambient fluids. The gummatous, gelatinous exudate deposited here frequently involves the contiguous dura which becomes adherent to the soft meninges forming one thick covering. The underlying nerve substance may become affected in the same way and give rise to a meningomyelitis or meningoencephalitis as the case may be. Single meninges may at times become involved alone. Sano describes a case of what he terms a syphilitic arachnitis. The arachnoid in this case had the gummatous exudate on its outer surface and thus the inner surface, the pia, and the brain tissue of the frontal lobe were spared. Lang even mentions a specific hyperemia of the meninges of the cord, especially when the spinal cord symptoms are of a transient type. I can report a similar case. It is of course conceivable that a hyperemia should accompany a specific inflammation.

The meninges of the convexity of both hemispheres are preeminently affected in specific processes, especially those of the frontal and temporal lobes. Next in order those at the base involving the olfactory nerves and continuing to the optic chiasm and even far down into the cord. Finally there have been observed isolated syphilitic meningitides of the various parts of the cord. The more frequent affection is the dorsal region, the cervical and lumbar not as frequently. (Fig. 1.)

In accordance with the site involved we speak of a syphilitic meningitis of the convexity, a basillar, and a spinal. The pathological character is the same in every instance. The microscopical picture discloses an extensive infiltration of round cells and a thick-

Fig. 1.—Spinal syphilitic leptomeningitis, dorsal segment. Gummatous infiltration around the whole cord. Destruction of the posterior horns and part of the columns of Burdach.

ening of the meninges with specific alterations of the vessels. The infiltration is especially marked in the neighborhood of the smaller vessels which are usually present in large numbers in the meninges as well as in the contiguous tissues. (Fig. 2.) In places this infiltration takes the shape of miliary gummata; as a rule, however, there are extensive deposits within the subarachnoid space and in the course of time this exudate becomes organized through the deposit of connective tissue, the meninges becoming firmly adherent. The gummatous deposits are here seen inclosed in meshes of connective tissue. At times extensive hemorrhages are found to accompany such process.

3. Gummatous deposits into the brain and cord substance, as already previously stated, are as a rule a constant accompaniment of a specific meningitis. But there are cases on record where the syphilitic process affected these parts primarily. In the cord the process continues along the septa, the pial indentations and the vessels; in the brain, however, through the latter mainly. The progress is rather slow and insidious, and for this reason this affection of the central nervous system can be termed chronic meningomyelitis, or meningoencephalitis as the case may be.

In the case of the spinal syphilitic affection the process is not equally distributed, for at one time the posterior and at another time the lateral aspects are predominantly involved. (Fig. 3.) It is only late in the disease that the entire circumference is affected and then we find the cord completely enveloped in the thickened membranes. This is also true of particular segments. As a rule the dorsal segments are more often affected, at times the lumbar alone, and the cervical are as a rule the followers of a basal encroachment. The myelitic process, however, is less extensive than the meningeal. Even in cases where the entire cord is affected we find only disconnected and widley disseminated foci. Microscopically we note infiltration with small granulation elements in their center and numerous small vessels with specific changes in their walls. In other instances we note gummatous infiltrations starting from the meninges and wedging themselves into the cord tissue. These new formations appear as enormous round cell deposits. In the neighborhood of this infiltration the contiguous tissue loses its cell elements and there appears a proliferation of glia cells which seems to inhibit a further extension of the syphilitic process. Later on the infiltrated tissue is replaced by fibrous deposits and the vessels present a hyaline degeneration or are completely obliterated. The process involving the brain is quite analogous to that of the cord and a repetition seems unnecessary.

4. The parasyphilitic affections of the central nervous system are those which yield the symptom-complexes of tabes, taboparesis and paralytic dementia. As in the syphilitic alteration of the tissues we have here as well meningeal, vascular, and parenchymatous changes. The all-important question is whether the neuron decay is primary or secondary to destruction of other tissues or simultaneous with them.

The histopathology of tabes is characterized mainly by a progressive degeneration of the nerve fibers of the posterior columns and a marked proliferation of the glia. The nerve fibers lose their myelin sheath, they swell up, the axis cylinders atrophy and the whole fiber becomes destroyed. The proliferated glia appears as a fine fibrous meshwork within which one frequently discerns the empty spaces of the destroyed nerve fibers. Later on this is changed into connective tissue in which numerous nuclei, spider cells, and amylaceous bodies are to be found. The vessels are always showing changes. Their walls are thickened and hyaline, the lumen is contracted, and here and there is a considerable interstitial or perivascular infiltration of cells. The same degenerative and atrophic changes are to be seen in the posterior roots at times of a varying intensity in different places of the fiber alongside a corresponding proliferation of the connec-

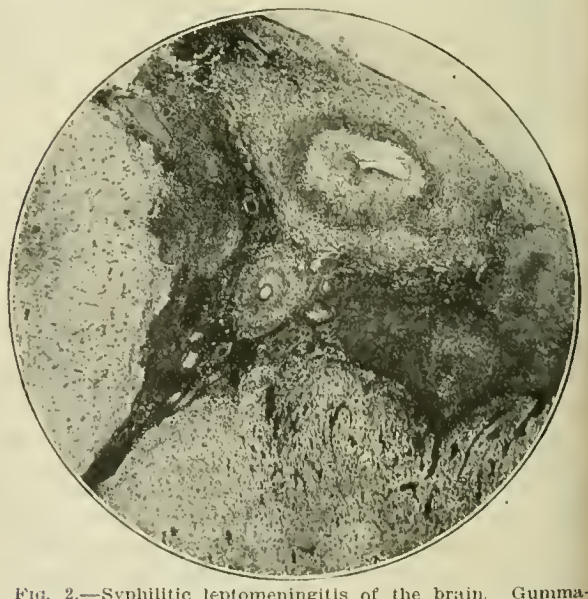


Fig. 2.—Syphilitic leptomeningitis of the brain. Gummatous deposits around the pial vessels. Infiltration around the vessels of the contiguous parts of the brain substance. Specific endarteritis of the vessels with partial occlusion of the lumen.

tive tissue and thickening of the vessels; here and there also a considerable small cell infiltration. This is rather positive evidence that we are dealing with a primary neuronic degeneration, and that the proliferation of the glia is secondary. Yet the whole

process cannot be distinguished from the secondary ascending degeneration of the nerve tracts.

Of great importance is the localization of the process in the posterior columns. This begins, as a rule, in the lumbar segments with a symmetrical

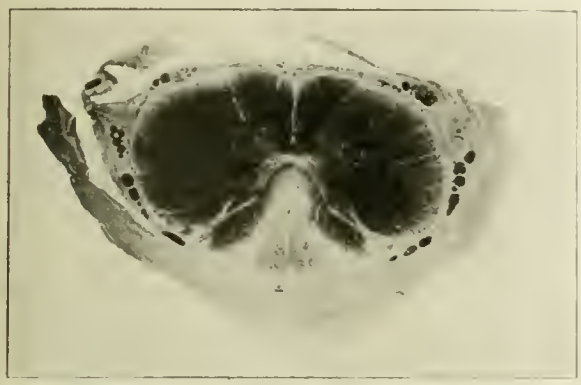


Fig. 3.—Spinal syphilitic leptomeningitis. Lower cervical segment. Posterior part more involved and to some extent the lateral part of the pia and arachnoid on one side. Columns of Burdach completely gone.

involvement of the columns of Burdach, which degenerations are seen in the same subject to embrace the columns of Goll in the higher segments. The more segments show an involvement of the columns of Burdach the greater the amount of degeneration of the columns of Goll above. A very careful examination of sections shows that the fibers nearest to the root zones are always affected. The cells of the posterior horns and of Clark's columns are never affected, and those of the intervertebral ganglia rarely show any changes. The whole process then is limited to the sensory neuraxon centripetally from the ganglion cell in the intravertebral ganglion. The meninges show a thickening and adhesions, and in some cases even a decided specific leptomeningitis. Among the French authors, Nageotte, Dejérine and Thomas, lay particular stress upon this mild form of meningitis as decidedly syphilitic. The neuraxon distally from the ganglion cell is rarely, if ever, degenerated, although degenerations of the peripheral nerves have been met with. With the exception of the oculomotor, the motor cranial nerves are rarely degenerated. In cases of pronounced syphilitic leptomeningitis the characteristic posterior root and column changes are evident the same as in tabes. Obersteiner and Redlich reasoned from this analogy that the thickened pia around the posterior roots is constricting them, and thus causes a symmetrical degeneration. The pial changes are, however, so mild that this theory is rather untenable. Nageotte, however, found a lesion in the nerve roots centrifugally to the spinal ganglion that is always present. This is an interstitial transverse root neuritis (a perineuritis and endoneuritis with interstitial and parenchymatous changes), whose starting point is a mild form of chronic syphilitic meningitis, and which is conditioned by the lymph channels in its distribution. This root neuritis is also syphilitic in character. According to his theory, the tabetic changes are always preceded by a diffuse syphilitic meningitis of the pia characterized by a thickening and a diffuse or focal cell infiltration, with specific vascular changes in the arteries and capillaries and also in the vein. This is well substantiated by the lymphocytosis which is always present in the spinal fluid. But he insists that tabes is produced by the root neuritis, and that the pial and vascular changes are concomitant manifestations of the same process. The motor root in the proximity, although somewhat higher up, is also affected, but has a peculiar tendency of regeneration. Without entering into an extensive discussion of Marie and Guillain's theory of a lymphangitis, and Thomas and Hauser's theory of a primary neuronic degeneration, I am inclined to accept Nageotte's findings as the most rational, namely, a postneuritic degeneration, and therefore a primary neuronic degeneration. The vascular changes may, after all, be a reaction with a tendency to repair.

In the paralytic dementia we find the same histopathological changes as in the tabes; here, of course, a meningoencephalitis. Most authors agree, and for good reasons, upon a primary neuronic degeneration. The vascular lesions may at times predominate, but it was not shown that they were the primary condition.

From the above description it would seem evident that there is a general similarity in the lesions of general paralysis and tabes and other syphilitic lesions; namely, there is an endothelial and conjunctival hyperplasia, with a tendency to fibrous and sclerous formation. In tabes and paresis there is also the primary neuronic decay which we cannot readily account for solely by the changes in the supporting, inclosing and nutrient tissues, as we can in syphilitic lesions. Noguchi and Moore, and, later, others have demonstrated the presence of the *Treponema pallidum* in the tissues of the central nervous system in the parasyphilitic affections, and the Wassermann reaction is positive in all cases in the cerebrospinal fluid and the blood serum. While the blood in cerebrospinal syphilis, as a rule, gives a positive Wassermann, the spinal fluid is not

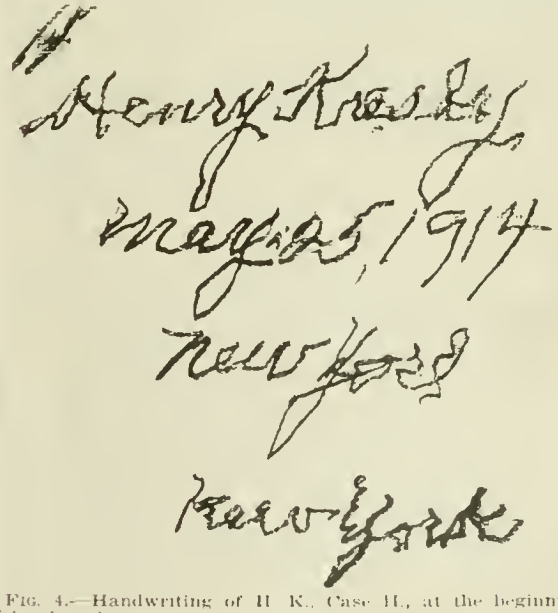


Fig. 4.—Handwriting of H. K., Case II., at the beginning of treatment.

always positive. The reason for this is that the globulin present in the blood cannot pass through the cerebrospinal vessels which are affected by an endoarteritis and periarteritis, into the cerebrospinal fluid. While in the parasyphilitic affections

the globulin necessary for the Wassermann reaction comes from the degenerated neurons of the cerebrospinal axis. This is illustrated by the fact that the fluid from the ventricles is about ten times weaker in linking up the complement than the spinal fluid. But I want to lay emphasis on the fact here that these rules do not obtain in all cases, and yet the symptom-complexes are those of tabes, general paralysis, and taboparesis. It is held by Mott and others, for quite rational reasons, that antispecific treatment in parasyphilis is of no avail. Yet we have recent reports of cases that disprove this theory by the fact that patients have been markedly improved and the Wassermann reactions of the blood and spinal fluid, as well as the lymphocytosis, have disappeared. It must, however, be pointed out that in some of these improved cases relapses led to death with characteristic postmortem findings. A few of the cases that came under my observation may be of significance:

Case I.—T. B. D., æt. 48, male, colored, waiter by occupation. Venereal and alcoholic history positive. Initial lesion 20 years ago without secondaries. About a year ago he developed a marked loss of memory characterized by forgetfulness, inability to compute most simple mathematical problems, forgetting to take change when making a purchase, taking the car in wrong direction when on way home from work, becoming erratic and confused in his statements, exhibiting expansive ideas, very excitable and abusive without provocation although a very meek and tender husband before. He suddenly took a notion that he ought to stop working and went to Washington to visit his relatives with whom he had not communicated in 15 years. He left New York with $200 and arrived there penniless. On inquiry he did not remember what he did with the money, but subsequently it was discovered that he squandered it upon strange children, inducing them to accept all sorts of things. In my attempt to persuade him to come home he at first seemed inclined to go with me, then he would want to go to all sorts of places, and finally refused to go and became quite abusive. He had to be forcibly committed to an asylum.

His physical condition was as follows: He was well nourished, although he lost considerable weight within the last two months, about 20 pounds. He had an Argyll-Robertson pupil, eye fundi normal, a slight Romberg, some ataxia in the upper extremities, exaggeration of all reflexes, a marked, fine intention tremor in hands, lips, and tongue. His speech was drawling, but not to any extent. There was a considerable hypalgesia in the lower extremities and some delayed sensation. The Wassermann reactions of the blood and spinal fluid were strongly positive. There were 20 cells in the c.c., globulin and albumin strongly positive. There is no doubt that this is a case of taboparesis. In this diagnosis I was confirmed by the authorities in Washington, Bellevue psychopathic wards, and Manhattan State Hospital, where he was ultimately confined for three months. His condition slowly improved and he was liberated on parole after the time mentioned. I have since subjected him to an intense antiluetic treatment, salvarsan alternated with potassium iodide and intramuscular injections of mercury for the last five months with excellent results. His memory, especially the retentive memory, is very good, he is perfectly rational, goes in the usual manner about his business, is very docile, never irritated, is sorry for the manner in which he behaved toward me, gained 25 pounds in weight, and is very cheerful. His physical status at present is as follows: The Argyll-Robertson pupils are still there, there is no Romberg and no ataxia in the upper extremities, the tremor is slight and in hands only, the reflexes are present but not very brisk, the fundi oculorum are normal, the speech is slow, and the hypalgesia is as before. The Wassermann reaction of the blood is still strongly positive. (After sending in this article the patient died of cerebral hemorrhage. Autopsy was not obtained.)

Case II.—H. K., æt. 23 years, male, salesman, of a negative family history. He denies venereal diseases and abuse of alcohol and tobacco. He was operated upon for trachoma ten years ago. Had a hydrocele of his testes some time ago, otherwise negative. Seven years ago his vision began to be blurred, but he did not pay any attention to this eye defect until a year later when he developed a diplopia. Then he consulted Dr. Weeks. Three years later his speech became rather slow and scanning and at times stuttering. In June, 1913, his blood gave a strongly positive Wassermann reaction. He was then treated with salvarsan, receiving five intravenous injections in intervals of five days followed by mercury intramuscularly. After the last salvarsan injection he developed a marked intention tremor in his hands with ataxia (Fig. 4), so much so that he was unable to hold a pencil or other objects and had to be fed.

In March, 1914, Dr. Weeks referred him to Dr. Fisher, with whom I have seen him, with a diagnosis of a double optic atrophy following an optic neuritis. His Wassermann of the blood and spinal fluid at this time was negative. There were six cells to the c.mm. in his fluid, all lymphocytes; globulin normal, and reduction test normal. He still had the diplopia with a paralysis of the right external rectus of the eye and lateral nystagmus. The pupils were unequal and reacted sluggishly to light, but well to accommodation. His gait was of the spastic paretic type. The abdominal reflexes were absent, the cremasters present, the patellar and Achilles reflexes were markedly exaggerated, ankle clonus was present on both sides, there was the extension toe reflex to the Oppenheim method on the right side only, no Babinski on either side. A few months after the first examination the Babinski reflex appeared on both sides. He was under our observation for two years and has received during that time alternately intramuscular injections of a soluble salt of mercury and iron arsenate.

He has steadily improved, his tremor is completely gone, his speech is fairly normal, there is no diplopia, his gait is excellent. The optic atrophy in the right eye is complete, the vision in this eye is limited to finger vision, while that of the left eye remained at a standstill and the visual field here is somewhat concentrically diminished. His Wassermann reaction is still negative. He has been employed for the last ten months as a clerk and writes as well as ever.

Case III.—C. H., æt. 30 years, female, married. Family history negative. Denies venereal diseases and alcoholism; she has given birth to five living children and never miscarried. She had exanthemata of childhood and pneumonia and recovered from all without sequelæ.

History of reported illness: Since April, 1915, patient began to suffer from stiffness of the neck and pain on motion. Gradually both shoulder joints, the elbows, and wrists became involved in the same manner. There was no swelling of joints. After a few weeks both hands became numb and pain increased in severity, becoming most intense at night. Toward the end of July there appeared edema of the legs, the right being first involved and accompanied by pain which was partially relieved on walking.

In addition to the above she now began to lose power and feeling in the arms and complained of numbness and pain in the right epigastric region. Soon loss of power manifested itself in both legs. This progressive involvement extended over the time between April and August, 1914, when she was still able to stand when supported. After August 14 she was completely paralyzed in the upper and lower extremities. Since the beginning of her illness she has experienced a burning pain on micturition and a difficulty in starting. Later on there was retention and she had to be catheterized. At times she would have incontinence and dribbling without being aware of it. Toward the end of July she began to suffer from a dull continuous headache. She had no difficulty with either vision, speech, or hearing. Off and on she would have difficulty in swallowing. In July, 1914, she gave birth to her fifth child after a normal and practically painless labor, especially during the entire second stage. She nursed her child until August 28, when she was admitted to Bellevue Hospital,

where I have seen her from time to time with Dr. Fisher.

Physical status on admission: Patient poorly nourished with a toxic facies but not suffering any particular discomfort. The pupils were irregular and unequal and reacted sluggishly to light but well to accommodation. Ocular fundi normal. All other cranial nerves normal. There was a complete spastic paralysis of both upper and lower extremities. There was an atrophy of the interossei and thenars of both hands and extensors of the forearm, especially marked in the right. There was also a slight atrophy of the muscles of the lower extremities. The chest was emaciated, abdominal muscles wasted, paralysis of the intercostals. Sensory disturbances: On passive motion of the head the patient experienced pain at all times in the region of the nucha. While touch sense was normal all over, the pain sense was markedly diminished and there was a complete thermanesthesia in the trunk, upper, and lower extremities. The deep muscle sense was retained. Reflexes: Elbow, radial, patellar, and Achilles exaggerated, abdominals absent, ankle clonus and Babinski were present in the right but not in the left foot. Corneal and pharyngeal reflexes were present.

On September 2 patient developed an area of complete anesthesia, beginning at the last dorsal and extending down the entire body. This sensory disturbance progressed rapidly upward and on September 18 there was a complete anesthesia up to the level of the third rib, except on the inner sides of the calf, where we found an appreciation of deep pressure sense rather than pain sense. The Babinski reflex and ankle clonus were now present on both sides.

A lumbar puncture was made on August 30 and 15 c.c. of fluid were withdrawn under normal pressure. The Wassermann of the fluid and of the blood taken on the same date was negative. There were 4 cells to the c.mm. in the fluid, globulin was negative, reduction test positive, and it contained a trace of urea. A vaginal smear was positive for gonococci. The radiographic examination was negative. The uranalysis showed nothing of importance.

A tentative diagnosis of a cord tumor was made and the operation was performed by Dr. Stewart on December 28, 1915. No tumor was found. Her respiration, which had become shallow and labored before the operation, improved somewhat after, but her general condition was unchanged and she expired on March 5, 1916.

Postmortem examination and histological findings are reported by Dr. Symmers as follows: The meninges covering the cervical enlargement of the cord for a distance of about 3½ cm. are thickened, especially on the posterior aspect. The thickening is largely confined to the leptomeninges and sometimes reaches 3 mm. in depth. Microscopic examination of the leptomeninges of the cervical region reveals great thickening due to the undergrowth of fibrillar connective tissue and to the presence of hyaline material. Embedded in the thickened meninges are large numbers of markedly distended, thin walled blood vessels, each of which is encircled by a thick layer of round cells. In occasional instances the vessel wall is thickened and in at least one instance the vessel shows the lesions incident to a well marked endarteritis obliterans. The meninges lying between the distended vessels are richly infiltrated by small round cells of the lymphocytic type. The meningeal prolongations into the cord are marked by the presence of enormous numbers of small round cells of lymphocytic type, and many of the smaller vessels in the substance of the cord itself show circumferential cellular infiltration.

Microscopic examination of a posterior root ganglion removed from the upper cervical region shows the following changes: At one point the periphery of the ganglion for a considerable distance shows the presence of overgrowth of fibrillar connective tissue, some of which has undergone hyaline transformation. The tissue for the most part is richly cellular, the cells being partly of the type of fibroblasts and partly of the type of small round cells of the lymphocytic variety. The substance of the ganglion itself shows scattered areas of hyalinization, small areas of necrosis, and foci composed of finely granular, pinkish staining substance in which rounded or cylindrical nuclei are to be made out. Many of the vessels embedded in the substance of the ganglion are thickened and some show the typical changes of endarteritis obliterans. At one point in the substance of the ganglion there is a focus made up for the greater part of small round cells with a sprinkling of epithelioid cells, and in the center is what appears to be a typical Langhans' giant cell.

Microscopic examination of the nerve fibers proceeding from the posterior root gnglion shows the presence of enormous numbers of small round cells lying in the perineurium as well as in the connective tissue septa between the individual nerve fibrils. The blood vessels in the perineurium are markedly distended, and all of them show a mantling of lymphocytes.

Microscopic examination of the smaller vessels at the base of the brain shows the presence of widespread hyaline transformation of the adventitia. The adventitia is diffusely and more or less abundantly infiltrated by small round cells. The muscle layer is apparently well preserved. The hyaline lamina is noticeably thickened, and the sub-endothelial connective tissues are irregularly but markedly sclerotic. Diagnosis: Syphilis of the meninges and of the posterior root ganglia of the cervical cord. (This case was reported by Dr. Fisher in the MEDICAL RECORD, June 24, 1916.)

A number of other cases of these types could be cited from my experience, but these may suffice. Some were treated with intravenous injections of neosalvarsan, and lately with novarsenobenzol, an equivalent of the former, one case with a combination of intravenous and intraspinous autosalvarsanized serum, and all followed by intramuscular injections of mercury and potassium iodide internally. While I am as yet unable to speak of cures, these patients were markedly improved. A small number were unimproved, and these evidently were cases with complete organic destruction, of whom Mott and other investigators speak as not responding to any treatment.

In conclusion we might say that all methods of determining which case is beyond help and which is still amenable to treatment are purely speculative, since no positive signs are available to diagnose that *intra vitam*. Since even in cases with markedly evident organic changes, as in tabes, many symptoms have been ameliorated, notably the various crises, and in paretic and taboparetic syndromes beneficial results were obtained, we are justified in treating every case along the well-established lines.

1215 PARK AVENUE.

MAJOR H. R. ALLEN'S INSTANTANEOUS METHOD OF RESHAPING TOOL HANDLES SO THAT THEY MAY BE USED BY DEFORMED OR CRIPPLED HANDS.

BY MAJOR R. W. SHUFELDT, MEDICAL CORPS, U. S. ARMY

ARMY MEDICAL MUSEUM, WASHINGTON, D. C.

OUR conflict with Germany accomplished at least one great end, and that is it americanized America. In doing this, it developed in us a vast store of latent energy that has already manifested itself in starting every wheel in the machine of creative genius. We held up our end pretty well in such matters before the war, but the crushing demand for inventions of all sorts; the meeting of the endless propositions that almost immediately presented themselves as a result of the country entering the war, and a great many other reasons—the stim-

ulation given to every conceivable public and private industry, and its far-reaching effects, now stands without precedent in human history. These various impulses and demands very promptly affected every department of medicine and surgery and more particularly the military side of them. At first the materials of all sorts for the means of offense and defense felt the result of the declaration of war against such a powerful and well-equipped nation as Germany was at the time, and all such materials are well within the sphere of observation for the surgeon and physician, and all call for their careful consideration.

Fig. 1.—Use of chisel carrying a plastic handle. Case: Pvt Hazel Asbury

After our troops became actually engaged at the front, still other problems arose, and these in the main involved the handling and treatment of the wounded and the subsequent care of the cripples. All this immediately made another tax upon our inventive genius, so that no end of improvement and new inventions came into being almost as rapidly as the demand called for them.

In this connection may be mentioned the many new models of artificial limbs; new types of stretchers; orthopedic appliances of many sorts and, in most instances, more efficient ones than those in use during the latter part of the last century, many of which were the old Civil War models—indeed, the improvements and inventions, in so far as they have referred to the materials and appliances used by physicians and surgeons, have been well nigh limitless.

Many of these constructive appliances have been examined and studied by me, since I came on duty early in January, 1918, at the Army Medical Museum in Washington. During the summer of that year, or perhaps a little earlier, the staff of that institution had added to it—among a number of other officers of the Medical Corps—Major H. R. Allen, whose home is at Indianapolis, Indiana.

Major Allen is an author and an authority in several departments of surgery, and especially in modern orthopædics. He has made many substantial improvements in the way of various appliances for the treatment of fractures, dislocations, and deformities, and it is the purpose of the present article to describe what I take to be the most recent of his ingenious inventions. Its application is far-reaching and makes for the very prompt improvement in the use of crippled hands, or in the deformities of those members.

My first opportunity to look into this matter occurred early in November, or late in October, 1918, when Major Allen kindly invited me to accompany him to the Walter Reed General Hospital, in Washington, where some moving pictures were to be taken of his above mentioned method of restoring the use—as far as possible—of crippled hands.

At the hospital, five privates and a corporal were ordered to report to the Major, each one of whom had been wounded in the left hand by some small missile or other at the front. The wounds were all healed, and the reason given for the injuries all being left-handed ones is that, in holding the piece, it is the left arm that is extended, which greatly increases the chance of the left hand being the one to receive the wound, while the right hand is usually next to the body close to the belt. This hand, if shot through, usually results in a fatal body wound with it. We could secure no men wounded in the right hand at the Walter Reed Hospital at the time we were there, which was unfortunate as it did not bring out, as it otherwise would have done, the great importance of Major Allen's reconstruction methods. However, handicapped as he was in this respect, he conducted the demonstrations at the hospital in an eminently successful and satisfactory manner. Subsequently the pictures were thrown upon the screen at the Army Medical Museum, and favorably passed upon by a number of orthopedic surgeons of distinction who saw them.

In all these cases the wounds were entirely healed with the best possible results, while at the same time, in all the cases, the grasp was so weak that the member was still practically useless. In no instance could a "fist" be made, and even to pick up such a tool as a hammer or a saw, was simply out of the question. Now all of these men were to be discharged from the Army, and would be thrown on their families or others as cripples, to be cared for and supported; so that any means or invention that would give the hand use during the recovery, and allow of the men earning their living in comfort would certainly prove to be a boon of the first class.

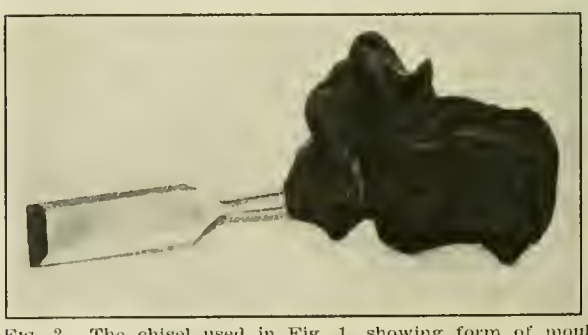


Fig. 2.—The chisel used in Fig. 1, showing form of mould and impressions made by fingers and palm of hand.

It is a fact well known to the surgeon as well as to the laity that, in order ultimately to gain the full use of a crippled hand—that is where the ultimate recovery is possible—the member must be systematically used, exercised, and constantly flexed

Fig. 3.—Palmar aspect of left hand of Clarence Baker.

and extended. This gives strength to the fingers and palm; stretches any cicatrix that may have formed, and compels the muscles and their tendons to do their duty.

Having obtained films of the method employed to secure these and other remedial measures, it was arranged to have these six men report to me at the Army Medical Museum, in that I might secure a set of photographs for illustrative purposes. This took place on the seventh of November, 1918, when the same men mentioned above, duly reported and were taken to the photographic rooms for the purpose of posing while using the reinforced tools, forks, and so on. Many photographic exposures were then made, and a very successful series of negatives obtained to illustrate Major Allen's suggestions. A number of the reproductions from the prints from these illustrate the present article.

In that the records may be as full as possible, there are here inserted the names of the above men, and brief notes on each case:

No. 1. John Avelrsa, 37th Division, U. S. Infantry, Italian, age 28 years. Machine gun bullet; center of palm of left hand exhibits the wound of entrance. Received in engagement in Lorraine, August 20, 1918. U. S. medical officer attending. Wound healed. Returned to United States on October 21, 1918.

No. 2. Hazel Asbury, 7th Infantry, American (West Virginian), age 26 years. Piece of shell; center of palm through dorsum; left hand; received at Chateau Thierry, July 26, 1918; wound entirely healed; attended by U. S. medical officer. Returned to United States Oct. 21, 1918.

No. 3. Abert Gilli (colored); 301st Stevedore Regiment; Virginian; aged 20 years. Pinched between two box cars in France, crushed left hand while loading hay on car. Healed. Eight months in hospital. U. S. medical officer attending. Returned to United States Oct. 21, 1918.

No. 4. Clarence Baker, 166th U. S. Infantry, American, aged 23 years. Pistol wound, cal. .45; ball entered outer base of index finger of left hand, passed to base of ring finger, leaving linear scar on palm at base of 3rd metacarpal, finger removed. Wound beautifully healed. U. S. surgeon attending. Received at Motini, France, June 17, 1918.

No. 5. Corporal R. J. Johnson, Co. B, 29th Engineers, aged 24 years, born in Princeton, Mich. Left forearm, middle; explosive machine gun ball. Wound of entrance radial side. Wound of exit, linear cicatrix, 5 inches in length in line with ulna. First German offensive, March 21st, 1918; wounded on March 30th, 1918. U. S. surgeon attending. Returned on transport August 11, 1918. Healed rapidly.

No. 6. Pvt. Allen B. Cremeans, 28th Infantry, Hdqr. Comp., aged 30 years. Native of Duerandotte, Va. Wounded left hand near center; entrance on dorsum; exit on palm. Heavy cicatrix. Grasp feeble. Scrap of high explosive shell, 2 in. depressed cicatrix. Somme front, France, May 29, 1918. U. S. surgeon attending. Healed promptly. Base Hospital treatment. Finally returned on transport, Oct. 21, 1918.

All that Major Allen requires to carry out what he aims to accomplish is a supply of ordinary gelatine, and a requisite amount of the ordinary modeling composition used by dentists in their plate work, or by artists to meet various ends in their work. This material comes in small boxes at half a dollar a box, which latter contains some five or six cakes. These are three or four inches square, a quarter of an inch in thickness and of a rather deep Indian red color. Those who have ever used this composition know that it possesses the very valuable property of becoming thoroughly soft and plastic when placed in hot water for a few moments and that without melting or running. Then, when thus softened, if plunged in very cold water—ice-water, if convenient—it at once hardens again and becomes as brittle as some forms of amorphous rock, or perhaps more like terra cotta, or some kinds of glass.

This process may be gone over and over again without any deterioration of the composition, or the minutest loss of its substance. Now a typical case of one of these gunshot wounds is here shown in Figures 1 and 2 of the present article, and this man had practically no use of his left hand at all. He

Fig. 4.—Use of the fork with crippled left hand. Pistol wound, cal. .45. Clarence Baker. (See Fig. 3.)

could not so much as pick up a hammer, to say not a word as to being able to use such a tool. He is right-handed, and before being wounded he used his left hand pretty much in the same way that most people normally do. To drive a nail with a

hammer held in the left hand is by no means an easy feat, though it may be accomplished after long practice. This soldier had had no such training; so, in using his left hand, it would only be in such a manner as he would use it had he not been wounded as he was.

Fig. 5.—Use of the saw by aid of auxiliary handle. Pvt. Abert Gilli.

In other words, through using Major Allen's method, it simply permitted the use of his left hand just as though nothing had happened to it. Had it been, on the other hand, the right member so reenforced, he could have used it just as well as though it had never been injured—that is, provided he could have held and steadied the nail with his left hand. This description, as thus far given, applies to all other cases of a similar class. With a fork, or a saw, it is obviously different, as the sound hand may or may not be brought into play. The figures to the present article tell nearly the whole story, taken in connection with what has already gone before. To reinforce a hammer and prepare it for use by the wounded hand, all that is demanded is to take a sufficient quantity of the modeling composition to make a mould of the proper proportions and dip it into hot water. By squeezing and modeling it, it soon—in fact, in a moment or two—becomes thoroughly plastic. In this condition it is made to surround the handle of the tool where the user ordinarily grasps it for use. (Figure 2). Next, his wounded hand seizes this mass of soft compound and presses the parts into it—that is the palm and fingers—until they are comfortably closed and the maximum amount of the wounded member is brought into play, in so far as its grasping capacity is concerned. The tool is then released, and the handle, with the mass upon it, is promptly immersed in ice cold water, or any water that is good and cold. This sets the mould; the patient at once discovers that he can readily pick up a nail with his sound hand and drive it with the one in which he holds the reenforced tool.

As the hand improves and the grasp becomes closer and stronger, the form of the moulded auxillary handle can be readily altered by the patient himself, for all that is required is to dip it in hot water, and then, without detaching it from the tool handle, squeeze it with the wounded hand until a well-fitting, comfortable handle is moulded, and then fix it by immersion in cold water. In order to exercise the wounded hand when not used, Major Allen has introduced another contrivance. This consists of preparing a gelatine mould of the clasped hand by closing the wounded member upon a mass of gelatine of the proper size and consistency, and then setting the form aside for a while. Such a mould may be carried about in the hand without attracting much attention, or causing much inconvenience, while through the constant squeezing and releasing of such an object of proper resilient nature, the entire hand will be receiving the very kind of exercises required to restore—or help restore it to usefulness and health, as far as the ultimate result will permit. It is remarkable how satisfactorily, and often how rapidly, a wounded hand will improve under such treatment.

In Figures 1 and 2 we have a chisel armed with a mould in the manner described above. The hold of this tool in the wounded left hand is well shown in Figure 1. There, as held, the hand presents its maximum capacity for grasping, so that to hold the handle of the chisel would be out of the question, unless the composition mould was fitted on as shown in Figure 2, which is the same as the one shown in Figure 1. As thus equipped, this man could use his wounded hand with a chisel almost as well as though the injury had never occurred.

The dark area on the handle of the hammer in Figure 1 is nothing more than the thin remains of a composition mould that was attached over the area indicated for another case. It has nothing to do with the treatment of the patient shown in that cut, where the use of the chisel alone is demonstrated.

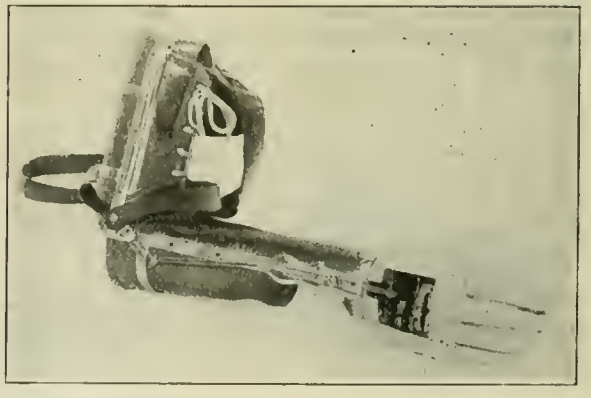


Fig. 6.—Modern artificial arm with detachable hand. Device to use the fingers. For amputations in the upper third of forearm.

Frequently, these wounded hands are quite incapable of holding either the knife or fork when partaking of a meal, and at other times. Here is where Major Allen's reconstructed handle comes in with especial aptness. Our case of Private Clarence

Baker, cited in the list of cases above, admirably illustrates the value of the plan to patients so crippled. The power of grasping with his left hand is practically nil (Figure 3) as his wound was a very vicious one. However, the injury healed well, and doubtless, in time, a large part of the use of the member will be practically restored. But, be it remembered, during these long months of waiting, the power to feed himself is very markedly deficient. It was most gratifying and truly remarkable to note the improvement in his case as soon as the handle of the fork had been adjusted to his wounded and practically useless left hand (Figure 4). While a little clumsy at first, it only required a few trials when he appeared to use his knife and the aforesaid fork quite as well and as efficiently as though the hand were a perfectly sound one. Without the moulded handle, Baker's left hand could barely pick the fork up from off the table, and was absolutely powerless to hold it, let alone use it. His delight in being able to do what he could so efficiently do in such a necessary matter can be readily imagined. By the use of the "gelatine exerciser" and the moulded handles to the tools of his trade, the wounded hand of this man will be restored, as far as it can be restored, to its normal condition prior

Fig. 7.—Same arm as shown in Fig. 6, with composition moulded on to form a false hand to hold a fork. By the usual process this may be removed and a similar one fitted to hold any other tool or instrument.

to the injury, much more rapidly than it otherwise would, while at the same time he will enjoy very good use of it during this period.

In Figure 5 we have another good case wherein the handle of a saw has had fitted to it such a mould as I have described above. To some extent, this man could use the saw even with his left hand and arm, for I observed him do so as depicted in the cut. Had the right hand been the wounded member, and its recovery proceeded as far as shown in the illustration for the left one, the use of the saw would have been almost perfect, through the application of Major Allen's method of reconstruction.

These few selected cases will sufficiently illustrate what it has been my pleasure to set forth in this article. The suggestion—or the method, as it is more than a suggestion—is capable of expansion in not a few other directions. These are likewise of an orthopedic character, and make for definite, modern, and scientific orthopedic results, which not a little of the output of the orthodox part of that branch of surgery distinctly does not do in these days.

One more example of the use of this method, then, and I will leave the subject for others to elaborate and enlarge upon. It is a well known fact to the manufacturers of artificial limbs and to surgeons that the efficiency of such inventions, or contrivances, depends almost entirely upon how perfect the hand has been made, or such devices as may be attached to the wrist, in that certain things may be performed with more or less comfort. For example, a plain hook may be attached there and used to carry a pail of water, or packages, and so on. Such devices have, to a large extent, multiplied since our entry into the present war so that one wearing an artificial arm can now have various devices attached to it at the wrist by means of which he may be an efficient catcher in a baseball game; play croquet, or golf, or tennis, and so on for many other vocations or purposes.

Up to date, these devices or attachments have been very clumsy, as a rule, and only fulfil their purpose in part. For example, we have quite a complicated one here shown in Figure 6. It is designed to use the thumb and fingers, and is detachable. As a matter of fact, it gets out of order altogether too readily and presents other disadvantages.

Now, by using the composition prepared by Major Allen, and carrying out his idea in another direction, we may make a rough model of a hand, and when it is in the plastic condition, it may be made to hold any tool or instrument that the cripple desires to use at the time. In Figure 7 it is shown holding a fork, which is held in a convenient position in the hardened composition. This mould or composition hand may be detached and another screwed on in a moment, to meet what the man desires to perform after his meal is over. Then, too, it is an easy matter, and one that requires but a few minutes, to plunge this "hand" in hot water, remove the fork, insert a lead pencil or a pen, or anything else as for the matter of that, which the cripple desires to use next, dip the composition in ice water, and in a very brief space of time the member is ready for use as desired. An ingenious person may work in all sorts of useful designs, as a single finger that may be used on a typewriter, and for a great many other purposes. In other words, an artificial arm, with a detachable hand may, by this plastic hand attached, be made to be ten times more serviceable than the artificial hands as they are now usually manufactured.

At the request of the Commandant, I have placed on exhibition at the Army Medical Museum at Washington quite a complete set of these plastic hands of Major Allen's, as well as photographs exhibiting their several uses. They have created not a little interest, and, I may say, favorable criticism on the part of those orthopedists who have studied them. In other words, it looks very much like a very valuable device and method which has come to stay.

Banquet to Professor Pereira.—As a result of his labors in the direction of rural hygiene in Brazil Professor Miguel Pereira was tendered a banquet last Spring at Rio de Janeiro by his medical colleagues. The statement that Brazil is a vast hospital has passed almost into an axiom. It is claimed that 80 per cent. of Brazilians die without medical attendance. The activities of the honored guest have done much to remedy these conditions by preventive measures.—*Brazil-Médico.*

AN ORIGINAL DEVICE FOR THE CONTROL OF HEMORRHAGE FROM THE LARGE SINUSES OF THE BRAIN BY INVULSION OF THE OUTER WALL INTO THE LUMEN.

WITH REPORT OF A SUCCESFUL OPERATION FOR CEREBELLAR ABSCESS BY OBLITERATION OF THE LATERAL SINUS AND EXPLORATION AND DRAINAGE THROUGH ITS INNER WALL AND ANTERIOR SURFACE OF CEREBELLUM.*

By WELLS P. EAGLETON, M.D.

MAJOR M. C., U. S. A.

NEWARK, N. J.

THE physiological and mechanical factors and clinical experience require that the exploration of a cerebellar abscess originating from infection of the petrous pyramid should be through a dural opening, situated as far forward as possible, in order to lessen the cerebral herniation and permit of adequate inspection and evacuation.

Surgical Anatomy of the Lateral Sinus.—The position of the lateral sinus at the junction of the anterior and lateral surface of the cerebellum limits the area in which exploration may be conducted, and if the lateral sinus is "forward lying" it may prevent exploration without destruction of the labyrinth and injury to the facial nerve.

The blood pressure in the descending portion of the lateral sinus, normally but a few mm. of mercury, is negative during each inspiration; the collapse of the sinus with each inspiration being frequently witnessed during its operative exposure. The volume of blood, although under low pressure, is large. This low or negative pressure enables hemorrhage following injury to the sinus wall to be controlled by closure of the gap, the lumen of the sinus remaining permeable. The gloved finger, a small piece of cotton, or the "postage-stamp method"—in which a piece of fascia lata is placed over the vent, the fascia adhering to the injured sinus—controls the hemorrhage without stopping the current of blood within its lumen.

However, it requires considerable force to control hemorrhage from the sinus by invulsion of its outer wall by compression, because of the large volume of blood and the triangular shape of the sinus.

While the disturbance to the return circulation by obliteration of the lateral sinus is very slight,[1,2] the mechanical difficulties of ligation of a pervious lateral sinus are so great that it has been previously practised in but two recorded instances.[3,4]

Cross-section.—The lumen of the descending portion of the lateral sinus opposite the middle ear is an irregular oval, with its greatest convexity outward, the sinus tunneling, as it were, between the layers of the dura; the inner wall of the sinus is flush with the contiguous dura over the cerebellum, while the outer wall of the sinus projects considerably beyond the outer dural surface. Obliteration of the sinus by encircling ligation is difficult, because in its horizontal diameter the sinus presents *two* fixed points of dural surface that cannot be approximated.[5]

Reaching the knee the sinus becomes distinctly pear-shaped, with inner wall still flush with the contiguous dural surfaces of the cerebellum and cerebrum. The superior petrosal sinus enters at an oblique angle, emptying, as it were, into the *inner* wall at its posterior margin. This is of surgical

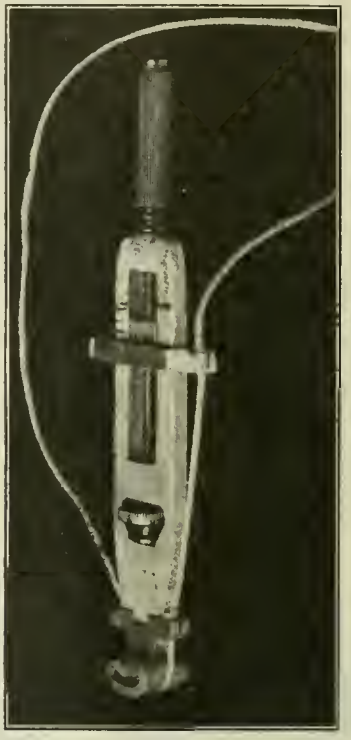


FIG. 1.—Sinus obliterator; carrier showing knotted suture in slots on one side and obturator attached.

importance. After passing the knee the horizontal portion of the lateral sinus assumes a triangular shape, with *three* fixed points. The dura of the tentorium cerebelli being interposed between the superior and inferior dural attachments.[6] Because of the three fixed points of dural attachment it is difficult to obliterate completely a large transverse sinus by an encircling ligature, the tightening of the ligature tearing the dural attachments, with resulting hemorrhage.

However, in both the transverse and descending portion of the sinus it is possible to invulse the outer wall into the cavity of the sinus, thus *completely obliterating it.*

Obliteration of the Lateral Sinus Preparatory to

FIG. 2. Obturator of the sinus obliterator, detached.

Incision.—The appliance holds the two ends of suture apart so as not to compress the fixed dural attachments, while the descent of a metal obturator causes an invulsion of the outer wall of the sinus into its cavity, obliterating its lumen.

*Presented before the annual meeting of the American Rhinological, Laryngological and Otological Society, Atlantic City, June, 1918.

Technique of the Application of the Suture.—A small opening is made in the dura, on each side of the sinus, using a triangular dural knife or cystotome. A ligature is passed from one dural opening to the other, using a full curved needle with the point blunted, damage to the cerebral tissue being avoided by hugging the dural surface. One side of the ligature is knotted in its center and the suture placed in the slot of the carrier and of the obturator of the same side. The other side of the ligature is then placed in the opposite slots, and, using the knotted point of the ligature as a fulcrum, is tightened sufficiently to cause slight indentation of the sinus; when the ends of the ligature are tied in a bow knot over the cross-arm of the carrier. Tightening the upper screw of the carrier will cause the descent of the obturator into the sinus, obliterating its cavity. Using an artery clamp, the slots in the soft metal arms of the obturator are then pressed firmly against the suture, holding it in position; the suture above is then loosened, and removed from the slots of the carrier, and the obturator is liberated from the carrier by unscrewing the lower screw. (The suture may now be tied over the obturator.) If the ligation is to be made above the knee it will be necessary, in addition, to perforate the tentorium cerebelli with the needle.

The upper portion having been obliterated, and all downward current of blood stopped, the lower portion of the sinus is easily ligated, as the sinus walls are here much nearer; or if the bony exposure is low enough the lower portion of the sinus may be obliterated by the pressure of a tampon against its firm bony wall. Between the two ligatures the sinus can be incised. In the case reported below in which I used the appliance the incision of the sinus was absolutely bloodless.

The obliteration of the sinus frees the approach to the anterior triangle of the cerebellar fossa, making possible the enlargement of the dural incision in front of the sinus. Through the enlarged triangle the whole of the inner side of the dura over the anterior surface of the cerebellum can be inspected and the region of the adjacent cerebellum (the most frequent site of cerebellar abscess) exposed.

Case S. B. History by Dr. J. W. Hurff. Influenza followed by acute otitis media in right ear. Mastoid operation performed, neither dura nor sinus being exposed. Three weeks later wound had practically healed; no symptoms. Five weeks after operation, dull boring pains commenced behind right eye and in right frontal region. Paroxysm of pain was followed by vomiting, and for two weeks there was headache of varying intensity on the right side and frequent projectile vomiting which was influenced by the position of the patient, who could take food when lying on the right side but would vomit upon turning on his back.

Two weeks later the patient was much improved and could walk about the room, although when he first attempted to walk he staggered and had a tendency to fall to the right. No strength in right arm; used left. Became dizzy on sudden change of position. Headache subsequently increased in severity, right sided weakness became more marked, and the patient became slightly confused mentally. Examination showed the mastoid scar to be healed. No discharge from ear. Patient could hear with right ear. Cold caloric in right ear produced nystagmus, but not nearly so marked as that produced in left; complained of blurred and double vision. Ophthalmoscopic examination revealed congestion and slight edema of both discs and fixation nystagmus. Mentality dull; no aphasia. Pulse 60; respiration irregular, bordering on Cheyne-Stokes. Cerebrospinal fluid clear under pressure.

Movements of pronation and supination were overdone. Asynergia more marked on the right side, as shown in his inability to coordinate the various muscles and joints. Asked to put his right hand back of his head, his arm would apparently wobble in every direction until he got it in place, or he would raise the right hand with the left. The right hand was much weaker than the left.

The old mastoid cavity was therefore reopened and the sinus exposed, but no trace of infection was found. Three days later, May 12, 1918, a cerebellar operation was performed (W. P. E.), hemorrhage being controlled by Von Hayden's instruments. The whole cerebellar fossa was exposed on the right side, and the posterior surface of the petrous pyramid removed as far as the internal auditory meatus. Difficulty was experienced in locating the sinus on account of granulations; but it was found by approaching from behind forward. A blunt needle threaded with heavy silk was passed just below the sinus knee encircling the dura from behind forward and out on the anterior wall of the cerebellar fossa. On first passing it undoubtedly perforated the sinus. The sinus was obliterated by the instrument above at the knee, and was again tied with an encircling ligature as low down toward the bulb as possible. Between the ligatures the external wall of the sinus was then opened without loss of blood, and the incision was continued through the inner wall to the cerebellum. This incision was afterwards enlarged, the opening into the cerebellar fossa being directly at the angle of the anterior and external surfaces. There was no prolapse of the brain. Exploration with searcher at distance of 3 cm. located the abscess with capsule, pus flowing freely. On introduction of Whiting's instrument (encephaloscope), pus again flowed. The capsule could be felt at the bottom of the encephaloscope, and pressure expressed more pus. The abscess cavity was thoroughly cleansed and wiped out. There was slight herniation of the brain. A rubber tissue drain was inserted and the wound closed. The obliterating obturator was removed on the tenth day. Uninterrupted recovery.

REFERENCES.

1. Eagleton: Circulatory Disturbances Following Ligation of the Internal Jugular Vein in Sinus Thrombosis; with Report of Case. *Arch. of Otology*, Vol. XXV, No. 2, p. 991, 1906.

2. Stolz: Ligation of Internal Jugular Vein, *Corresp.-Blatt für Schweizer Aerzte*, B. 48, No. 13, March 30, 1918.

3. Bourguet: Abcès du Cervelet et Labyrinthine Suppurée; Trepanation; Guérison. *Toulouse Médical*, 2 serie, 15, 1913.

4. Ballance: Referred to in Freisner and Baum's "Cerebellar Abscess," p. 165.

5. Macewen: Atlas of Head Sections. Fig. 39.

6. ———: *Ibid.* Fig. 10.

15 Lombardy Street.

FALSE TEETH AS A CAUSE OF CANCER.

By C. Everett Field, M.D.,

New York,

Director, Radium Institute.

The plates used for supporting false teeth, when imperfectly fitted, are proving such a prolific source of cancer that a note of warning should be sounded to the general public. The medical and dental professions will do well in co-operating to take prompt action whenever there are indications of chronic irritation of the gums from which teeth have been extracted. There have come under my observation as director of the Radium Institute of New York City many instances in which faulty artificial dentures have caused the development of malignant growths along the line of the maxillary processes. Ill-

fitting sets of false teeth and bridge work have probably been responsible for many deaths from cancer, and I have no doubt that in the early stages of the dental art when more or less clumsy appliances were in vogue the list of fatalities traceable to such causative features must have been large indeed.

The mouth with its tender membranes is peculiarly subject to injuries which are difficult to heal. If there be a predisposition toward cancer, it is likely that it will crop out in any region where the soil has been suitably prepared to foster the growth of malignant cells.

Where a set of teeth fit imperfectly, the constant abrasion on the gums causes, at first, the development of an area of congested tissue. In time, this formation degenerates into an ulcerated state, which, although innocent enough in the beginning may soon exhibit a rapid malignant transformation. The changes from a healthy structure of the gums to that of cancer moves on so insidiously in the early stages that frequently the condition when recognized is difficult to combat. Many years ago, the writer, recognizing the importance of oral or mouth hygiene, wrote a paper calling attention to the mouth as an organ which maintained all the requirements of a laboratory for the cultivation therein of disease-producing bacteria. It, therefore, should be maintained at all times in a healthy state.

The basis for this report is a minute analysis of a series of 87 clinical cases coming under the observation of the author during the past three years. I have also made an exhaustive study of the available literature on the subject. Recognizing the large number of cases of cancer that seemed to trace a tributary cause to artificial dentures, I determined to give more careful attention to the early history of such cases as might thereafter present themselves. The summary was more important than I had anticipated, indeed, the findings were so conclusive as to be startling.

Of a classified series of 157 cases presenting malignant processes involving either the superior or inferior maxillae, 87 presented a clinical history that showed the initial ulceration or nodule to be in close proximity to an artificial denture of which the patient offered complaint. Examination of the dental appliance in many cases presented evidences of castings and fittings that were a disgrace to the dental art. Many of the plates had originally been well fitted but natural changes affecting the alveolar processes made the dentures of poor service. For this feature, of course, the dentist should not be censured.

Many of the plates, however, in the mouths of the poorer classes, we found had been made and placed as promptly as two or three days after the extraction of numerous teeth. Such treatment should constitute malpractice. It is well to note that our records showed 58 of the cases had exercised little attempt at oral hygiene and allowed existing plates to remain in filthy condition. Many of these had stumps of decayed teeth still in the alveolar sockets in varying degrees of putrefaction.

Fifty-two were males and 35 female patients. Of the men, 28 were classed as heavy smokers. The average age of this classification was 58 years. We have entered in our records only cases whose history we were able to follow to date.

Of the 87 cases recorded, 19 showed original development adjacent to bridge work and 68 near plate work, of various types. The malignancy presented in 59 cases in the superior maxilla as against 28 affecting the inferior maxillary region. The tumors were classified as follows: Carcinoma, 65; sarcoma, 9; osteoma, 3; fibroma, 4; chondroma, 4; and melanosarcoma, 2.

It is regrettable to report that a large majority of cases of this type applying to the Institute for treatment present themselves in most advanced stages. Fully 50 per cent. of those who come for radium treatment must be immediately listed as hopeless. An early diagnosis, say within the first three months, would reduce this mortality at least 20 per cent. It is not uncommon to accept such patients with a report of 12 to 18 months of delay. Some of these have had simple measures of treatment but few have even applied for surgical help.

Where operative measures have been resorted to and recurrence results, the growth frequently becomes exceedingly active and any period of delay at such a time soon makes the case hopeless for radium.

Treatment.—The most important factor of management of every case is to decide what measure of success we may anticipate with surgery and promptly institute such treatment. In operation, the area should be attacked widely for thorough removal. Post-operative radiation, with adequate amounts of radium, is of prime importance. As a rule, the first radium application should be made within ten days following the operation and be followed by three or four subsequent radiations, at five-day intervals. Such a treatment we would class as ideal in every case where operation is possible.

Unfortunately the majority of the cases coming to us are classed as inoperable. We find, however, that under radium therapy, about 8 per cent. of such cases are improved to the point where operative procedures may be favored. As a net result of the 87 cases here enumerated, radium accords a clinical cure in about 18 per cent. By clinical cure I mean a complete retrogression of the mass and its failure to recur for periods running from 32 months down to 6 months. Marked temporary improvement followed radiation in 65 per cent. of these patients. While this is not as promising as we would wish, we believe that no other form of treatment could have attained such results.

So far as dosage is concerned the cases were of such varied types that a full report would be too voluminous for this paper which is simply a preliminary report. The average dosage in the 17 patients permanently improved, however, amounted to 3600 milligram hours, with individual treatments, averaging 180 milligrams of radium element. The favored screenage was with sufficient brass or platinum and metal-free rubber to assure pure gamma radiation. Burns from the use of radium, although not to be feared, were rarely seen in this method of treatment. Cross-

fire application was encouraged at every possible opportunity.

I wish again to lay importance on the finding that the inoperable carcinoma case under radium treatment not infrequently becomes operable. We have on record two patients who owe their lives to-day to the fact that radium successfully controlled the growth and reduced it to a point where a successful operation could be performed. Post-operative radiation of cases then followed. Both cases had been classed as entirely hopeless and inoperable. At the present date, after 2 years, both have remained normal.

Radium offers to the truly hopeless and inoperable cancer case the one relief possible and seemingly it gives such aid in every instance. Commonly we see much of the pain lessened, the discharges improved, the odor checked to a degree and the patient comforted. While improved technique and a better understanding of dosage may be increasing somewhat our success in the treatment of cancer, we feel that far better results can be secured by urging the necessity of a more prompt recognition of the early signs of malignancy.

Realizing the value and importance of hearty co-operation on the part of the dental surgeon with the family physician in facilitating prompt diagnosis and treatment, I am requesting all dental practitioners to give this subject watchful attention. I feel that the average person wearing artificial dentures does not report to the dentist as frequently as he should, following the introduction of new bridge work, plates, etc. At certain periods the changes in the structure, both bone and tissue, are very considerable and that which would be considered a perfectly adapted denture to-day may three months hence be a source of continual irritation. Perhaps an equally serious pathological condition to be considered is the chronic pericemental hyperemias and untreated pyorrhea alveolaris cases. The latter is an exceedingly common state which is quite often associated with cancer of the superior and inferior maxillary regions.

Let it be emphasized, as strongly as possible, that any chronic irritation serves as a predisposing factor at least in causing cancer. Let it also be emphasized that cancer is at first a local disease, which for a time is held within its own confines. As such it is curable by prompt and thorough removal. Let it still further be emphasized that the sole reason why cancer is at present so seldom cured is because it is rarely recognized in its primary state and promptly accorded treatment.

The lamentable statistics that constantly confront us will be wonderfully improved by the extension of such information as will educate the laity to the degree whereby they will not be ignorant of the known facts about cancer. The benefits of such knowledge should be widely disseminated by means of the physician, dentist, nurse, teachers and settlement workers throughout the land. In this way, and by such means only, can we hope to greatly improve this important phase of the cancer problem.

205 West Seventieth Street

SLEEP AS MENTIONED BY RABELAIS.

By DOUGLASS W. MONTGOMERY, M.D.,
SAN FRANCISCO, CAL.

Almost the first question a physician asks a patient is "How did you sleep last night?" so important is this condition in a return to health, and yet natural sleep is hardly ever mentioned in treatises on the practice of medicine, or, if so, is quite casually treated, and the physiologists are almost as indifferent. The physician Rabelais was immensely interested in sleep, and has left several remarks on it which will live as long as the French language, and the French language is likely to exist for yet several hundred years, in perfect accord with the virility of the French people.

Rabelais' Belief That the Soul Left the Body During Sleep.—In a discussion by Pantagruel regarding the validity of dreams in foretelling the future, the soul is compared to a nurse in charge of an infant. He goes on to say that:

When an infant that is well cared for, amply nourished and sufficiently supplied with milk, sleeps profoundly, its nurse is at liberty to leave it, and to do as she pleases, as her presence about the cradle is not necessary. In the same manner when the body sleeps and digestion is completed, our soul rejoices and flies away to revisit its native land, which is heaven,[1] and while there gathers impressions, which, as dreams, give a true indication of coming events.

Nourishment and Sleep the Prominent Features of Infant Life.—The existence in utero is supposed by some to be a perpetual sleep. The new-born babe sleeps frequently and profoundly; and may be completely dressed or undressed without interrupting its slumber.

Rabelais, who never forgot to feed either his infants or adults, says that Gargantua, from his third to his fifth year, was nourished and instructed in all suitable discipline by commandment of his father, and passed his time in the very same way as the other little children of the country, that is to say, in drinking, eating, and sleeping, in eating, sleeping, and drinking, and in sleeping, drinking, and eating.[2] These vegetative occupations together with commendable enterprise in playing and especially in playing with a dog, completely filled the days of his child existence.

An Adoleseent's Attitude Toward Sleep.—Rabelais gives a couple of pictures of how the youthful Gargantua, still under the guidance of tutors and before going to the university, passed his time. After muttering a number of graces, he drank from a wine cup so full that it overflowed its borders, and cleaned his teeth on a knuckle of ham. The company then retired to the gaming table, where, after having played, littered, frittered, and sifted away their time, they felt it opportune to do a little more drinking, then, immediately after banqueting, they stretched themselves out on a fine sofa or a beautiful large bed to sleep two or three hours without thinking an evil thought or saying an ill-natured word about anyone. On awaking, the youthful Gargantua shook his ears a little and drank better than ever.

Ponocrates, Gargantua's new tutor, who was watching the youngster with a view to turning his

activities in a better direction, remonstrated with him, telling him that it was not at all commendable to drink so soon after sleeping. Gargantua, who regarded every thirst as a fitting opportunity to enjoy a glass of wine, answered that he was acting according to the real life of the Fathers of the Church, and that it was natural for him to sleep with a salt mouth, which was every bit as advantageous, as far as thirst was concerned, as eating so much salt ham.

The above meal was evidently the noon meal, and the delightful repose followed hard upon it. After telling how the rest of the afternoon was passed, he and his noble companions came to supper, after which games were played. Then they went to see the girls thereabout, and enjoyed little banquets among them, and collations and after-collations, after which they slept without removing their clothes, and remained so until eight the next morning.[3] Just like modern youngsters they could not be driven to bed at a decent hour with a stick, nor could they be roused out of it betimes with an alarm clock.

This, it appears, was Gargantua's training as preparing him for the government of a great kingdom. When Ponocrates took the young prince in charge, he put him through an entirely different course of training both mental and physical, and Rabelais, true to his clerical discipline, does not omit the religious exercises which immediately preceded his retirement for the night.[4]

After reading these two descriptions, the one a satire and the other evidently a straightforward educational plan, one cannot remain in doubt as to the good will Rabelais had toward the world. It is unjust to designate him as an out-and-out mocker, and destructive critic.

Panurge's Idea of the Valuelessness of Dreams in Foretelling the Future When Sleeping on an Empty Stomach.—Panurge, on improving in his financial affairs, was mightily exercised as to whether he should marry, and if he should marry whether his wife, seeing he was entering into the frosty years, would prove true to him. In order to resolve these important questions he determined to resort to the interpretation of dreams, and in order to obtain good dreams the quality of his sleep was of importance. He told Pantagruel, whom he consulted on this point, that if he did not sup well and abundantly, his sleep would be troubled and his dreams would be as hollow and valueless as his belly was empty.

Pantagruel, possibly remembering the Scriptural admonition that "the abundance of the rich will not suffer him to sleep," insisted that the evening meal should be light, particularly when the dreamer was corpulent and of a full habit, as in Panurge's case.[5]

This is not the first time that Panurge is mentioned as sleeping well on a full stomach. When he first entered Pantagruel's service he was as thin as a lath, had a nose like a razor handle, and was famishing from hunger. At Pantagruel's invitation he fed amply that evening, and went to bed like a capon. He slept well till noon of the following day, and on awaking took three steps and a jump from the bed to the dining table.[6]

The Somnolent Effect of Religious Exercises.—Friar John, as a monk, was well aware of the somnolent effect of religious exercises, and of sacred literature.

When the youthful Gargantua returned from his student life in Paris to take part in the great Picrocholean war, he and his companions got supper, after which they consulted what they should do. It was determined that about midnight they would sally forth in skirmishing order to ascertain the disposition of the enemy. In the meantime they went to bed, and Friar John and Gargantua slept together. The young prince was restless and tossed from side to side, and could not sleep. Friar John said, "I never sleep well or at my ease except when I hear a sermon, or am at prayers. Let us begin, you and I, the seven penitential psalms, and see if we shall not soon be asleep." They began on the first psalm, but before they had reached the first verse of the *Beati quorum*, that is of the second penitential psalm, they were sound asleep and they slept till midnight, when Friar John awoke, as from habit, being habituated to arise at this time for early matins.[7]

The first words of the seven penitential Psalms are:

I. O Lord, rebuke me not in thine anger.—Psalm VI.

II. Blessed is he whose transgression is forgiven.—Psalm XXXII.

III. Lord, rebuke me not in thy wrath.—Psalm XXXVIII.

IV. Have mercy upon me, O God, according to thy loving kindness.—Psalm LI.

V. Hear my prayer, O Lord, and let me cry unto thee.—Psalm CII.

VI. Out of the depths have I cried to thee, O Lord.—Psalm CXXX.

VII. Hear my prayer, O Lord, give ear to my supplications.—Psalm CXLIII.

The somnolent effect of these when recited in the full-voweled Latin tongue may be imagined. Friar John as a monk, and Gargantua as having been trained in his youth by clerkly tutors, would both be able to recite these psalms without mental effort, and in perfect rhythm and accord.

As a young man Gargantua had to undertake some of the severer tasks of government. A previously referred to war had broken out between a bad neighbor called Picrochole, and the good old king Grandgousier. The heir to the throne had to undertake this active fighting, and after the battle he returned home to the palace at daybreak where quite naturally the elderly monarch was found still in bed praying God for the safety and victory of the enterprise. And, seeing them safe and sound, he embraced them lovingly.

Although Grandgousier was in bed he seems to have been alert, for he immediately evinced one of the characteristics of a good political leader. The first welcome over, he inquired instantly for one of his son's missing henchmen, the energetic and warlike monk, John of the Trencherites, who had been taken prisoner by the enemy.[8]

Pantagruel, the son of Gargantua, would rather drowse over a book than attempt to put himself to sleep reciting by heart. The specific occasion for remarking this was a calm at sea, which is a most drowsy time, especially on a sailing vessel. Here

Pantagruel fell asleep, holding in his hand a copy of the Greek author Heliodorus.[9] He undoubtedly had chosen this author intending during the large leisure of an indolent day to be edified. In the same way I knew a most estimable woman, who, on every drowsy Sunday afternoon, would seat herself in a rocking chair with her Bible. Presently the Bible would be in her lap and she would be asleep.

In Rabelais' day the church was a career much more frequently entered than it is to-day. It was an enormous institution with immense revenues, and an infinity of places paying a small salary. Just such places as are loved by those who desire a secure living and an easy life, and yet whose wants are few. A very mediocre education in one of the universities was enough to obtain such a place, and this partly explains the great crowds of poor students who attended these seats of learning. Having secured the church living, the tendency was for the occupant to fall into routine, and to enable one to do this without embarrassment there was published a very popular book of sermons called the "Dormi Secure" or Sleep in Peace. The title meant that the preacher might sleep soundly and not arouse himself in the morning in order to compose his sermon, as sermons suitable for every conceivable occasion were all duly set forth in this convenient book.[10]

Rabelais was a monk, and although the word means "alone," it came, as Chesterton says, to mean a community, and a very close-knit intimate community. People when intimately thrown together for long stretches of time, as in camping parties or on yachts, become disagreeably aware of peculiarities in their neighbors, and Rabelais touchingly refers to snoring.

Carpalim, the swift one, went lightly among the Dipsodes and Giants, whom Pantagruel was besieging, and they did not remark him, so profoundly did they snore and sleep. So successful was he that he reached the place where they kept their artillery and set fire to their munitions, and ran considerable danger to his own life from the rapidity with which the powder blazed up.[11]

In another situation Rabelais mentions a community where the people gained their living by sleeping, and those who could snore the loudest made the most money.[12]

Alcohol As a Soporific.—In his famous enumeration of the five means of restraining carnal concupiscence, Doctor Rondibilis begins with wine. He had hardly got the words will out of his mouth when Friar John broke in with "I can well believe it, for when I am drunk I only want to sleep."[13]

It has been supposed that sleep is produced by a sort of soporific agent generated by our cellular activities while we are awake. The state of being asleep, however, is probably as normal as being awake, and it would be just as logical to suppose that during sleep an exciting agent was generated, which, when enough was produced, aroused the individual to conscious activity.

And what a mysterious event natural awaking is! To paraphrase Ambrose Bierce: What whispers into the ear of our spirit the mysterious awakening word which no human lips ever have spoken, no human memory ever has recalled?[14]

Howell believes that the regulation of the vasomotor system involved in the occurrence of sleep is effected mainly through variations in the cutaneous circulation.[15] This might explain the importance of sleep in the cure of many diseases of the skin involving the vascular system, as for example, eczema. We are accustomed to say that when a patient suffering from acute extensive eczema begins to sleep well his recovery is assured; even chemically induced sleep, as by bromide of potassium, is frequently a great aid in the treatment of such cases.

The most rational view of sleep seems to be that it is a periodic or rhythmical state of repose, which appertains to all cellular life, from the contractile vacuole of the ameba to the heart of man; the heart-beat, indeed, is the most striking example of this rhythmical succession of work and rest. It has been even calculated that the heart works just eight hours out of the twenty-four—that its contraction, its expansion and its period of rest correspond to eight hours of work and sixteen of rest. Many of our functions and our desires are periodic, hunger, for example; and our whole life, in the larger sense, is a period—we are born and after a period we die. The activities set up in the egg, and probably stimulated by fructification, exist for a period varying with the animal and then cease.

LITERATURE.

1. Book III, Chapt. XIII.
2. Gargantua, Chapt. XI.
3. Gargantua, Chapt. XXII.
4. Gargantua, Chapt. XXIII.
5. Pantagruel, Book III, Chapt. XIII.
6. Pantagruel, Book II, Chapt. IX.
7. Gargantua, Chapt. XLI.
8. Gargantua, Chapt. XLV.
9. Pantagruel, Book IV, Chapt. LXIII.
10. Gargantua, Chapt. XIV.
11. Pantagruel, Book II, Chapt. XXVIII.
12. Pantagruel, Book II, Chapt. XXXII.
13. Pantagruel, Book III, Chapt. XXXI.
14. A Horseman in the Sky, by Ambrose Bierce.
15. Physiology, by W. H. Howell, 1913, Page 263.

323 Geary Street.

DISTRESSING GENERAL AFFECTIONS TRACEABLE TO EYE CONDITIONS.

By J. A. KEARNEY, M.D.,

NEW YORK.

PROFESSOR OF OPHTHALMOLOGY NEW YORK POLYCLINIC MEDICAL SCHOOL AND HOSPITAL.

By a process of elimination of the probable causes of distressing general affections, a decision is usually finally obtained. Among the most frequent sources are irritations existing somewhere in the body, toxemias of various origins, and undue loss of nervous energy.

In the studies of elimination, errors of refraction and extrinsic ocular muscle imbalance are very often found to be fruitful sources of undue loss of nervous energy. Roughened and dry palpebral conjunctivæ most frequently produce irritations of consequence, although disturbances of other ocular tissues are held accountable for some conditions. It is surprising to note in some cases the marked reduction or entire loss of symptoms that takes place following the clearing up of a dry and roughened conjunctiva.

Headaches of various characters, malaise, vertigo, chorea, insomnia, melancholia, neurasthenia, flatu-

lent and other dyspepsias, indigestion, and constipation not infrequently disappear when errors of refraction and extrinsic ocular muscle imbalance of a certain type have been rectified by the wearing of suitable lenses.

When symptoms of a troublesome nature exist and the subject is not presbyopic, refraction should always be estimated under the effect of a mydriatic. The amount of error prescribed is the personal equation of the ophthalmologist, and expresses the results of his observations in these cases.

Should an imbalance exist in the extrinsic ocular muscles, an added correction is ordered, especially if the vertical muscles are found to be sufficiently at fault. When the lateral muscles are in imbalance, stated exercises over a certain period of time usually suffice, and only when exercises have been tried and failed to relieve symptoms should prismatic correction be prescribed for these defects. Prismatic additions to lenses for imbalance of lateral muscles act as a crutch and tend only to defeat the real purpose.

Because a patient is wearing glasses is no evidence that the correction is what it should be at the time he seeks relief. By questioning one will frequently find that the glasses he is now wearing were ordered without the use of a mydriatic; and sometimes he is wearing a correction which, although it had been estimated under the effect of a mydriatic, has now been changed by time.

At a time when a patient is reduced in health or is convalescing from disease or a major surgical operation asthenopic symptoms or other distresses the result of errors of refraction are apt to occur, and if he has been wearing glasses the original symptoms may recur which his lenses were prescribed to correct. An examination under a mydriatic is advisable at this time, and glasses containing the present correction will nearly always clear up the complaints when they are due to errors of refraction.

Conclusion.—Errors of refraction and imbalance of the extrinsic ocular muscles and irritations of ocular tissues, when found to exist and when corrected, frequently clear up many vague and distressing general affections.

127 West 58th Street.

Medicolegal Notes.

Refusal of Injured Employee to Submit to Operation.—The law seems to be well settled that an injured employee seeking compensation must submit to an operation which will cure him when so advised by his attending physician, when not attended with danger to life or health or extraordinary suffering, and if as a result of such refusal on his part he suffers a permanent impairment, the employer will not be required to compensate him for the resulting permanent impairment. In a proceeding for compensation for an injury consisting of a "twist and laceration of the index finger of the right hand," there was evidence and the Industrial Board found that at the time of the injury the attending surgeon employed by the employer at first advised the amputation of the finger. The employee remonstrated and insisted that the finger should be saved if possible, and, in response to this objection, the attending physician advised that he had saved fingers as badly injured as that of the plaintiff, and it was agreed to make an effort to save the finger. It was accordingly treated for some time in an endeavor to save it. Infection developed which involved practically the whole of the right hand, and made necessary the amputation of the index finger, which was amputated at the middle joint. The board found that the infection developed because of the delay in the amputation; that the plaintiff's refusal to accept the amputation at the time of the injury was made in good faith, with a view of saving the finger if possible; that his refusal was not wilful, stubborn, or without reason. On appeal it was held that the plaintiff's insistence that his finger be saved if possible, when taken with the statement made by the surgeon, was not such unreasonable or wilful misconduct as would prejudice the allowance of additional compensation.—Enterprise Fence & Foundry Co. v. Majors, Indiana Appellate Court, 121 N. E. 6.

In another case before the same court claim was made for death caused by strangulation of the intestines resulting from hernia. An award was made by the board, which was contested, one of the grounds being refusal to submit to an operation. There was conflict in the testimony on this branch of the case. Some of it, at least, tended to show that the operation contemplated was a dangerous one; that, if it was requested, the request came too late, and at a time when the condition of the deceased was such that recovery therefrom would have been doubtful. Whether a refusal to permit the operation under such circumstances was such misconduct on the part of the deceased and those acting for him as to deprive his dependents of the benefits of the Compensation Act under the authorities, was open to more than one inference by reasonable men, and hence was a question of fact which, when determined by the Industrial Board, could not be disturbed by the appellate tribunal.—Vonnegut Hardware Co. v. Rose, Indiana Appellate Court, 120 N. E. 609.

Subjective Symptoms—Speculative Testimony.—In an action for personal injuries, where the only question was as to the relation between the injuries and the subsequent condition of the injured member, answers to questions to medical witnesses as to the cause of such condition were held proper, and not an invasion of the province of the jury. Evidence of subjective symptoms given by a physician who has not treated the injured person, but has made an examination to enable him to testify as to his condition, was held incompetent; but where there was no contention or proof to the contrary to such testimony, the evidence was but cumulative, and not of sufficient importance to justify a reversal.

Evidence by a physician and surgeon, in reply to a question as to what, if any additional treatment could be given to relieve and cure an injury, that amputation might or might not relieve it, was held to be purely speculative and should have been sricken out on motion. But it was held not prejudicial to the defendant where another physician testified without objection that the only thing that could be done to relieve the condition of the leg was to sever the leg and that would cause the loss of the use of the limb, which in turn would necessitate its amputation, and the defendant made use of this testimony to support the argument that it was the plaintiff's duty to have his leg amputated and thus reduce the damages.—Alpe v. Superior Coal Co., 208 Ill. App. 67.

Charges for Services.—The Louisiana Supreme Court holds that the testimony of a physician and surgeon, to the effect that he was employed by the mother of his patient, a married woman, rather than by the patient or her husband, and rendered valuable services, for which he considered the mother able to pay, but doubted the ability of the husband to do so, was strongly corroborated by the circumstance that the patient, having succeeded as sole heir to the estate of her mother, heard the testimony and did not take the stand to question its verity. It is a matter of common information that physicians and surgeons do not regulate their charges for professional services by any fixed standard of pecuniary value, but, to a certain extent, upon the basis of the ability of the patient to pay, and, on that basis, more frequently than otherwise, perhaps, are but poorly compensated. Where such services are shown to have been of the highest value, in so far as the life and welfare of the patient were concerned, and the charge was neither unreasonable nor inconsiderate, as compared with the financial ability of the employer, the court considered it should be allowed.—Succession of Levitan, (La.) 79 So. 829.

Military Medicine.

ETIOLOGY OF BENT BACK IN SOLDIERS.

MANY of the physical conditions of soldiers, some of them apparently serious, have come to be regarded as hysterical, and when suitable measures are employed in treatment by skilled neurologists their cure sometimes appears to be a ridiculously easy matter. Major A. F. Hurst, R. A. M. C., of Guy's Hospital, London, has been a pioneer both in diagnosing hysterical conditions simulating physical affections and in successfully treating the same. The Seale Hayne Military Hospital was opened on April 15, 1918, for the treatment of soldiers suffering from war neuroses. It is under the direction of Major Hurst. In conjunction with his colleagues he is publishing the "Seale Hayne Neurological Studies." In the second issue of the publication Hurst has contributed a paper on the bent back of soldiers in which he shows that most frequently this is an hysterical manifestation and is easily amenable to appropriate treatment. He points out that the soldier walking slowly and painfully with the aid of two sticks, bending far forward, his arms and legs often shaking with the effort, for all the world like the stage octogenarian, is becoming a more and more common sight.

A considerable amount of experience of this condition since the first case at Lemnos in November, 1915, convinced Hurst that the bent back of soldiers, however variable its etiology, is constant, being always hysterical in nature and consequently always curable by psychotherapy. The most common cause is a blow in the back, due either to the explosion of a shell hurling a man against the side of a trench or causing the parapet to fall on him, or to some accident which might equally well have occurred in civil life. Occasionally an actual wound is present, but this is always superficial, the spine itself having escaped. A history of muscular rheumatism is obtained almost as frequently, pain in the back having followed exposure to cold and damp generally in the trenches, but occasionally at the base or even in home camps. In the large majority of cases an uncomplicated hyphosis is present; in some cases there is lordosis or skoliosis, and occasionally both hyphosis and skoliosis are found.

Malignant Grippe in the Army.—Krafft describes an epidemic of influenza as it attacked a body of troops at Villeret in July, 1918. The latter numbered 500 and had arrived on June 26 to undergo some intensive training. On July 1, after but little drilling, men came to the ambulatory for slight ailments. On the following day 146 of the men sought aid, on the third day nearly twice that number, and on the 4th of the month 320 soldiers were in the infirmary with grippe. The symptoms showed remarkable constancy and the cases ran a mild course. As early even as July 5, 200 men returned to the ranks cured. In the next two days there were 100 more admissions and on July 7 there were still 200 cases in the infirmary. For the first seven days the disease remained mild. But on the 8th there was a notable and quite unmotivated change for the worse. The new victims were very ill and took to their beds at once, although during the mild period not a single soldier had gone to bed as an indispensable act. Instead of subsiding at the end of one or two days the disease persisted with new symptoms, as flushed face. It was no longer the grippe of the textbooks and clinics but a something which was variously termed "malignant," "asthenic," "asphyctic," "congestive," or "violette," from the suffusion of the face. From July 8 to August 2 this type raged. Up to the close of the first period there had been six deaths, but the first days of the grave form saw 15 men die. No further figures are given, but the plague extended to the civilians of the vicinity and destroyed many. The mild type presented a trocheobronchitis with an infantile migratory type of bronchopneumonia. The parenchyma of the lungs was largely spared. Despite the sharpness of the symptoms the men, as stated, were not very ill. After July 7 the picture changed. There was a congestion of the skin and mucosae. The whole surface was involved in the violaceous tint—the color of drowning by submersion. The lips and finger nails were cyanotic. The men were extremely weak and had much pain—headache, myalgia, eyeball ache, sore throat, pains in the chest, etc. They were hardly able to speak or swallow. The whole respiratory tree burned, the larynx being worst. The nose bled as a rule. There was a dry cough and the breath had a mouse-like odor. Fever was high and pulse rapid. There were evidences of extreme congestion of the lungs, which seemed "paralyzed." The patients remained in this condition from one to three weeks. Recoveries were seen in both non-pneumonic and pneumonic cases, chiefly the former. In the first type the symptoms were those of extreme congestion with at most a few small foci of bronchopneumonia. In the second type there were physical signs of massive lobar pneumonia or bronchopneumonia. Strange to relate, a clean cut, typical pneumonia was a good prognostic of recovery. Forecasts of death were a deepening of cyanosis and progressive dyspneal, all deaths taking place from asphysia. The author does not mention the fulminating cases of asphxiating influenza, so common in many epidemics. The blood was always thick and much hemolyzed and the urine always highly albuminous. Slight hemoptysis was usually connected with a focus of bronchopneumonia. Rusty sputum was not seen. Autopsy showed great variation as to the degree of bronchopneumonia from the volume of a nut to an entire lobe. There was never enough to explain the asphyxia which was due to a general engorgement. Under treatment the author lays great stress on venesection as the only means of reducing the congestion of the lungs. On account of low blood pressure infusion of saline solution is necessary. Men were bled as much as a quart. Neosalvarsan was used so freely that 164 separate injections were given. Despite this usage the author seems to have no great opinion of its efficacy. Aspirin, quinine, and caffeine used together were of much value. Camphor, however, proved to be the remedy of choice in the form of

injections of camphorated oil. Adrenalin was rather a disappointment and the colloidal metals absolutely inert. Alcohol was given only at the outset of the severe type. Of the 500 soldiers, not all of whom suffered, 6 per cent were killed—a high death rate for the military.—*Revue Médicale de la Suisse Romande*, December, 1918.

Losses in United States Forces.—Figures have now been compiled showing the total losses in our forces both here and abroad. During the war the total number of deaths from disease in the United States Army in this country was 32,165. Those killed in action abroad number 30,498, and those dying of wounds 12,899. There were in the American Expeditionary forces 2,626 deaths due to accident, while 18,927 died of disease abroad. Deaths in the Marine Corps numbered 2,129, and 738 were lost at sea. This makes a total loss of 99,976, including both officers and men.

Blinded in the War.—According to Major William Shoemaker, who was in charge of the eye departments of all the American hospitals in England, and has recently returned to his home in Philadelphia, the number of American soldiers blinded in the war is surprisingly small, there being not more than one hundred American soldiers who lost their sight abroad. Lieut.-Col. Allen Greenwood, who arrived in New York on January 25, said that of 110 cases of blindness which had been treated in Paris, 76 had returned to the United States. Lieut.-Col. James Bordley, in charge of the reeducation of blinded soldiers, sailors, and marines, at Evergreen Hospital, Baltimore, states that there are in that institution 123 men, and of this number 55 are totally blind.

Less Illness in Army Abroad.—Hospital reports from the Expeditionary Forces show that during the month of January the total number of sick and wounded American soldiers in France was 95,952, of which 67,295 were incapacitated as a result of disease and 28,660 from injuries.

Army Hospital Closes.—The American Red Cross Hospital at Neuilly, organized in the first week of September, 1914, by prominent Americans, including William K. Vanderbilt and Robert Bacon, and which has on a number of occasions been complimented for its work by the French Government, was closed on February 6.

Appreciation of Harvard Unit.—President A. Lawrence Lowell of Harvard University has made public a letter from Arthur J. Balfour, British Foreign Secretary, expressing the appreciation of the British Government for the work accomplished by the Harvard Surgical Unit while it was overseas. A portion of the letter reads: "Through two strenuous and memorable years the work of General Hospital 22, the largest hospital unit serving with the British Army, has held a record for skillful and untiring treatment of our wounded. The memory of so much service and self-sacrifice can never pass from us. It will be cherished in perpetuity by the relatives and friends of those whom the Harvard unit has tended with such admirable devotion."

Captain Russell W. Johnson, M. C., U. S. Army, of Jersey City, has been cited for the Legion of Honor and the Croix de Guerre by the French Government for distinguished service at Hospital No. 104, Beauvais, France, in recognition of his high moral valor and great professional ability.

Dr. Barbara Hunt, first director of the American Woman's Hospital at Luzancy, near Chateau-Thierry, has returned to this country.

Red Cross Sends Relief to Balkans.—Using Rome as a base, the American Red Cross is sending relief commissions to all of the Balkan States. A great quantity of supplies accumulated against possible needs in France and Italy will be drawn upon for Balkan relief. The work in north Serbia will be controlled by Lieut.-Col. Thomas W. Farnam, whose headquarters will be in Belgrade. Major J. P. Carey will have charge of the work in south Serbia, with headquarters at Salonica. Lieut.-Col. Edward S. Capps of Princeton will be the head of the Greek Commission. The program for Greece calls for the movement of 150 tons of supplies every week. The unit for Montenegro will be under the command of Major Edwin Grant Dexter. Lieut.-Col. Gideon H. Wells of Chicago, with a staff of sixty-five, and a supply equipment of 3,000 tons, will take care of the work in Roumania. Major G. C. Bellis, with a staff of twenty-five, will work in Albania.

Investigation Leads to Army Hospital Reforms.—After a careful investigation of conditions at General Hospital No. 1, Williamsburg, New York, by Col. J. R. Clayton of the Surgeon General's office, on complaint of the Women's Council of National Defense, a number of changes have been ordered which will ameliorate the conditions complained of, and the administration officers have been directed to endeavor by every means in their power to see that the patients have no cause for complaint.

Deaths in the Service.—Lieut. URBAN S. BIRD, M. C., U. S. Army, of Tampa, Fla., a graduate of Tulane University, New Orleans, in 1895, honorably discharged from the army on December 5, died about January 11, aged 52 years. He was a member of the American Laryngological, Rhinological, and Otological Society, for several terms city physician of Tampa, and surgeon of U. S. Volunteers, serving in Cuba during the war with Spain.

Lieut. OTTO LOUIS WINTER, M. C., U. S. Army, of St. Paul, a graduate of the University of Minnesota, Minneapolis, in 1915, chief of the orthopedic service in the reconstruction hospital, Fort Snelling, Minn., died from pneumonia, following influenza, at the home of his father, in River Falls, Wis., on January 2, aged 30 years.

Lieut. SAMUEL SOLOVEI, M. C., U. S. Army, of Brooklyn, N. Y., a graduate of the College of Physicians and Surgeons, New York, in 1917, aged 25 years, died from pneumonia at a base hospital in Brest, on October 15.

Lieut. LEWIS WESLEY KITCHENS, M. C., U. S. Army, Senatobia, Miss., University of Tennessee, Nashville, in 1914, aged 31 years, on duty with the American Expeditionary Forces in France, died in Calais, France, on October 30, from pneumonia, following influenza.

Lieut. WILLIAM FRANCIS RAFFERTY, M. C., U. S. Army, of Rensselaer, N. Y., a graduate of the Albany Medical College, in 1911, for two terms coroner of Rensellaer County, died suddenly from heart disease while making a professional call on January 15, aged 31 years.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, February 15, 1919.

CARDIAC AND MENINGEAL COMPLICATIONS OF MEASLES.

IT is not perhaps a generally recognized fact that measles attacks the cardiac serosa, but such is the case, although in a much smaller percentage than other eruptive fevers, such as scarlet fever and variola, which should in this respect be placed first upon the list. Unfortunately, most writers on the subject do not state in what proportion they have observed these complications, but in Carrieu's service at Montpellier there were four cases out of a total of four hundred cases of measles, therefore 1 per cent. Of these four cases of pericarditis one presented an endocarditis as well. There is no doubt but that these cardiac complications of measles are frequently overlooked because their evolution is silent and their commencement often overshadowed by the general symptoms of the measles, for it is at the height of the infectious process and usually in the more serious cases that the cardiac serosa becomes involved.

There may be some pain in the region of the heart, dyspnea, palpitations, and a recrudescence of the fever, but in many cases none of these functional symptoms is present and the physical signs alone exist and can be detected only by very careful auscultation. There are frictional sounds and more or less distinct murmurs, almost always accompanied by tachycardia, and frequently irregularity of the cardiac contractions. When these complications arise during convalescence, their progress is also insidious and their gravity moderate. For these reasons they are overlooked, but the persistence of the dyspnea and cough after cessation of the pulmonary accidents should draw the physician's attention to the heart. Sometimes a pericarditis or an endocarditis undergoes its evolution at the same time as a complicating bronchopneumonia or a serofibrinous pleurisy, and this has led some to maintain that the cardiac lesions are secondary to the pulmonary process. But in the cases where no pleurisy exists a metapneumonic origin of the pericarditis cannot be admitted because the pleura would have become the seat of the inflammatory process before the pericardium, and cases of unquestioned authenticity have been recorded where no pulmonary lesion existed and the cardiac lesions were primary.

As to the gravity of cardiac complications of measles, it is rather a delicate question to solve, given the variety of the lesions, but it goes without saying that a pericarditis with a large fluid collection is far more dangerous than one in which there is merely a localized fibrinous deposit which may escape notice. A dry pericarditis or one with a sercfibrinous collection has been more commonly met with, and no case of purulent or hemorrhagic pericarditis complicating measles has to our knowledge been recorded. The endocarditides are of either the ulcerating or vegetative type and are extremely rare.

Notwithstanding the rather considerable number of cases of meningeal complications of measles to be found in medical literature, the question is still rather obscure. In the first place, a classification of the cases is necessary, namely: (1) The meningitides due to the virus of the measles, and (2) the secondary meningitides due to a pericranial suppurative lesion, particularly an otitis media. The latter are so well known that they are of less interest, and it is to the first class that attention is to be particularly called. Most of these offer the vulgar symptoms of meningitis, viz., headache, delirium, convulsions, contractures, etc. But usually the symptomatology is incomplete and also lacks autopsy proof. And, what is more, when an opportunity to perform an autopsy has been offered, the lesions generally have had little which was characteristic (meningeal and cortical congestion, very intense venous stasis, etc.). But in no case has a microscopic or bacteriological examination been made, and we are unaware of any instance in which during life lumbar puncture has been resorted to. Nevertheless this complication of measles does actually exist without any question. Its clinical evolution varies extremely, but death is the usual outcome after a lapse of time common to the meningitides in general and accompanied by the usual phenomena.

PSYCHOTHERAPY IN INFLUENZA.

DURING the now senescent influenza epidemic there has perhaps not been so much tendency to be facetious regarding the prevalence of the disease as has been the case in other instances. Several years ago an operation for appendicitis was considered to be a legitimate topic for serious discussion with others who had experienced it on the one hand, and good material for comedy in the humorous weeklies on the other hand. By some ingenious mechanism of compensation devised by nature the human race is consoled by misery if shared. If a hundred people in your neighborhood have influenza and you get it too it is not regarded as so great an affliction as if there were no epidemic and you alone suffered from it.

We shall not here go into any arguments re-

garding etiology. Whether Pfeiffer's bacillus, in spite of its Koch-less condition, or the streptococcus hemolyticus or some hitherto undiscovered organism, can be held responsible is still so doubtful that we only touch upon it. The fact remains that there is some sort of infection which has ravaged the world, its victims presenting a more or less uniform clinical picture, one of the salient features of which is extreme prostration.

The type of physician who accepts uncritically every case of coryza, pharyngitis, bronchitis, and so on as a case of the "flu" can do an incalculable amount of harm. The nervous, apprehensive type of patient who shudders as he reads in the paper to-day of the hundreds who have died since yesterday—and, apropos, in times of an epidemic, newspapers should be prohibited from publishing these formidable lists—is creating within himself a condition of fear and depression which cannot but be heightened when his family physician is ready to call any coincident malady the "flu." A desire to talk about the number of cases he has of the epidemic, a desire to impress the individual patient, a desire for imitation, all these things and perhaps other components enter into this phenomenon. At any rate, whatever the cause, the fact remains that many persons are literally frightened to death by an injudicious and indiscriminate nosology.

Let us then insist to our patients that even during a pandemic such as the one now subsiding every sick person is not suffering from it; let us tell them that while there may be a number of instances of the epidemic in our practice, there are many more patients who have not it at all; let us, in short, dispense reassurance instead of pathophobia.

THE PREVENTION OF DENTAL DISEASE.

Dental diseases for some time have been a fruitful subject for discussion. To an infected condition of the mouth and gums has been attributed a variety of diseases, more or less serious, and undoubtedly it is in this respect a factor of very considerable importance.

The causes of dental caries, according to Mr. J. G. Turner (*Journal of State Medicine*, September, 1918), have been shown by experiment to be two: (1) The presence of carbohydrates, starches and sugars; (2) The presence of germs. Carnivorous and grass-eating animals are free from caries. The Esquimaux used to be practically carnivorous, and it was found on examination of skulls from an old Esquimaux graveyard that they did not suffer from caries. But to day they have added fine flour and molasses to their dietary and are afflicted with caries.

It has been stated frequently by some authorities that masticating hard food acts as a preventive of tooth decay by giving the jaws exercise and that a great deal of the decay existing is due to the ingestion of soft pappy foods. However, Turner is inclined to throw some cold water on the theory and is of the opinion that big jaws and fine teeth are more a racial characteristic than a product of much use of the teeth. So far as diet is concerned, he points out that the eating of fruit decidedly cleans the teeth on account of its acid content.

With regard to the prevention of caries, Turner insists that the one essential is thorough cleaning, that is, every tooth which is exposed in the cavity of the mouth should be well rubbed once a day. The toothbrush must be supplemented by the use of waxed silk thread so as to scour each interstitial surface. At all schools a nurse's time would be well spent in teaching and supervising the cleaning of children's teeth, and such teaching should be begun at the earliest possible age. It is urged that if this plan were conscientiously carried out much of the dental caries which now exists so widely would be prevented and at the same time the sequelæ of prolonged dental disease would never occur. Turner lays down as the great principle of treatment that septic teeth are far more injurious than absence of teeth and that therefore the treatment of both caries and pyorrhea when well established should be carried on somewhat on the lines of forestry, removing some to isolate others. That artificial teeth are not a necessity is a statement with which many persons will find fault, although it is doubtless true that some of the mechanical dentistry which is undertaken nowadays does more harm than good. From the esthetic standpoint alone artificial teeth are more or less essential and the scientific dentist is as necessary for the proper conduct of the hygiene of the mouth as the all 'round hygienist and sanitarian is to the preservation and maintenance of the public health. The value of the dentist has been conclusively demonstrated by the war.

The Pest in Dakar in 1914-5.

With so much talk about the masking of other pestilences by influenza an account of the real pest in an African city should be of interest. Such an account has been supplied by Dr. Marcandier of the French Marine Service, the original report being abstracted in the *Journal de médecine et de chirurgie pratiques* for December 10. The population of Dakar is from 150,000 to 180,000 souls. The indigenous inhabitants were attacked in April, 1914, and the town was not free from the disease until the following January. The disease was not rodent-borne, and not until July did these animals participate in the epidemic. Many cattle and sheep perished of the disease. At the outset the pneumonic form of plague was alone represented. Interhuman transmission was clearly the one in action. Gradually the bubonic form supplanted it, as if the rat, when it became infected, had passed the disease along to men through flea intermediation. At the outset the new cases were disseminated and later limited to certain streets or quarters of the town. The conditions were in all respects analogous to those seen in Morocco. African plague therefore differs notably from Asiatic plague, regarded pri-

marily as a disease of rodents. The infection was probably brought from Senegal, whence it arrived from Portuguese Guinea. Upon the first appearance of the disease a vigorous campaign was instituted against it. Quarantine, sanitary cordon, isolation of suspects, incineration, segregation of the indigenous, deratisation, and antiplague vaccination were all made use of, and many thousands received immunizing injections. Three injections were given as a rule. The protection is known to be very short, but serves admirably as an antiepidemic, although when so many other measures are used its exact value is unknown. The mortality among those attacked was 54 per cent. The total number of deaths in the city were less than 1,500, and in the entire Colony less than 5,000. Deaths among Europeans numbered about half a score. The actual death rate in the city was about 1 in 100 inhabitants, the incidence therefore being about 1 in 50.

Pemphigoid Angina in Influenza

Antin, a specialist, of San Sebastian, Spain, has seen 3 cases which Professor Moure thinks worth reporting in the *Revue de Laryngologie*. The cases agreed closely among themselves and were quite exceptional in the observer's experience. The patients were males, aged 10, 20, and 28 years of age. On the second, third, and fourth days of the disease bullæ appeared upon the velum palati and anterior pillars. There had been no coryza, laryngitis, or bronchitis. This outbreak was preceded by intense pain in the throat. After puncture of the blebs the pains mostly subsided. The outbreak was accompanied by an exacerbation of fever. The first diagnosis in the young boy's case was diphtheria, which was later seen to be quite erroneous. Professor Moure, in commenting on the cases, seems to think them unusual for the present epidemic, but as having some agreement with cases seen by him in 1889-90. In this he must be quite wrong for districts other than his own; in fact, in countries where the disease has been unusually severe, as Switzerland, much emphasis has been laid on the angina, and it has been illustrated in journals for the assistance of practitioners. In England a pseudomembranous angina has been described.

News of the Week.

Reeducation of the Blinded.—"Victory Over Blindness" was the title of an address by Sir Arthur Pearson, the blind founder and director of St. Dunstan's Hostel for Blinded Soldiers, of London, England, before a mass meeting at the Century Theater in New York City on the evening of February 4. Sir Arthur described his work in restoring blinded British soldiers to self-support. The blinded men at St. Dunstan's first "learn to be blind," according to Sir Arthur. In this process they are taught to go about independently, to use the typewriter, to write Braille, to dance, to row, and to play games of one kind or another. The next step is to teach the men some vocation by means of which they can support themselves comfortably. As many as possible are sent back to their former employment. Others learn to be expert masseurs, stenographers, carpenters, and so forth.

St. Dunstan's has an extensive after-care department which looks after the interests of the men after they have returned to their homes, sees to it that their training is effective, and that they are placed in employment or provided with home work.

Lieut.-Col. James Bordley, in charge of work for blinded American soldiers and sailors and director of the Red Cross Institute for the Blind, told of the work being done at Evergreen, Baltimore, for men of the American Expeditionary Force who lost their sight in action.

The meeting was presided over by Douglas C. McMurtrie, director of the Red Cross Institute for Crippled and Disabled Men, under the auspices of which organization the meeting was held.

New York Gains by Abolition of Coroners.—The Chief Medical Examiner of New York, has just submitted his report for the first year of his office which followed the abolition of the coroners' system. This report shows that, whereas the budget for the last year of the coroners (1917) was $158,000, that for the Medical Examiner for the first year was $92,000. This latter sum covers laboratory work of the greatest value that was not done under the former system. The report shows that there were during the year 1918 273 homicides, against 283 for 1917. There was an increase of more than 50 deaths due to accidental poisoning which is attributed to the more scientific ways of determining the cause of death. The report further shows that 311 persons committed suicide by using illuminating gas, 119 by jumping from windows, 92 by shooting and 88 by hanging. There were in all 526 accidental deaths due to illuminating gas, an increase of 25 over the previous year. Forty accidental deaths were due to morphine, heroin, opium, and cocaine. The Medical Examiner's office has under advisement recommendations for having commercial poisons, such as those for the extermination of rats and insects, put up in packages that show their deadly nature, inasmuch as many persons died during the year because they mistakenly took what they thought was medicine from packages containing pure poison.

Chemists to Study Value of Medicine.—Dr. Charles A. Herty in an address before the New York Academy of Sciences, on February 3 outlined the plans of the American Chemical Society. A ten million dollar foundation for drug research is contemplated which would have for its object the acquisition of knowledge of the effect of drugs on the human body and the fundamental reasons therefore, and independence of the rest of the world, especially Germany, in synthetic medicaments. Dr. Herty states that in the fiscal year preceding the war we imported 185 synthetic medicinals at a valuation of $1,033,000, 95 per cent. of this coming from Germany. A nation-wide endorsement of this plan has been received from chemists, pharmacologists, and manufacturers.

Prenatal Work in New York City.—At the annual meeting of the Maternity Center Associa-

tion of New York, held recently at the home of Mrs. Arthur Scott Burden, it was announced that the association has established twenty-two clinics and has under its care at the present time 7,400 expectant mothers. During the coming year the association plans to open more and larger clinics and to cooperate more closely with infant welfare organizations in an effort to determine the relation of prenatal care to infant mortality. It was stated that according to the United States census 16,000 women died in childbirth last year. There are today, according to the statistics supplied by the Federal Children's Bureau, at least 75,000 expectant mothers in New York City without medical or nursing attention. Among the speakers at the meeting was Dr. Henry Dwight Chapin, who said that 700 women died of childbirth in New York City last year. The Maternity Center Association maintains a working housekeeper service so that a competent woman is always available to go into the home and assist the mother with the house work and care of other children until she regains her strength.

Measure to Legitimatize War Babies.—Judges of the Children's Court and other agencies interested in child welfare work are supporting a bill recently introduced into the New York Legislature by Mrs. Mary M. Lilly, representative from the 7th Assembly District of Manhattan, providing for establishing the legitimacy of children born out of wedlock. The bill was promoted because of the increase of illegitimacy since the outbreak of the war. The bill provides that the identity of the father must be established by a court of law and is so framed that designing women cannot resort to the law for purposes of blackmail. A number of similar measures have in times passed been introduced into the Legislature, but none has been accorded serious consideration.

Grip Masks in Australia.—Because of the widespread prevalence of influenza the Government of Victoria has ordered that every one appearing on the streets or in public gatherings after February 10 must wear a mask. In order that this regulation may be carried out seven hundred thousand masks had to be manufactured before that time. Persons appearing without masks will be liable to arrest.

Red Cross Will Form Hygiene Classes.—Plans have been perfected by the Atlantic Division of the American Red Cross to develop public interest in the formation and maintenance of classes in home hygiene, care of the sick, and dietetics. Stress is to be placed upon the education program with the object of helping women to meet emergency demands in the home in case of sudden epidemic. Efforts will made to inaugurate the courses in industrial centers and in the high schools, and local boards of education will be urged to institute the work in the general curriculum. Enrollment for these courses which are to last six weeks may be made at any Red Cross headquarters or at the teaching center at 453 Madison Avenue, New York City.

Juvenile Delinquency in War.—Early in the war there was an alarming increase in juvenile delinquency reported from the European nations, and at the time the United States entered the war such an increase was prognosticated for this country. The records of the Children's Court of New York City show that so far as New York City is concerned these gloomy prophecies have not been fulfilled. The statistics compiled by the court clerks show that during the year 13,994 children were arraigned before the court, against 14,519 in 1917, a decrease of 525. Of these 6,978 were involved in special procedings, or in action in which improper guardianship was alleged, a decrease of 300 from 1917, and 7,016 were charged with juvenile delinquency, a decrease of 216. It is believed that interesting children in various phases of war work and making them feel a certain responsibility have been large factors in bringing about the decrease in juvenile crime in this city.

Plan World Conference on Child Welfare.—Miss Julia C. Lathrop, chief of the Child Welfare Division of the United States Department of Labor, has been in conference in Paris with a number of persons from Belgium and France relative to an International Child Welfare Conference to be held in the United States in April. It is planned to have the delegates convene in Washington and then tour the country and hold meeting in localities where there is opportunity for studying at first hand the problems involved in the betterment of children.

Physicians for Rural Communities in New York State.—As a result of letters received from a number of rural communities in New York State that are without physicians because of death, permanent military appointment, or other cause, the State Department of Health has undertaken to put the authorities in such places in touch with physicians desiring rural locations. Through advertisements in medical journals and newspaper publicity replies have been received to date from ninety-six physicians located in twenty States, and names have been sent to twenty-four communities.

Hospital for Palm Beach.—Through the efforts of Mrs. Hermann Oelrichs plans are being prepared for the erection of a hospital at Palm Beach. The necessary funds are in hand, bids have been asked for, and it is expected that work will soon be started.

Post War Course in Dental Surgery.—As a part of the Post War Course in Dental Surgery that is being conducted in this city under the auspices of the Preparedness League of American Dentists, a meeting was held in the New York Academy of Medicine, on February 8, at which Major Tait MacKenzie of Philadelphia, who served with the British Royal Army Medical Corps, gave an illustrated lecture on "Facial Prothesis and Appliances for Restoring Lost Function." Major Fred H. Albee, in charge of the United States General Hospital at Colonia, N. J., gave a motion picture demonstration of "Bone Grafting as Applied to Oral Surgery." The object of these lectures was to demonstrate to physicians and surgeons what could be done in case of injury of the face or jaw to restore function and secure a good cosmetic effect, even though they might not attempt to do this work themselves.

Pantagruel fell asleep, holding in his hand a copy of the Greek author Heliodorus.[9] He undoubtedly had chosen this author intending during the large leisure of an indolent day to be edified. In the same way I knew a most estimable woman, who, on every drowsy Sunday afternoon, would seat herself in a rocking chair with her Bible. Presently the Bible would be in her lap and she would be asleep.

In Rabelais' day the church was a career much more frequently entered than it is to-day. It was an enormous institution with immense revenues, and an infinity of places paying a small salary. Just such places as are loved by those who desire a secure living and an easy life, and yet whose wants are few. A very mediocre education in one of the universities was enough to obtain such a place, and this partly explains the great crowds of poor students who attended these seats of learning. Having secured the church living, the tendency was for the occupant to fall into routine, and to enable one to do this without embarrassment there was published a very popular book of sermons called the "Dormi Secure" or Sleep in Peace. The title meant that the preacher might sleep soundly and not arouse himself in the morning in order to compose his sermon, as sermons suitable for every conceivable occasion were all duly set forth in this convenient book.[10]

Rabelais was a monk, and although the word means "alone," it came, as Chesterton says, to mean a community, and a very close-knit intimate community. People when intimately thrown together for long stretches of time, as in camping parties or on yachts, become disagreeably aware of peculiarities in their neighbors, and Rabelais touchingly refers to snoring.

Carpalim, the swift one, went lightly among the Dipsodes and Giants, whom Pantagruel was besieging, and they did not remark him, so profoundly did they snore and sleep. So successful was he that he reached the place where they kept their artillery and set fire to their munitions, and ran considerable danger to his own life from the rapidity with which the powder blazed up.[11]

In another situation Rabelais mentions a community where the people gained their living by sleeping, and those who could snore the loudest made the most money.[12]

Alcohol As a Soporific.—In his famous enumeration of the five means of restraining carnal concupiscence, Doctor Rondibilis begins with wine. He had hardly got the words will out of his mouth when Friar John broke in with "I can well believe it, for when I am drunk I only want to sleep."[13]

It has been supposed that sleep is produced by a sort of soporific agent generated by our cellular activities while we are awake. The state of being asleep, however, is probably as normal as being awake, and it would be just as logical to suppose that during sleep an exciting agent was generated, which, when enough was produced, aroused the individual to conscious activity.

And what a mysterious event natural awaking is! To paraphrase Ambrose Bierce: What whispers into the ear of our spirit the mysterious awakening word which no human lips ever have spoken, no human memory ever has recalled?[14]

Howell believes that the regulation of the vasomotor system involved in the occurrence of sleep is effected mainly through variations in the cutaneous circulation.[15] This might explain the importance of sleep in the cure of many diseases of the skin involving the vascular system, as for example, eczema. We are accustomed to say that when a patient suffering from acute extensive eczema begins to sleep well his recovery is assured; even chemically induced sleep, as by bromide of potassium, is frequently a great aid in the treatment of such cases.

The most rational view of sleep seems to be that it is a periodic or rhythmical state of repose, which appertains to all cellular life, from the contractile vacuole of the ameba to the heart of man; the heart-beat, indeed, is the most striking example of this rhythmical succession of work and rest. It has been even calculated that the heart works just eight hours out of the twenty-four—that its contraction, its expansion and its period of rest correspond to eight hours of work and sixteen of rest. Many of our functions and our desires are periodic, hunger, for example; and our whole life, in the larger sense, is a period—we are born and after a period we die. The activities set up in the egg, and probably stimulated by fructification, exist for a period varying with the animal and then cease.

LITERATURE.

1. Book III, Chapt. XIII.
2. Gargantua, Chapt. XI.
3. Gargantua, Chapt. XXII.
4. Gargantua, Chapt. XXIII.
5. Pantagruel, Book III, Chapt. XIII.
6. Pantagruel, Book II, Chapt. IX.
7. Gargantua, Chapt. XLI.
8. Gargantua, Chapt. XLV.
9. Pantagruel, Book IV, Chapt. LXIII.
10. Gargantua, Chapt. XIV.
11. Pantagruel, Book II, Chapt. XXVIII.
12. Pantagruel, Book II, Chapt. XXXII.
13. Pantagruel, Book III, Chapt. XXXI.
14. A Horseman in the Sky, by Ambrose Bierce.
15. Physiology, by W. H. Howell, 1913, Page 263.

323 Geary Street.

DISTRESSING GENERAL AFFECTIONS TRACEABLE TO EYE CONDITIONS.

By J. A. KEARNEY, M.D.,

NEW YORK.

PROFESSOR OF OPHTHALMOLOGY NEW YORK POLYCLINIC MEDICAL SCHOOL AND HOSPITAL.

By a process of elimination of the probable causes of distressing general affections, a decision is usually finally obtained. Among the most frequent sources are irritations existing somewhere in the body, toxemias of various origins, and undue loss of nervous energy.

In the studies of elimination, errors of refraction and extrinsic ocular muscle imbalance are very often found to be fruitful sources of undue loss of nervous energy. Roughened and dry palpebral conjunctivæ most frequently produce irritations of consequence, although disturbances of other ocular tissues are held accountable for some conditions. It is surprising to note in some cases the marked reduction or entire loss of symptoms that takes place following the clearing up of a dry and roughened conjunctiva.

Headaches of various characters, malaise, vertigo, chorea, insomnia, melancholia, neurasthenia, flatu-

and later consulting physician to St. John's Hospital, Lowell, Mass., director of the school of hygiene in the Boston public schools from 1907 to 1915, instructor in the school for teachers at Harvard and the Massachusetts Institute of Technology, physician in chief of St. Elizabeth's Hospital, originator of "health days," and author of the History of Harvard Medical School. He held the rank of lieutenant-colonel in the Medical Corps of the Massachusetts V. M.

Dr. W. STANTON GLEASON of Newburgh, N. Y., died of Bright's disease at his home on February 3, aged 58 years. He was a graduate of New York University Medical College in 1886, a member of the American Medical Association, and the New York Academy of Medicine. He was senior attending physician to St. Luke's Hospital and consulting physician to the Highland Hospital and to St. Francis Hospital, Poughkeepsie. Dr. Gleason was a former president of the Medical Society of the State of New York.

Dr. PHILLIPE SHARPLESS HALL died at Philadelphia on January 16, at the age of 51 years. He was graduated from Hahnemann Medical College of Pennsylvania in the class of 1891. He was at one time professor of pathology in his alma mater, and he was a member of the American Institute of Homeopathy.

Dr. RALPH E. SHROM died at Philadelphia on January 26 as a result of pneumonia complicating influenza, at the age of 37 years. He was a graduate of Jefferson Medical College in the class of 1904, and he was a lieutenant in the United States Naval Reserve. He was a member of the Philadelphia County Medical Society, of the Medical Society of the State of Pennsylvania, and of the American Medical Association.

Dr. ALBERT A. G. STARCK died of heart disease at Philadelphia on January 30, at the age of 67 years. He was a member of the Philadelphia County Medical Society, of the Medical Society of the State of Pennsylvania, and of the American Medical Association.

Dr. JAMES H. WILSON died at Dover, Del., on February 1, at the age of 77 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1867. He was a member of the Kent County Medical Society, of the Medical Society of the State of Delaware, and of the American Medical Association. He had been since 1874 surgeon to the Delaware Railroad, at one time a member of the Dover Board of Education, for many years a member of the board of trustees of the State Hospital at Farnhurst, and he was secretary of the Medical Society of Delaware Examining Board.

Dr. WM. CHARLES GRIGGS died of heart disease at Philadelphia on February 2, at the age of 52 years. He was graduated from the University of New York Medical College in the class of 1890, and, after the usual hospital interneship, began practice in Philadelphia. He was a member of the Philadelphia County Medical Society, of the Medical Society of the State of Pennsylvania, and of the American Medical Association.

Dr. CHARLES HENRY RILEY, a graduate of the University School of Medicine, Baltimore, in 1880, died of a complication of diseases following influenza, at his home in Baltimore, on January 23, aged 63 years.

Correspondence.

NO FRATERNIZING.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Signs are not wanting that the propaganda of intrigue and crime of the German is continuing in this country. Conquered by the triumphant Allies and forced to abject military surrender, he is unrepentant, unchastened, arrogant. He counts upon being rehabilitated and is even now making ready to come to America to live among us and enter into competition with the relatives and fellow countrymen of those whom he murderously slew on the high seas. American soldiers released from German prison camps have told of the doctors who treated their wounds, making inquiries about our country and remarking casually that they expected to come here to practise as soon as peace was declared. They seem not yet to sense the utter contempt in which the world holds them.

The baby killing, fruit tree murdering, woman violating vandals have been stopped in their criminal career by the armies of General Foch. That this great soldier knows the duty of the hour is shown by the just and stringent terms of the armistice of November 11, and by the increasing severity of the subsequent renewals of this armistice. We need have no fear regarding the military conditions.

We may well take thought, however, of the insidious propaganda going on in this country to prepare a welcome for these bombers of hospitals and slayers of the innocent, their hands still stained with the blood of babes and virgins. "The less said the better," says one; "Let bygones be bygones," says another; "The *Lusitania* is old stuff now," says a third.

It is our duty to counteract this propaganda, so far as it concerns the medical profession at least. This generation must be through with the Boche and with all his works. The next generation may decide what it will do with him. The duty of the hour demands that all Americans keep the unregenerate Hun for the present on the other side of the water. Extended service in France has impressed upon me most deeply the extreme importance of debarring the Germans from all professional relations with us.

CHARLES A. POWERS, M.D.

THE HEALTH INSURANCE BILL.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—I beg to call your attention and that of your readers to the enclosed letter to the President of The Medical Society of the State of New York. It will require the early and united action of every physician in the State in the manner indicated in this letter to defeat for the fourth time the scheme for "Compulsory Health Insurance" now disguised as "Health Insurance."

Never before has this promotion worn so dangerous an aspect as at the present time. The trade mark "Yours for Health," long monopolized by the late, if ever existent, "Lydia Pinkham," has been appropriated bodily for political purposes in the highest political quarters.

JOHN P. DAVIN, M.D.

117 WEST 76TH STREET, NEW YORK.

T. H. Halsted, M.D.,
President Medical Society State of New York,
Syracuse, N. Y.
Dear Doctor:

In duty to the standards of our profession and to the welfare of the public whom we serve, I would like to call your attention, and that of the Council of the State Society to a measure now before the Legislature, and recommended for passage by the Governor in his message to the legislature.

This measure is a bill for what is called "Health Insurance." It is the same one essentially, which under the name of Compulsory Health Insurance has been defeated three times already by the efforts among others of the entire Medical Profession of this State. It is now advocated by the State Industrial Commission, and by a socalled "Association of Manufacturers." There is no evidence that the public and the medical profession upon whom would fall the loss and burden accruing from the passage of this measure have been consulted in any way in regard to its provisions.

At an initial outlay of $1,500,000 it would place upon the State Board of Health the duty of assuming charge of the health of the working population of the State, as well as those who would apply to it for special advice or treatment. It is a political attempt to put into practice the theory of the "Socialization of Medicine," at a time when the political socialization of every other form of enterprise is falling into disrepute.

Hitherto the State Society has waited until the eve of the passage of medical laws, before entering its protest formally before the legislature. On all such occasions we have received but a perfunctory hearing before a body more or less biased against an attitude of opposition to its findings.

I would suggest, now, that this matter be placed before every county medical society in the State for their immediate consideration, the results of which to be forwarded by the secretaries of these societies to the members of the legislature representing the various counties in the State. In this way the profession would command a hearing and compel a respect for their representations that hitherto they have not been able to command when this duty was delegated to a committee appearing before the legislature generally at the eleventh hour of its session.

Respectfully submitted,
JOHN P. DAVIN, M.D.,
Member Medical Society County of New York.
Secretary, Association for Medical Defence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, January 17, 1919.

Position of the General Practitioner.—The position of the general medical practitioner in England after the war is a matter that must remain to a certain extent the subject of speculation. At the same time the relegation of all consideration of the subject to some future period when there is definite material to work upon is a lazy and mischievous policy. Though we may not know exactly what is going to occur in many phases of medical life we are not without perfectly definite grounds for knowing that some things must happen and that others will not. The developments of medicine are an expression of national activities and will follow, supplement, or (still better) initiate improvements in those activities, and the leaders of medical thought in England, seeing that the reins of government are surely going to be assumed by the people, are trying to bring the medicine of the future into touch with popular needs. The task is not an easy one for while the science of medicine is all that is progressive, medical politics are apt to be terribly conservative.

Before the war to a great extent the life of the English general practitioner was not ordered on professional lines along which scientific progress and development were likely to be made. Let us take 45,000 as the total number of all the medical men in the United Kingdom actually alive. From this bulk we have to abstract, as well as those who had retired from practice through age or disinclination, three main bodies, namely: —the consulting class, men who held the hospital appointments, with their adjuncts of scientific, special and laboratory facilities; the official class, men who as officers in the service of the local government board, the Home Office and other departments, were in touch with the public in the discharge of their official duties but looked to Government authority for pay, pension and promotion; and the officers in the navy, army, Indian Medical Service and Colonial Service, who similarly were not directly dependent upon the public for the reward of their labors, however intimately those labors were concerned with that public. What remained over was the general practitioner class, at the one end of which we had the most highly equipped medical men whom, in a general sense, our good though anomalous system of education turned out, and at the other end the rank and file, concerning whose merits there can be absolutely no doubt. Without any individual distinctions this last and most numerous body form one of the most highly standardized bodies of educated men in the country. Everyone of them has made good in a series of prolonged tests laid down upon a general pattern by the Privy Council through the General Medical Council, and no one who knows anything about the work of the general practitioner of England can fail to see that some of the most competent clinical work discharged in the country is discharged by them; and as much by general practitioners engaged in panel practice as by others. Immediately before the war the panel practitioners under the National Insurance Act, numbering at least 14,000, had just got to work and while the good and the bad of the new system was becoming apparent, as well as the direction in which reform would be called for, the war broke out, and one-third at least of these men became temporary medical officers with the fighting forces. Such was the position before the war.

During the progress of the war, for reasons so obvious that they need not be dwelt upon in any detail, it became apparent to the country that national health was the greatest national asset and that the medical profession, especially the general practitioners who had the actual care of the sick population, were the class upon whom the actual responsibility devolved of maintaining national health. This view was accepted by statesmen of all caliber and politicians of all brands, and various schemes were mooted, having the same objective and most of them taking for granted that the promptest way of dealing with the situation would be to set up a Ministry of Health, a department in which would be centered

the care of the health activities of the nation. This is boldly and roughly the existing situation and the question is what concrete plans will be made immediately to meet it, and in those plans what part the general practitioner will be asked to play. All are aware now that the care of the health of the country is a matter of cooperation, first between the public and the medical profession, and secondly between all the branches of that profession. Official medicine must work hand-in-hand with the general practitioner. Medical men of special attainments, possessing particular scientific facilities, must fuse their energies with those of their brethren who are daily in contact with sick masses and whose treatment of these masses in bulk requires to be supplemented at all times and in every direction with the highest aid which can be given by modern knowledge. It is not that the general practitioners of the country must be given a chance to work along these lines; it is rather that *unless these are the lines upon which the developments of the future are made medicine will lose the service of the right sort of men.* The idea that there are consultants and officials and some others must entirely disappear out of the theories of education and out of bureaucratic legislation, and the promptitude with which they will so disappear would be remarkable if a real Ministry of Health were instituted in which the conditions of service for the general practitioner were fairly arranged. There must be local consulting centers, facilities for the transport of hospital patients from rural districts, extensive support of bacteriological laboratories as as an adjunct to provincial practice, and real intercommunication between the official and the general practitioners. Unless these things are provided for the Ministry of Health will not minister to health.

A Special Clinical Meeting of the British Medical Association.—The customary annual meeting of the British Medical Association will not take place in 1919, but will be replaced by a special clinical meeting to be held early in April. The annual meetings, which have been suspended for the last four years owing to the war, will be resumed in 1920, the seat of the meeting being Cambridge.

The Vaccines and Serums Supplied to the Royal Navy.—Previous to 1916 the greater part of the vaccines required in the Royal Navy were received from the inoculation department of St. Mary's Hospital, London, under the superintendence of Sir Almroth Wright. But since that date the navy has made itself responsible for its own vaccine-therapy, and vast quantities of vaccines and serums have been prepared in the laboratories of the Royal Naval College at Greenwich by the naval staff. The part played by vaccines and serum in the prevention of disease and the treatment in the Royal Navy is sufficiently indicated by the following summary of quantities prepared, which has been published by Captain P. W. Bassett-Smith, the professor of pathology and lecturer on tropical medicine at Greenwich College: Typhoid vaccine, 5400 c.c. Paratyphoid vaccine, 21,500 c.c. Triple typhoid vaccine (Naval formula), 247,700 c.c. The triple vaccine is a mixture of B. typhosus, paratyphosus "A," and paratyphosus "B" heated to 55 deg. C. for half an hour, 0.5 per cent. phenol is then added. Cholera vaccine, 8600 c.c. (Prepared from several strains of Balkan origin.) Antisepsis vaccine, 48,400 c.c. (A mixed polyvalent vaccine containing streptococci and staphylococci.) Influenza vaccine, 144,000 c.c. (A mixed polyvalent vaccine containing *B. influenzæ*, streptococci, and pneumococci.) Melitensis vaccine, 1380 c.c. Staphylococcic vaccine, 910 c.c. Tetanus antitoxin, 14,800 doses. Diphtheria antitoxin, 2400 doses. Antidysenteric serum, 2800 doses. Antistreptoccic serum, 1250 doses. Antimeningococcic serum, 5000 doses (and others in smaller quantities). Vaccine and serum treatments have their finest opportunities in the Royal Navy. The men are subjected to risk of every conceivable sort from tropical diseases, while the conditions in which they live make concealment of the conditions impossible, and dates of infection certain. Moreover the blue-jacket is an extraordinarily good patient, brave, disciplined, and eminently healthy and wholesome.

Progress of Medical Science.

New York Medical Journal.

February 1, 1919.

1. The Prevention of Mental Defect. H. G. Matzinger.
2. Granular Catarrhal Conjunctivitis. J. A. Kearney.
3. Some After the War Problems of Medicine. Ira S. Weil.
4. Influx of Venereal Disease Through the Mercantile Marine. William Moore.
5. Some Clinical Aspects of the Recent Influenza Epidemic. Augustus A. Eshner.
6. White Sulphur Springs, W. Va., a Source of Epidemic Coryza. H. H. Roberts.
7. Artificial Pneumothorax. B. Stivelman.
8. Some Pathological Conditions of the Mouth and Their Treatment. Chalmers J. Lyons.

8. Some Pathological Conditions of the Mouth and Their Treatment.—Chalmers J. Lyons points out the responsibility that rests with the educated dentist of the present day whose duty it is to make a thorough examination not only of the tooth surfaces, but of the mucous membrane, tongue, tonsils, pharynx, and salivary glands. Although the *x*-ray is indispensable in dental practice, other factors must be considered in arriving at a diagnosis; the pathological must be differentiated from the physiological and the radiograph employed as a further means of reaching a definite conclusion. One of the most perplexing problems met with is that of obscure pain localized in the jaws. Healthy teeth are frequently sacrificed in an endeavor to eliminate a possible source of socalled neuralgia, whereas the real source of the pain may be a paratonsillar abscess or a tooth in the other jaw. Goldscheider has suggested that in the Gasserian ganglion there are certain nerve cells which have either split fibers or two separate nerve fibers, one running in one division of the fifth nerve and the other in one of the other divisions of the same nerve. If the source of infection is in either the second or third division of the fifth nerve, a diagnosis can usually be made by blocking off a section of the branch and observing the results. In regard to tic douloureux, it is contended by many able brain surgeons that its etiology is of central origin. Neither removal of the teeth, nor injections of alcohol, nor even neurectomy offer permanent relief, and in the author's opinion operation on the ganglion itself is the only means of obtaining this. Another type of referred pain is that arising from an old syphilitic lesion. This improves under antisyphilitic treatment. The primary lesion is frequently found on the lip or on the tonsils; seldom on the cheek or tongue. It can be differentiated from certain forms of stomatitis in that the chancre is painless and usually causes enlargement of the lymph nodes. Secondary syphilitic manifestations of the mouth are usually of an erythematous or ulcerative type, commonly seen on the oral pharynx as an in-

flammatory area, attended by little or no pain. Mucous patches may be observed on the edge and tip of the tongue, on the dorsum of the tongue, uvula, and fauces, or on the inner surface of the lips. They are irregular patches of greyish white color, covered by a sticky secretion and may be differentiated from other lesions in that they are unaccompanied by pain. Gummatous ulcers in the mouth—tertiary syphilis manifestations—may be mistaken for carcinoma. On the tongue they usually appear over the whole upper surface, whereas carcinoma would be confined to the edge or one side of the tongue. Carcinoma, however, frequently supervenes on an old syphilitic lesion. In all cases suspected of syphilis, nothing should be done until a Wassermann test has been made. Leucoplakia is a precancerous condition which is invariably caused by excessive use of tobacco. The similarity between leucoplakia and secondary syphilis is often confusing. Syphilitic plaques usually appear on the border and back of the tongue and at the same time other patches may be observed on the gingiva, palate, or tonsils. They are soft, whereas those of leucoplakia are hard. Since the dentist has opportunity of observing precancerous conditions long before the physician sees the patient—when it is frequently too late to eradicate the disease—it is the duty of the dentist to direct the patient's attention to such conditions and, if possible, to have a microscopical examination made. Dentigerous cysts are frequently seen in the mouths of men and women under thirty, and may be mistaken for a tumor or an alveolar abscess. They may be differentiated from an osteoma since fluctuation and crepitation can usually be elicited. They differ from alveolar abscess in that they are very slow in formation and not accompanied by pain. These cysts should be widely opened and the unerupted tooth or tooth follicles and the cystic lining removed. The author has obtained good results from packing the cavity with iodoform gauze and irrigating with five per cent. salt solution every twenty-four hours. Absorption of bone is the most serious sequela. Epulis occurs frequently in childhood and in young adults, and is more common in women. There are two varieties—the fibrous and the giant cell, the latter being the more frequent. Growth is slow at first but becomes rapid as the tumor progresses, causing the teeth to spread apart with consequent loosening. The tumors, which remain attached to a small stalk, are benign at first but later become malignant. They should be removed as soon as identified, and examined microscopically. The portion of the periosteum or alveolar process to which they are attached should also be removed, and actual cautery employed to sere over the wound. Another important and not infrequent pathological condition of the mouth is Vincent's angina, which is characterized by a deep tissue necrosis, covered by a whitish grey membrane. This membrane is easily removed and when rubbed off leaves a granular, raw, bleeding base, which leads to craterlike ulcers with irregular edges. The condition is infectious but prognosis is usually favorable and if seen early, these cases can be easily controlled. In disease of the antrum of Highmore, the author believes that closer cooperation between the dentist and the rhinologist is needed. Three principles must be kept in mind in the treatment of empyema of the antrum: the source of irritation must be removed, drainage must be established, and ventilation must be maintained. A correct diagnosis is of the utmost importance, as it is essential that the source of irritation be removed or the opening will not close. The author then turns to morbid conditions involving the pericemental membrane. The difficulty here is to decide whether to extract the tooth or to perform root resection. This again is largely a question of diagnosis. The health, age, and recuperative force of the patient must be considered, as well as the condition of the blood supply to the apical area; that is, it must be decided in each individual case whether or not conditions are favorable to normal repair of bone. The proper evaluation of x-ray findings is of great importance. If the case is one of alveolar abscess of long standing, or a case of imperfectly filled root canal with granuloma showing in the apical area, surgical procedure is indicated. Before root resection is done, a crown or bridge attachment should be removed, the canals and dental tubules thoroughly sterilized and the canals filled; otherwise reinfection will occur. Sterilizing and completely filling canals in multirooted teeth for the eradication of an infection the author considers a doubtful procedure, believing that the patient's welfare would be better safeguarded by extraction followed by curettage of bone. This operation should not be resorted to when the bone and pericemental membrane are diseased beyond the apical third of the root.

Journal of the American Medical Association.

February 1, 1919.

1. Hemolytic Streptococci, with Special Reference to Their Role in Acute Respiratory Infections. David J. Davis.
2. The Importance of the Louse Problem. Harry Plotz.
3. Intestinal Parasites During a Year at the Walter Reed General Hospital. M. W. Lyon, Jr.
4. The Diagnosis of Mitral Regurgitation (Valvulitis). Marcus A. Rothschild.
5. Slow Intravenous Injection of Antiserum to Prevent Acute Anaphylactic Shock. Julian H. Lewis.
6. Bacteriologic Control in the Treatment of Streptococcus Empyema. A. L. Garbat.
7. Irritable Bladder in Women. Charles A. L. Reed.
8. Empyema Following Influenzal Pneumonia: Observations on the Epidemic at Camp Grant, Ill., September-October, 1918. Max Ballin.
9. Fracture of Cervical Vertebræ, with Restoration of Bony Substance. L. F. Luckie.

5. Slow Intravenous Injection of Antiserum to Prevent Acute Anaphylactic Shock.—Julian H. Lewis reviews the various methods tried from time to time in an effort to prevent anaphylactic shock. The use of hypertonic salt solution was found to diminish anaphylactic shock in animals but there are no reports of the use of this procedure in man. The methods usually employed are those worked out by Besredka, namely, the administration of minute single or repeated doses of antigen three or four hours before the full injection is given, or the rectal injection of from 5 to 10 c.c. of serum, when gradual absorption of antigen occurs. Another method, suggested by Friedberger & Mita, is that of slow administration rather than division of dose. It having been shown that the danger of serum sickness was influenced by the size of the dose, the logical procedure was the production of antiserums with a higher concentration of antibodies. But though it was possible—particularly in diphtheria—to give large doses of antibodies in a small volume and thus lower the severity of anaphylaxis, serum sickness was not prevented. In the case of pneumonia, the concentration of antibodies has not been successfully accomplished and furthermore the promulgators of the use of antipneumonic serum advise the direct intravenous injection of doses as large as from 50 to 100 c.c. These two factors no doubt are responsible for the serious anaphylaxis reactions reported from army camps. The author believes that the slow protracted injections of diluted serum, as advocated by Friedberger and Mita, is the method best adapted to the conditions, particularly if the Woodyatt pump is employed. The results of animal experimentation have led him to the following conclusions: That acute anaphylactic shock can be prevented in sensitized experimental animals by giving otherwise fatal doses of diluted antigen intravenously at very slow rates. That so far as these results can be applied to man, it is to be recommended that when immune serum must be given intravenously, it should be given slowly and in a diluted form, the Woodyatt pump serving as an excellent means of doing so. The exact quantitative relations must be worked out experimentally with patients. At present it can only be said that the injections should be made as slowly and the dilutions should be as high as is convenient or necessary under a given set of conditions.

8. Empyema Following Influenzal Pneumonia.—Major Max Ballin gives the results of his observations on the epidemic which occurred at Camp Grant, Ill., in September and October last. He points out that in the treatment of empyema it is necessary to differentiate between three types: (1) The empyema following hemolytic streptococcus infection, which occurs early as an exudate in the first week of the pneumonic process, is thin, very copious, and capable of being absorbed, and should be handled, if necessary to relieve pressure, with aspiration, operating by costectomy only after the pneumonia has subsided. (2) The empyema following lobar pneumonia. This sets in four weeks

after pneumonia, is of good prognosis, and can safely be handled with costectomy. (3) The empyema following influenzal pneumonia. This also develops four weeks from the onset of the process. On account of serious and frequent metastatic suppuration, its prognosis is more severe than that of form 2. It is best handled by thorough drainage, by costectomy under local anesthesia. Major Ballin emphasizes the importance of local anesthesia in operations for empyema, in view of the frequency of sudden death from suffocation under general anesthesia. He describes the technique of the operation and states that of seventy-nine patients operated upon eleven died, all of whom, however, had severe complications. The first thirty patients were treated with neutral solution of chlorinated soda, every attention being paid to the details of administration, and of this group eight died. The remaining forty-nine patients were given dry treatment, with three deaths.

The Lancet.

January 18, 1919.

1. The Examination of the Vermiform Appendix by *X*-Rays. E. I. Spriggs.
2. Acute Appendicitis and Acute Appendicular Obstruction. Captain S. T. Irwin.
3. The Control of the Upper Fragment in High Fractures of Femur and Humerus by a New Form of Pelvic-Femur Splint and Arm Splint. Major John Robert Lee.
4. Meningococcus Bronchopneumonia in Influenza. Captain Wm. Fletcher.
5. Apparent Immunity from Influenza at a Public School. G. E. Friend.

4. Meningococcus Bronchopneumonia in Influenza.—Captain William Fletcher submits the results of a study of 36 fatal cases of bronchopneumonia which occurred in American soldiers, in 11 of which Pfeiffer's bacillus was found in association with the meningococcus. The other cases were due to combined infection with this bacillus and pneumococci or streptococci. Beyond possibly a greater tendency to hemoptysis, there were no clinical signs to distinguish the cases of meningococcus bronchopneumonia. None showed any signs of meningitis before or after death. Summarizing these cases, the author states that: (1) In the postmortem examination of 36 men who had died from bronchopneumonia following influenza, Gram negative cocci were the predominant organisms found in the lungs of 11 cases. (2) All the men, with one exception, had been taken ill on board the same transport. (3) In six cases these Gram-negative cocci were Type II meningococci and in one case they belonged to Type I. In four instances the cocci were not tested by agglutination. (4) In each of the 11 cases Pfeiffer's bacillus was found in symbiosis with the Gram-negative cocci. (5) The meningococcus, like other "respiratory" organisms, may, when it occurs in conjunction with Pfeiffer's bacillus, produce a fatal bronchopneumonia.

British Medical Journal.

January 11, 1919.

1. Observations on Administration of Arsenic in Syphilis. Major W. T. Lockhard and Captain J. R. Atkinson.
2. On the Agglutinative and Opsonic Action of Certain Chemical Substances on the Red Blood Corpuscles. The Relation between this Artificial Agglutination and Agglutination by Serum, and the Bearing of These Observations on the Agglutination and Phagocytosis of Pathogenic Organisms. Colonel C. J. Bond, C. M. G.
3. Cancer of the Tongue (Abstract of Bradshaw Lecture). D'Arcy Power.
4. Note on a Case of Acute Febrile Polyneuritis. R. W. Dale Hewson and R. M. Stewart.
5. Streptococcal Invasion of the Cerebrospinal Fluid. Captain C. J. Marshall.
6. Influenza Epidemic in Q. M. A. A. C. Hostel, Edinburgh. A. Mercer Watson.
7. Vaccine Treatment of Influenza. Surgeon Lieutenant R. E. Tottenham.
8. Myological Principles: A New Ulnar Splint. Captain Stuart A. Moore.

4. Note on a Case of Acute Febrile Polyneuritis.—R. W. Dale Hewson and R. M. Stewart report a case of acute febrile polyneuritis which, as far as the authors are aware, is the first that occurred in the British Salonica force. The symptoms exhibited conformed closely to those described by Holmes in the cases that occurred in France. The sudden onset of illness in a healthy man with feeling of malaise and slight fever, but no shivering, vomiting, sweating, or other symptoms characteristic of malaria, the rapidly developing flaccid motor paralysis, the implication of certain cranial nerves, the early loss of sphincter control, and the relatively insignificant sensory changes. The lower limbs showed a marked degree of paralysis, but no individual movement was impossible, nor were the distal segments of the limbs more paretic than the proximal. Muscular atrophy occurred to a very slight degree. The muscles of the upper limbs were much less severely affected. No affection of the intercostal or abdominal muscles was noted. Complete paralysis of all muscles innervated by the seventh cranial nerves was observed on the third day of the patient's illness, and formed a striking feature of the clinical picture. Articulation was slurred and indistinct. Neither the tongue nor the palate was involved, but the patient experienced difficulty in swallowing. There was no involvement of the muscles of mastication, and phonation was unaffected. The reactions of the pupils were normal, but paresis of the left external rectus was noted, and the patient complained of occasional double vision. Cutaneous sensory disturbance was very slight. At first slowness of perception of tactile and painful stimuli was noted, and at a later date a raised threshold for the appreciation of simultaneously applied compass points. Joint sense and vibration "sense" were apparently normal. The abdominal and plantar reflexes were absent; also the deep reflexes (except the triceps jerks). Incontinence of feces existed for two days. There was no disorder of mental functions. Definite improvement was noted twelve days after the onset of the symptoms. Examination of blood, the cerebrospinal fluid, and the urine yielded negative results. It remains to be noted that in one or two particulars the patient did not conform to the usual clinical features. While sphincter trouble was very transient, the difficulty in swallowing persisted up to the time of the patient's evacuation from Macedonia. Paralysis of the diaphragm, not hitherto recorded, was present in this case. The proprioceptive forms of sensation, which are said to be frequently involved, were unaffected. Although a typical malarial attack occurred on the twenty-first day of illness, the parasite of benign tertian fever being demonstrated in the blood, the authors are of opinion that this fact furnishes no conclusive proof that the case reported was conditioned by the malaria toxin. There was no history suggestive of malaria, nor was the parasite found until the patient had been three weeks in hospital. Moreover, a differential blood count gave normal results. The authors, however, base their opinion chiefly upon the fact that in cases of post-malarial multiple neuritis that have come under their observation, the clinical features have been very different from those described in the case reported. The recent occurrence of a variety of polioencephalitis in epidemic form in the British Isles suggests the presence of some such pathological basis, but the complete integrity of the mental functions and the clinical course of the symptoms observed in this case, renders such an etiology extremely unlikely.

Berliner klinische Wochenschrift.

December 2, 1918.

The Serum Treatment of Diphtheria.—A. Czerny sums up the present state of uncertainty regarding the real value of the serotherapeutic treatment of diphtheria since Bingel declared, with statistics to back him, that the action of simple horse's serum was equal to that of prepared horse's serum. The recent discoveries on the curative action of albumins injected in the muscles or veins would seem, in fact, to divide the efficacy of antidiphtheritic serum between serum albumin and antitoxin properly speaking. However, until more extended experimentation, there is no reason for changing the classic treatment of diphtheria with specific serum in any way.

The Forms of Septicemia Due to the Bacillus of Tuberculosis, the Typhobacillosis of Landouzy, and Miliary Tuberculosis.—M. Scholz brings forward to illustrate this still much debated subject an interesting case. The patient, a woman fifty-six years of age, ill for three weeks with a symptomatology entering into

the typhoid class, without, however, showing any roseola. The sterility of the blood led the writer to conclude that the case was one of miliary tuberculosis. At autopsy there were no granulations visible macroscopically and only the usual pathological changes of a septicemia were noted, but microscopically small foci of necrosis containing acid-resistant bacilli were discovered in the liver, spleen, and other viscera. Scholz states that this clinical observation would be placed in the class of Landouzy's typhobacillosis; however, he refuses to regard this as a form of disease and prefers to call it superacute tuberculous septicemia. He points out that the anatomic status does not differ from the classic miliary form other than by an absence of granulations and that this difference is the result of the reactivity of the patient and that therefore it should not be transferred from the general class of miliary tuberculosis. The possibility of such septicemic varities with a mild evolution, such as Landouzy describes, cannot be entertained according to the writer's view, since the absence of miliary granulations should be regarded as improper for maintaining this theory. A rather complete bibliography is appended.

Münchener medizinische Wochenschrift.

November 26, 1918.

The Functions of the Human Appendix.—K. Peter desires to oppose the tendency to look upon the appendix as a rudimentary organ of no use. A foundation of value for the assertion that this organ is useless cannot be found either in comparative anatomy or embryology. From its structure the appendix belongs to the group of lymphoepithelial organs and therefore is similar to the thymus, tonsils, etc. (a fact known for the past thirty years or more but coming from Germany it must be new). Although recognizing that removal of the organ does not unfavorably influence the general health, Peter attributes a function to the appendix which is as yet enigmatical.

The Prevention of the Phenomena of Hypersensibility in the Parenteral Exhibition of Heterospecific Albumin.—E. Friedberger, well known for his theories relating to anaphylaxis, recalls the procedure of small doses employed with the object of preventing anaphylactic reactions when giving animal sera. This procedure of sensibilization attains the maximum of its efficacy when the injections are given as progressively in amount as possible. The writer describes a simple form of syringe which permits giving a slow, graded injection. Experimental researches have shown that his manner of procedure allows one to go far beyond the ordinary fatal dose to the extent of twenty times its strength in sensibilized animals.

The Triceps Muscle Used as a Motor Force in Prostheses.—H. Böhm studies the deformity produced by transversal section in an amputation stump when the triceps contracts. This change can be utilized for transmitting, by means of a pulley, traction in the direction of the axis of the arm and this mobilizes the parts composing the prosthesis. In the same way the movement of rotation of the humerus in the axis of the arm can be utilized for accomplishing movements of pronation and supination in the artificial limb. The writer gives a figure showing the mechanism of the principles laid down.

Deutsche medizinische Wochenschrift.

November 28, 1918.

Silver-Sodium Salvarsan.—Galewsky gives a favorable report on this product, put on the market by the bacteriologist Kolle, which accords with the writers on the subject already noted in these abstracts. The product possesses an energetic action in much smaller doses than required by neosalvarsan. The writer is of the opinion that this higher efficiency is due to the combination of metallic silver with the salvarsan radicle and that it results that Kolle's product avoids the dangers of intensive arsenical treatment while assuring the same therapeutic effects. The most evident results are obtained in luetic manifestations on the mucosæ, either of the secondary or tertiary types. The product, like Ehrlich's original 606, is patented and the numerous articles describing it are evidently in the nature of advertisements.

The Serum Treatment of Influenza.—E. Reiss has injected various sera in influenza patients, such as normal human serum, serum obtained from those convalescing from the grippe, normal horse serum, antidiphtheritic serum, etc. Generally speaking, the writer noted a marked improvement following these injections at the end of thirty-six hours. The best results were obtained with the serum of convalescents and normal horse serum. The writer is of the opinion that the good results are due to a general action of the serum as a blood serum *per se*, rather than to a specific action.

Variola Without Exanthema.—Kathe insists upon the importance of these cases from the viewpoint of epidemiology, and relates some recent experiences. The cases observed by the writer offered a rise in temperature and general signs common to variola. Out of a total of five cases only one offered an eruption which was characteristic of the disease and therefore gave the clue to the real condition of affairs, the other four patients going through their variola without an exanthema or pustules. The writer attributes this mild evolution to vaccination which all soldiers had received at the beginning of the war. From the viewpoint of contagion it goes without saying that these patients are quite as dangerous, even more so, than frank cases on account of the possibility of overlooking the correct diagnosis.

Le Progrès Médical.

December 14, 1918.

Intravenous Injections of Camphorated Oil in the Asphyxiating Types of Grippe.—Loeper and Fumouze do not include pneumonic forms under this head. In the type referred to the patient is stricken in the midst of apparent health with fever which is not as high as a rule as in pneumonias. The skin is very pale, excepting where cyanosis is present and severe dyspnea is prominent of a form suggesting uremia. The physical signs do not reveal any one focus of disease in the lungs, but the râles heard everywhere suggest congestion and edema. Expectoration is scanty, but hemoptyses sometimes occur. This does not always mean that there is no secretion in the air passages, for some patients are unable to rise and are suffocated by their own secretions. The heart is weak and dilated and its action very rapid. Seven autopsies agreed in showing a mixture of infarcts, congestion, and edema with absence of pneumonic foci. As a rule albuminuria was present and acute uremia was thought of, but examination of the blood showed absence of retention of urea. The whole picture suggests an intoxication of unknown character which attacks the bulbo-vagus system. The untreated patients with these forms have invariably perished in two or three days. Next to the thoracic organs the nerve centers suffer, as delirium and mental confusion are usually present. The treatment of these cases must be heroic and consist of venesection with infusion of adrenalized serum and camphorated oil injected into the venous system. The authors have with this treatment cured twenty out of thirty-eight cases, which in a disease of 100 per cent. mortality is very satisfactory. The amount of camphor injected is 2 c.c. of a 10 per cent. solution daily throughout the course of the disease. The immediate effects are very striking, as the entire disease picture improves promptly.

La Presse Médicale.

December 26, 1918.

Minor Forms of Graves' Disease.—Lian discusses this much described syndrome, apparently because it is still far from being clarified. If a subject have palpitation and tachycardia has he an abortive form of Graves' disease? The question is a delicate one to decide. We have no biologic reaction to settle it and must depend on resources of some sort to differentiate between this and other forms of tachycardia. Paroxysmal attacks are at once excluded as far as the latter is concerned, for there must be a permanent acceleration of the heart

the care of the health activities of the nation. This is boldly and roughly the existing situation and the question is what concrete plans will be made immediately to meet it, and in those plans what part the general practitioner will be asked to play. All are aware now that the care of the health of the country is a matter of cooperation, first between the public and the medical profession, and secondly between all the branches of that profession. Official medicine must work hand-in-hand with the general practitioner. Medical men of special attainments, possessing particular scientific facilities, must fuse their energies with those of their brethren who are daily in contact with sick masses and whose treatment of these masses in bulk requires to be supplemented at all times and in every direction with the highest aid which can be given by modern knowledge. It is not that the general practitioners of the country must be given a chance to work along these lines; it is rather that *unless these are the lines upon which the developments of the future are made medicine will lose the service of the right sort of men.* The idea that there are consultants and officials and some others must entirely disappear out of the theories of education and out of bureaucratic legislation, and the promptitude with which they will so disappear would be remarkable if a real Ministry of Health were instituted in which the conditions of service for the general practitioner were fairly arranged. There must be local consulting centers, facilities for the transport of hospital patients from rural districts, extensive support of bacteriological laboratories as as an adjunct to provincial practice, and real intercommunication between the official and the general practitioners. Unless these things are provided for the Ministry of Health will not minister to health.

A Special Clinical Meeting of the British Medical Association.—The customary annual meeting of the British Medical Association will not take place in 1919, but will be replaced by a special clinical meeting to be held early in April. The annual meetings, which have been suspended for the last four years owing to the war, will be resumed in 1920, the seat of the meeting being Cambridge.

The Vaccines and Serums Supplied to the Royal Navy.—Previous to 1916 the greater part of the vaccines required in the Royal Navy were received from the inoculation department of St. Mary's Hospital, London, under the superintendence of Sir Almroth Wright. But since that date the navy has made itself responsible for its own vaccine-therapy, and vast quantities of vaccines and serums have been prepared in the laboratories of the Royal Naval College at Greenwich by the naval staff. The part played by vaccines and serum in the prevention of disease and the treatment in the Royal Navy is sufficiently indicated by the following summary of quantities prepared, which has been published by Captain P. W. Bassett-Smith, the professor of pathology and lecturer on tropical medicine at Greenwich College: Typhoid vaccine, 5400 c.c. Paratyphoid vaccine, 21,500 c.c. Triple typhoid vaccine (Naval formula), 247,700 c.c. The triple vaccine is a mixture of B. typhosus, paratyphosus "A," and paratyphosus "B" heated to 55 deg. C. for half an hour, 0.5 per cent. phenol is then added. Cholera vaccine, 8600 c.c. (Prepared from several strains of Balkan origin.) Antisepsis vaccine, 48,400 c.c. (A mixed polyvalent vaccine containing streptococci and staphylococci.) Influenza vaccine, 144,000 c.c. (A mixed polyvalent vaccine containing *B. influenzæ*, streptococci, and pneumococci.) Melitensis vaccine, 1380 c.c. Staphylococcic vaccine, 910 c.c. Tetanus antitoxin, 14,800 doses. Diphtheria antitoxin, 2400 doses. Antidysenteric serum, 2800 doses. Antistreptoccic serum, 1250 doses. Antimeningococcic serum, 5000 doses (and others in smaller quantities). Vaccine and serum treatments have their finest opportunities in the Royal Navy. The men are subjected to risk of every conceivable sort from tropical diseases, while the conditions in which they live make concealment of the conditions impossible, and dates of infection certain. Moreover the blue-jacket is an extraordinarily good patient, brave, disciplined, and eminently healthy and wholesome.

Progress of Medical Science.

New York Medical Journal.

February 1, 1919.

1. The Prevention of Mental Defect. H. G. Matzinger.
2. Granular Catarrhal Conjunctivitis. J. A. Kearney.
3. Some After the War Problems of Medicine. Ira S. Weil.
4. Influx of Venereal Disease Through the Mercantile Marine. William Moore.
5. Some Clinical Aspects of the Recent Influenza Epidemic. Augustus A. Eshner.
6. White Sulphur Springs, W. Va., a Source of Epidemic Coryza. H. H. Roberts.
7. Artificial Pneumothorax. B. Stivelman.
8. Some Pathological Conditions of the Mouth and Their Treatment. Chalmers J. Lyons.

8. Some Pathological Conditions of the Mouth and Their Treatment.—Chalmers J. Lyons points out the responsibility that rests with the educated dentist of the present day whose duty it is to make a thorough examination not only of the tooth surfaces, but of the mucous membrane, tongue, tonsils, pharynx, and salivary glands. Although the *x*-ray is indispensable in dental practice, other factors must be considered in arriving at a diagnosis; the pathological must be differentiated from the physiological and the radiograph employed as a further means of reaching a definite conclusion. One of the most perplexing problems met with is that of obscure pain localized in the jaws. Healthy teeth are frequently sacrificed in an endeavor to eliminate a possible source of socalled neuralgia, whereas the real source of the pain may be a paratonsillar abscess or a tooth in the other jaw. Goldscheider has suggested that in the Gasserian ganglion there are certain nerve cells which have either split fibers or two separate nerve fibers, one running in one division of the fifth nerve and the other in one of the other divisions of the same nerve. If the source of infection is in either the second or third division of the fifth nerve, a diagnosis can usually be made by blocking off a section of the branch and observing the results. In regard to tic douloureux, it is contended by many able brain surgeons that its etiology is of central origin. Neither removal of the teeth, nor injections of alcohol, nor even neurectomy offer permanent relief, and in the author's opinion operation on the ganglion itself is the only means of obtaining this. Another type of referred pain is that arising from an old syphilitic lesion. This improves under antisyphilitic treatment. The primary lesion is frequently found on the lip or on the tonsils; seldom on the cheek or tongue. It can be differentiated from certain forms of stomatitis in that the chancre is painless and usually causes enlargement of the lymph nodes. Secondary syphilitic manifestations of the mouth are usually of an erythematous or ulcerative type, commonly seen on the oral pharynx as an in-

flammatory area, attended by little or no pain. Mucous patches may be observed on the edge and tip of the tongue, on the dorsum of the tongue, uvula, and fauces, or on the inner surface of the lips. They are irregular patches of greyish white color, covered by a sticky secretion and may be differentiated from other lesions in that they are unaccompanied by pain. Gummatous ulcers in the mouth—tertiary syphilis manifestations—may be mistaken for carcinoma. On the tongue they usually appear over the whole upper surface, whereas carcinoma would be confined to the edge or one side of the tongue. Carcinoma, however, frequently supervenes on an old syphilitic lesion. In all cases suspected of syphilis, nothing should be done until a Wassermann test has been made. Leucoplakia is a precancerous condition which is invariably caused by excessive use of tobacco. The similarity between leucoplakia and secondary syphilis is often confusing. Syphilitic plaques usually appear on the border and back of the tongue and at the same time other patches may be observed on the gingiva, palate, or tonsils. They are soft, whereas those of leucoplakia are hard. Since the dentist has opportunity of observing precancerous conditions long before the physician sees the patient—when it is frequently too late to eradicate the disease—it is the duty of the dentist to direct the patient's attention to such conditions and, if possible, to have a microscopical examination made. Dentigerous cysts are frequently seen in the mouths of men and women under thirty, and may be mistaken for a tumor or an alveolar abscess. They may be differentiated from an osteoma since fluctuation and crepitation can usually be elicited. They differ from alveolar abscess in that they are very slow in formation and not accompanied by pain. These cysts should be widely opened and the unerupted tooth or tooth follicles and the cystic lining removed. The author has obtained good results from packing the cavity with iodoform gauze and irrigating with five per cent. salt solution every twenty-four hours. Absorption of bone is the most serious sequela. Epulis occurs frequently in childhood and in young adults, and is more common in women. There are two varieties—the fibrous and the giant cell, the latter being the more frequent. Growth is slow at first but becomes rapid as the tumor progresses, causing the teeth to spread apart with consequent loosening. The tumors, which remain attached to a small stalk, are benign at first but later become malignant. They should be removed as soon as identified, and examined microscopically. The portion of the periosteum or alveolar process to which they are attached should also be removed, and actual cautery employed to sere over the wound. Another important and not infrequent pathological condition of the mouth is Vincent's angina, which is characterized by a deep tissue necrosis, covered by a whitish grey membrane. This membrane is easily removed and when rubbed off leaves a granular, raw, bleeding base, which leads to craterlike ulcers with irregular edges. The condition is infectious but prognosis is usually favorable and if seen early, these cases can be easily controlled. In disease of the antrum of Highmore, the author believes that closer cooperation between the dentist and the rhinologist is needed. Three principles must be kept in mind in the treatment of empyema of the antrum: the source of irritation must be removed, drainage must be established, and ventilation must be maintained. A correct diagnosis is of the utmost importance, as it is essential that the source of irritation be removed or the opening will not close. The author then turns to morbid conditions involving the pericemental membrane. The difficulty here is to decide whether to extract the tooth or to perform root resection. This again is largely a question of diagnosis. The health, age, and recuperative force of the patient must be considered, as well as the condition of the blood supply to the apical area; that is, it must be decided in each individual case whether or not conditions are favorable to normal repair of bone. The proper evaluation of *x*-ray findings is of great importance. If the case is one of alveolar abscess of long standing, or a case of imperfectly filled root canal with granuloma showing in the apical area, surgical procedure is indicated. Before root resection is done, a crown or bridge attachment should be removed, the canals and dental tubules thoroughly sterilized and the canals filled; otherwise reinfection will occur. Sterilizing and completely filling canals in multirooted teeth for the eradication of an infection the author considers a doubtful procedure, believing that the patient's welfare would be better safeguarded by extraction followed by curettage of bone. This operation should not be resorted to when the bone and pericemental membrane are diseased beyond the apical third of the root.

Journal of the American Medical Association.

February 1, 1919.

1. Hemolytic Streptococci, with Special Reference to Their Role in Acute Respiratory Infections. David J. Davis.
2. The Importance of the Louse Problem. Harry Plotz.
3. Intestinal Parasites During a Year at the Walter Reed General Hospital. M. W. Lyon, Jr.
4. The Diagnosis of Mitral Regurgitation (Valvulitis). Marcus A. Rothschild.
5. Slow Intravenous Injection of Antiserum to Prevent Acute Anaphylactic Shock. Julian H. Lewis.
6. Bacteriologic Control in the Treatment of Streptococcus Empyema. A. L. Garbat.
7. Irritable Bladder in Women. Charles A. L. Reed.
8. Empyema Following Influenzal Pneumonia: Observations on the Epidemic at Camp Grant, Ill., September-October, 1918. Max Ballin.
9. Fracture of Cervical Vertebræ, with Restoration of Bony Substance. L. F. Luckie.

5. Slow Intravenous Injection of Antiserum to Prevent Acute Anaphylactic Shock.—Julian H. Lewis reviews the various methods tried from time to time in an effort to prevent anaphylactic shock. The use of hypertonic salt solution was found to diminish anaphylactic shock in animals but there are no reports of the use of this procedure in man. The methods usually employed are those worked out by Besredka, namely, the administration of minute single or repeated doses of antigen three or four hours before the full injection is given, or the rectal injection of from 5 to 10 c.c. of serum, when gradual absorption of antigen occurs. Another method, suggested by Friedberger & Mita, is that of slow administration rather than division of dose. It having been shown that the danger of serum sickness was influenced by the size of the dose, the logical procedure was the production of antiserums with a higher concentration of antibodies. But though it was possible—particularly in diphtheria—to give large doses of antibodies in a small volume and thus lower the severity of anaphylaxis, serum sickness was not prevented. In the case of pneumonia, the concentration of antibodies has not been successfully accomplished and furthermore the promulgators of the use of antipneumonic serum advise the direct intravenous injection of doses as large as from 50 to 100 c.c. These two factors no doubt are responsible for the serious anaphylaxis reactions reported from army camps. The author believes that the slow protracted injections of diluted serum, as advocated by Friedberger and Mita, is the method best adapted to the conditions, particularly if the Woodyatt pump is employed. The results of animal experimentation have led him to the following conclusions: That acute anaphylactic shock can be prevented in sensitized experimental animals by giving otherwise fatal doses of diluted antigen intravenously at very slow rates. That so far as these results can be applied to man, it is to be recommended that when immune serum must be given intravenously, it should be given slowly and in a diluted form, the Woodyatt pump serving as an excellent means of doing so. The exact quantitative relations must be worked out experimentally with patients. At present it can only be said that the injections should be made as slowly and the dilutions should be as high as is convenient or necessary under a given set of conditions.

8. Empyema Following Influenzal Pneumonia.—Major Max Ballin gives the results of his observations on the epidemic which occurred at Camp Grant, Ill., in September and October last. He points out that in the treatment of empyema it is necessary to differentiate between three types: (1) The empyema following hemolytic streptococcus infection, which occurs early as an exudate in the first week of the pneumonic process, is thin, very copious, and capable of being absorbed, and should be handled, if necessary to relieve pressure, with aspiration, operating by costectomy only after the pneumonia has subsided. (2) The empyema following lobar pneumonia. This sets in four weeks

after pneumonia, is of good prognosis, and can safely be handled with costectomy. (3) The empyema following influenzal pneumonia. This also develops four weeks from the onset of the process. On account of serious and frequent metastatic suppuration, its prognosis is more severe than that of form 2. It is best handled by thorough drainage, by costectomy under local anesthesia. Major Ballin emphasizes the importance of local anesthesia in operations for empyema, in view of the frequency of sudden death from suffocation under general anesthesia. He describes the technique of the operation and states that of seventy-nine patients operated upon eleven died, all of whom, however, had severe complications. The first thirty patients were treated with neutral solution of chlorinated soda, every attention being paid to the details of administration, and of this group eight died. The remaining forty-nine patients were given dry treatment, with three deaths.

The Lancet.

January 18, 1919.

1. The Examination of the Vermiform Appendix by X-Rays. E. I. Spriggs.
2. Acute Appendicitis and Acute Appendicular Obstruction. Captain S. T. Irwin.
3. The Control of the Upper Fragment in High Fractures of Femur and Humerus by a New Form of Pelvic-Femur Splint and Arm Splint. Major John Robert Lee.
4. Meningococcus Bronchopneumonia in Influenza. Captain Wm. Fletcher.
5. Apparent Immunity from Influenza at a Public School. G. E. Friend.

4. Meningococcus Bronchopneumonia in Influenza.—Captain William Fletcher submits the results of a study of 36 fatal cases of bronchopneumonia which occurred in American soldiers, in 11 of which Pfeiffer's bacillus was found in association with the meningococcus. The other cases were due to combined infection with this bacillus and pneumococci or streptococci. Beyond possibly a greater tendency to hemoptysis, there were no clinical signs to distinguish the cases of meningococcus bronchopneumonia. None showed any signs of meningitis before or after death. Summarizing these cases, the author states that: (1) In the postmortem examination of 36 men who had died from bronchopneumonia following influenza, Gram negative cocci were the predominant organisms found in the lungs of 11 cases. (2) All the men, with one exception, had been taken ill on board the same transport. (3) In six cases these Gram-negative cocci were Type II meningococci and in one case they belonged to Type I. In four instances the cocci were not tested by agglutination. (4) In each of the 11 cases Pfeiffer's bacillus was found in symbiosis with the Gram-negative cocci. (5) The meningococcus, like other "respiratory" organisms, may, when it occurs in conjunction with Pfeiffer's bacillus, produce a fatal bronchopneumonia.

British Medical Journal.

January 11, 1919.

1. Observations on Administration of Arsenic in Syphilis. Major W. T. Lockhard and Captain J. R. Atkinson.
2. On the Agglutinative and Opsonic Action of Certain Chemical Substances on the Red Blood Corpuscles. The Relation between this Artificial Agglutination and Agglutination by Serum, and the Bearing of These Observations on the Agglutination and Phagocytosis of Pathogenic Organisms. Colonel C. J. Bond, C. M. G.
3. Cancer of the Tongue (Abstract of Bradshaw Lecture). D'Arcy Power.
4. Note on a Case of Acute Febrile Polyneuritis. R. W. Dale Hewson and R. M. Stewart.
5. Streptococcal Invasion of the Cerebrospinal Fluid. Captain C. J. Marshall.
6. Influenza Epidemic in Q. M. A. A. C. Hostel, Edinburgh. A. Mercer Watson.
7. Vaccine Treatment of Influenza. Surgeon Lieutenant R. E. Tottenham.
8. Myological Principles: A New Ulnar Splint. Captain Stuart A. Moore.

4. Note on a Case of Acute Febrile Polyneuritis.—R. W. Dale Hewson and R. M. Stewart report a case of acute febrile polyneuritis which, as far as the authors are aware, is the first that occurred in the British Salonica force. The symptoms exhibited conformed closely to those described by Holmes in the cases that occurred in France. The sudden onset of illness in a healthy man with feeling of malaise and slight fever, but no shivering, vomiting, sweating, or other symptoms characteristic of malaria, the rapidly developing flaccid motor paralysis, the implication of certain cranial nerves, the early loss of sphincter control, and the relatively insignificant sensory changes. The lower limbs showed a marked degree of paralysis, but no individual movement was impossible, nor were the distal segments of the limbs more paretic than the proximal. Muscular atrophy occurred to a very slight degree. The muscles of the upper limbs were much less severely affected. No affection of the intercostal or abdominal muscles was noted. Complete paralysis of all muscles innervated by the seventh cranial nerves was observed on the third day of the patient's illness, and formed a striking feature of the clinical picture. Articulation was slurred and indistinct. Neither the tongue nor the palate was involved, but the patient experienced difficulty in swallowing. There was no involvement of the muscles of mastication, and phonation was unaffected. The reactions of the pupils were normal, but paresis of the left external rectus was noted, and the patient complained of occasional double vision. Cutaneous sensory disturbance was very slight. At first slowness of perception of tactile and painful stimuli was noted, and at a later date a raised threshold for the appreciation of simultaneously applied compass points. Joint sense and vibration "sense" were apparently normal. The abdominal and plantar reflexes were absent; also the deep reflexes (except the triceps jerks). Incontinence of feces existed for two days. There was no disorder of mental functions. Definite improvement was noted twelve days after the onset of the symptoms. Examination of blood, the cerebrospinal fluid, and the urine yielded negative results. It remains to be noted that in one or two particulars the patient did not conform to the usual clinical features. While sphincter trouble was very transient, the difficulty in swallowing persisted up to the time of the patient's evacuation from Macedonia. Paralysis of the diaphragm, not hitherto recorded, was present in this case. The proprioceptive forms of sensation, which are said to be frequently involved, were unaffected. Although a typical malarial attack occurred on the twenty-first day of illness, the parasite of benign tertian fever being demonstrated in the blood, the authors are of opinion that this fact furnishes no conclusive proof that the case reported was conditioned by the malaria toxin. There was no history suggestive of malaria, nor was the parasite found until the patient had been three weeks in hospital. Moreover, a differential blood count gave normal results. The authors, however, base their opinion chiefly upon the fact that in cases of post-malarial multiple neuritis that have come under their observation, the clinical features have been very different from those described in the case reported. The recent occurrence of a variety of polioencephalitis in epidemic form in the British Isles suggests the presence of some such pathological basis, but the complete integrity of the mental functions and the clinical course of the symptoms observed in this case, renders such an etiology extremely unlikely.

Berliner klinische Wochenschrift.

December 2, 1918.

The Serum Treatment of Diphtheria.—A. Czerny sums up the present state of uncertainty regarding the real value of the serotherapeutic treatment of diphtheria since Bingel declared, with statistics to back him, that the action of simple horse's serum was equal to that of prepared horse's serum. The recent discoveries on the curative action of albumins injected in the muscles or veins would seem, in fact, to divide the efficacy of antidiphtheritic serum between serum albumin and antitoxin properly speaking. However, until more extended experimentation, there is no reason for changing the classic treatment of diphtheria with specific serum in any way.

The Forms of Septicemia Due to the Bacillus of Tuberculosis, the Typhobacillosis of Landouzy, and Miliary Tuberculosis.—M. Scholz brings forward to illustrate this still much debated subject an interesting case. The patient, a woman fifty-six years of age, ill for three weeks with a symptomatology entering into

the typhoid class, without, however, showing any roseola. The sterility of the blood led the writer to conclude that the case was one of miliary tuberculosis. At autopsy there were no granulations visible macroscopically and only the usual pathological changes of a septicemia were noted, but microscopically small foci of necrosis containing acid-resistant bacilli were discovered in the liver, spleen, and other viscera. Scholz states that this clinical observation would be placed in the class of Landouzy's typhobacillosis; however, he refuses to regard this as a form of disease and prefers to call it superacute tuberculous septicemia. He points out that the anatomic status does not differ from the classic miliary form other than by an absence of granulations and that this difference is the result of the reactivity of the patient and that therefore it should not be transferred from the general class of miliary tuberculosis. The possibility of such septicemic varities with a mild evolution, such as Landouzy describes, cannot be entertained according to the writer's view, since the absence of miliary granulations should be regarded as improper for maintaining this theory. A rather complete bibliography is appended.

Münchener medizinische Wochenschrift.

November 26, 1918.

The Functions of the Human Appendix.—K. Peter desires to oppose the tendency to look upon the appendix as a rudimentary organ of no use. A foundation of value for the assertion that this organ is useless cannot be found either in comparative anatomy or embryology. From its structure the appendix belongs to the group of lymphoepithelial organs and therefore is similar to the thymus, tonsils, etc. (a fact known for the past thirty years or more but coming from Germany it must be new). Although recognizing that removal of the organ does not unfavorably influence the general health, Peter attributes a function to the appendix which is as yet enigmatical.

The Prevention of the Phenomena of Hypersensibility in the Parenteral Exhibition of Heterospecific Albumin.—E. Friedberger, well known for his theories relating to anaphylaxis, recalls the procedure of small doses employed with the object of preventing anaphylactic reactions when giving animal sera. This procedure of sensibilization attains the maximum of its efficacy when the injections are given as progressively in amount as possible. The writer describes a simple form of syringe which permits giving a slow, graded injection. Experimental researches have shown that his manner of procedure allows one to go far beyond the ordinary fatal dose to the extent of twenty times its strength in sensibilized animals.

The Triceps Muscle Used as a Motor Force in Prostheses.—H. Böhm studies the deformity produced by transversal section in an amputation stump when the triceps contracts. This change can be utilized for transmitting, by means of a pulley, traction in the direction of the axis of the arm and this mobilizes the parts composing the prosthesis. In the same way the movement of rotation of the humerus in the axis of the arm can be utilized for accomplishing movements of pronation and supination in the artificial limb. The writer gives a figure showing the mechanism of the principles laid down.

Deutsche medizinische Wochenschrift.

November 28, 1918.

Silver-Sodium Salvarsan.—Galewsky gives a favorable report on this product, put on the market by the bacteriologist Kolle, which accords with the writers on the subject already noted in these abstracts. The product possesses an energetic action in much smaller doses than required by neosalvarsan. The writer is of the opinion that this higher efficiency is due to the combination of metallic silver with the salvarsan radicle and that it results that Kolle's product avoids the dangers of intensive arsenical treatment while assuring the same therapeutic effects. The most evident results are obtained in luetic manifestations on the mucosæ, either of the secondary or tertiary types. The product, like Ehrlich's original 606, is patented and the numerous articles describing it are evidently in the nature of advertisements.

The Serum Treatment of Influenza.—E. Reiss has injected various sera in influenza patients, such as normal human serum, serum obtained from those convalescing from the grippe, normal horse serum, antidiphtheritic serum, etc. Generally speaking, the writer noted a marked improvement following these injections at the end of thirty-six hours. The best results were obtained with the serum of convalescents and normal horse serum. The writer is of the opinion that the good results are due to a general action of the serum as a blood serum *per se*, rather than to a specific action.

Variola Without Exanthema.—Kathe insists upon the importance of these cases from the viewpoint of epidemiology, and relates some recent experiences. The cases observed by the writer offered a rise in temperature and general signs common to variola. Out of a total of five cases only one offered an eruption which was characteristic of the disease and therefore gave the clue to the real condition of affairs, the other four patients going through their variola without an exanthema or pustules. The writer attributes this mild evolution to vaccination which all soldiers had received at the beginning of the war. From the viewpoint of contagion it goes without saying that these patients are quite as dangerous, even more so, than frank cases on account of the possibility of overlooking the correct diagnosis.

Le Progrès Médical.

December 14, 1918.

Intravenous Injections of Camphorated Oil in the Asphyxiating Types of Grippe.—Loeper and Fumouze do not include pneumonic forms under this head. In the type referred to the patient is stricken in the midst of apparent health with fever which is not as high as a rule as in pneumonias. The skin is very pale, excepting where cyanosis is present and severe dyspnea is prominent of a form suggesting uremia. The physical signs do not reveal any one focus of disease in the lungs, but the râles heard everywhere suggest congestion and edema. Expectoration is scanty, but hemoptyses sometimes occur. This does not always mean that there is no secretion in the air passages, for some patients are unable to rise and are suffocated by their own secretions. The heart is weak and dilated and its action very rapid. Seven autopsies agreed in showing a mixture of infarcts, congestion, and edema with absence of pneumonic foci. As a rule albuminuria was present and acute uremia was thought of, but examination of the blood showed absence of retention of urea. The whole picture suggests an intoxication of unknown character which attacks the bulbo-vagus system. The untreated patients with these forms have invariably perished in two or three days. Next to the thoracic organs the nerve centers suffer, as delirium and mental confusion are usually present. The treatment of these cases must be heroic and consist of venesection with infusion of adrenalized serum and camphorated oil injected into the venous system. The authors have with this treatment cured twenty out of thirty-eight cases, which in a disease of 100 per cent. mortality is very satisfactory. The amount of camphor injected is 2 c.c. of a 10 per cent. solution daily throughout the course of the disease. The immediate effects are very striking, as the entire disease picture improves promptly.

La Presse Médicale.

December 26, 1918.

Minor Forms of Graves' Disease.—Lian discusses this much described syndrome, apparently because it is still far from being clarified. If a subject have palpitation and tachycardia has he an abortive form of Graves' disease? The question is a delicate one to decide. We have no biologic reaction to settle it and must depend on resources of some sort to differentiate between this and other forms of tachycardia. Paroxysmal attacks are at once excluded as far as the latter is concerned, for there must be a permanent acceleration of the heart

beat beginning at 100 and we must exclude a number of organic diseases, whether cardiac, renal, tuberculous, etc. We know that in Graves' disease the tachycardia may be very slight while in pure neuropathy it may be rapid. Morning tachycardia suggests Graves'—*i. e.* tachycardia which is more marked in the first part of the day. Blood pressure studies seem to be of no value in differentiation for in both Graves' and neuropathy it is somewhat elevated. Radiographers have recently claimed the existence of aortic dilatation in Graves' disease, but this has been found to be inconstant. As for the great number of neurotic manifestations they are of no diagnostic value, all being common in essential neurasthenia. Moreover the association between a goitre and tachycardia may be purely fortuitous. The author has written his paper to bring out the significance of a new symptom—hyperesthesia over the thyroid region. This the author has noted in some ten cases and his attention was attracted to it as a result of palpatation of the thyroid for enlargement. In three of these there was enough outside evidence to make the diagnosis but in the balance it is doubtful if any diagnosis could be made unless the value of this sign is acknowledged. This hyperesthesia is not of the type which one would ordinarily have in mind but an increased sensitiveness to pain. Slight manipulations call forth grimaces of discomfort. In the typical case this area is limited to the gland. That the sign is a new one seems evident from the frequency of the statement that the goitre in this affection is insensitive. The sensitiveness is in all probability due directly to an increase in tension of the enlarging gland. The author recommends that in routine examination of the thyroid in obscure affections particular attention should be paid to undue sensitiveness of the organ.

La Riforma Medica.

December 14, 1918.

The Three Clinical Types of the Current Epidemic.—Sofre does not refer to the time honored division of influenza into respiratory, intestinal, and nervous types. On the contrary, his division pertains only to the respiratory type and the degrees of severity of it. The first type isolated is the febrile, in which fever is the dominant symptom. This is the usual type and the benign type. The disease has no special localizations, and therefore when such coexist the author makes a second type. The third type is the malignant, or septic. The simple febrile type exhibits a localization in the respiratory apparatus, but this is not a local expression of the disease in the author's sense. Among the latter are the bronchopneumonias, nephrites, etc. The socalled enteric forms also belong here. A special characteristic of these localizations is the tendency to hemorrhage in all. Thus we see nosebleed and melena which suggest typhoid fever, hemorrhagic nephritis, etc. The malignant type, in addition to profound septic and toxic manifestations, is characterized by unmotivated dyspnea. One would imagine that the lungs were the seat of profound lesions, but examination reveals a surprising state of affairs, to wit, absence of anything which could explain this dyspnea. While in the second form with pulmonary location we find classic bronchopneumonia but no unusual dyspnea or toxemia; in the third type the lungs seem quite clear. Not one case of this toxic type can recover. Hence the extreme dyspnea can only indicate the presence of a pseudobronchopneumonia. To explain, the author believes that two factors are necessary, the toxemia due to bacillemia and the involvement of the kidneys—in other words, a species of uremic dyspnea. The nephritis in these cases is secondary to sepsis and apparently not due to a special localization of the disease in the kidney.

Norsk Magazin for Laegevidenskaben.

November, 1918.

New Experiences in the Treatment of Hemoptysis.—Lunde refers to this complication of pulmonary tuberculosis as studied in sanatoria. A hemorrhage from the lungs causes lively apprehension to both the patient and his entourage and some equally heroic medication seems called for. But these attacks usually cease spontaneously through the formation of thrombokinase. The cases which do not thus improve call for urgent treatment. Left to themselves some patients bleed for days, or hemorrhages continue to succeed one another at intervals. Very slight causes may start these bleedings—a slight exertion or perhaps the focal reaction from a tuberculin injection. One may follow running upstairs. In all such cases it is natural to believe that a strong predisposition is furnished by the presence of an eroded vessel in a cavity wall, by the softening of a disease focus or similar cause. While the blood pressure in tuberculosis is commonly said to be subnormal it is a fact that for a hemorrhage to occur the pressure should be high. Air pressure changes in the thorax probably play a subordinate rôle. Among the consequences of hemoptysis are aspiration pneumonia and extension of the tuberculous process. Death from acute anemia is very rare but death from aspiration of large amounts of blood is not so rare. Finally anemia is a more remote consequence. The author enumerates the standard remedial procedures and then observes that one of these renders the others largely superfluous—injection of large doses of camphorated oil. Of 22 cases of hemoptysis seen in the past year 13 required no special treatment while in the other 9 who had medium or large hemorrhages—from 40 to 400 grams—arrest was at once obtained by injection of 3 cm. of 20 per cent. camphor-oil.

Correspondenz-Blatt für Schweizer Aerzte.

December 14, 1918.

Malignant Growths Which Begin with Leucemia.—Munk distinguishes between leucemia as a disease of the hematopoietic system, in which the blood making organs develop hyperplastic changes and leucemia associated with malignant tumors. There are at least three forms of the latter, lymphosarcoma, myeloma, and chloroma. In recent years attempts have been made to incorporate other neoplasms with the latter. These are covered by the general term leucosarcomatosis. The conception of leucosarcoma is due chiefly to Sternberg, who described a number of cases. At its outset leucosarcoma consists rather of tumor-like tissue than actual tumors, and hence seems a connecting link between pure leucemia on the one hand and the malignant tumor form on the other. While a few men have accepted Sternberg's theories and have reported cases of his leucosarcoma many others refuse to accept them on four counts. First, in simple leucemias we may find evidence in a small way of processes analogous to leucosarcoma. Again the size of the cell in leucemia is not an absolute criterion, for the typical small-cell leucemia may shade into forms with larger cells. Thus in a typical small-cell lymphatic leucemia Strauss found sarcomatous tissue in the thorax, lungs, and lymphatics. In an entire series of cases it has been shown that in clinical and microscopical simple leucemia tumor-like tissue has been discovered—therefore there is no sharp differentiation between the simple and Sternberg types of leucemia. From another angle the Sternberg leucosarcoma has in certain cases been pronounced no different from lymphosarcoma. Also the tumor-like proliferation in the Sternberg type has been declared as unlike true tumor growth, so that confusion could hardly go further. Nothing can be predicated of large-cell lymphatic leucemia that may not be true of the small cell form. Each may exhibit so-called aggressiveness under certain conditions. Attempts to connect blood pictures with tumor formation seem doomed to failure. The malignancy of certain individual cases seems an unmotivated epiphenomenon. The author, who started to give four arguments against Sternberg's theories, does not state the other three, evidently leaving the reader to find them out.

Cure of Mikulicz's Disease with Neosalvarsan.—Massary and Tockmann cured a classical case of Mikulicz's syndrome of presumably syphilitic origin by injections of neosalvarsan and mercury biniodide. The condition of the parotids was inflammatory while the lacrymal glands presented rather an hypertrophy.—*Le Progrès Médical.*

Book Reviews.

GLAUCOMA. A Textbook for the Student of Ophthalmology. By ROBERT HENRY ELLIOT, M.D., B.S. (Lond.), Sc.D. (Edin.), F.R.C.S. (Eng.), etc.; Lieut.-Colonel I. M. S. (Retired); Late Superintendent of The Government Ophthalmic Hospital, Madras; Late Professor of Ophthalmology, Medical College, Madras, and Late Fellow of the University of Madras; Honorary Fellow of the American Academy of Ophthalmology and Otolaryngology. With 155 illustrations. Price, $7.50. New York: Paul B. Hoeber, 1918.

COLONEL ELLIOT has a high reputation as an authority on the eye and its affections and abnormalities, and therefore a book from his pen is always welcomed by all ophthalmologists. Appreciating the fact that a great deal of ignorance existed with regard to glaucoma, for a period of three years he has made a special study of the subject, earnestly endeavoring to sift the chaff from the wheat and to place the knowledge of glaucoma on a sound and scientific basis. The author seems to have succeeded well in his self-appointed task, and the views expressed by him on the value of sclero-corneal trephining are as original and interesting as ever. The question of glaucoma is thoroughly considered, the book is well illustrated, and is a valuable addition to the literature of ophthalmology.

THE PRINCIPLES AND PRACTICE OF OBSTETRICS. By JOSEPH B. DE LEE, A.M., M.D., Professor of Obstetrics at the Northwestern University Medical School; Obstetrician to the Chicago Lying-in Hospital and Dispensary, and to Mercy Hospital; Consulting Obstetrician to Provident and Evanston Hospital, etc. With 949 illustrations, 187 of them in colors. Third Edition. Thoroughly Revised. Price, $8.50. Philadelphia and London: W. B. Saunders Company, 1918.

THIS is an eminently practical work on obstetrics. It is practical not only because it is written and compiled by a practical obstetrician, but because it is from the pen of a teacher of obstetrics who is well acquainted with the needs of the medical practitioner and student in this direction. While the ultimate object of a good text-book on obstetrics is always kept in view, that of enabling the reader in search of practical information to gather it without difficulty, the scientific part of the subject is not neglected. All this mass of matter is condensed as much as possible in view of the fact that the student's curriculum is already overcrowded. Conciseness and brevity, as far as compatible with an adequate consideration of obstetrics in all its detail, are followed. The result is highly satisfactory. However, as this is a third edition, it will be superfluous to dwell upon its features except to say that it has been thoroughly revised. The illustrations serve well to elucidate the text. The book may be commended to the attention of practitioners and students.

THE HEARTS OF MAN. By R. M. WILSON, M.B.; Late Assistant to Sir James Mackenzie, under the Medical Research Committee. New York: Oxford University Press, American Branch, 1918.

KNOWLEDGE concerning the heart and its mode of action is increasing continually and to Sir James Mackenzie is due a great deal of the credit for rendering the acquirement of this knowledge possible. Mr. Wilson, the writer of this book, was assistant to Sir James, who together with Professor Bayliss read through the manuscript and offered certain criticisms. The author has some original ideas as to the action of the heart which are well worthy of study by the physician. The book is highly interesting and no doubt will be widely read by medical practitioners, and especially by those who have made a study of the circulatory system.

ON THE NATURE OF THINGS. By HUGH WOODS, M.D., B.A., F.C.S.; Author of "Ether: Its Nature and Place in the Universe." New York: William Wood & Company, 1918.

THIS is a book which explains in clear language the meaning of matter, space, motion, and time, and shows how all physical science can be built up without assuming the existence of more than these and modifications of them. It is a very interesting bit of reasoning in the domain of physics and does what all books unfortunately do not—what, in fact, few books do—it sets the reader thinking.

A MANUAL OF PHYSIOLOGY. With Practical Exercises. By G. N. STEWART, M.A., D.Sc., M.D. (Edin.), D.P.H. (Camb.); Professor of Experimental Medicine in Western Reserve University; Clinical Physiologist to Lakeside Hospital, Cleveland; formerly Professor of Physiology in the University of Chicago; Professor of Physiology in the Western Reserve University; George Henry Lewes Student; Examiner in Physiology in the University of Aberdeen; Senior Demonstrator of Physiology in the Owens College, Victoria University, etc. With colored plate and 492 other illustrations. Eighth Edition. University Series. Price, $5.00 net. New York: William Wood & Company, 1918.

THE place of Stewart's book in the realm of physiology has been established long since and the reviewer of the eighth edition finds little to add except to note the revisions made. These, on account of the war, have not been very extensive, as war always means a pause in laboratory activities. If we assume that a reviewer must find some fault, no matter how slight, we might express a preference for the practical exercises interspersed in the text rather than at the end of chapters. Dr. Stewart's conception of the function of the endocrine glands is considerably at variance with the ideas of Cannon. His accounts of the circulating fluids, blood and lymph, are excellent, probably the best to be found in any book in the English language. Altogether the book is an admirable text-book of physiology and contains an immense amount of information without being too bulky.

SYPHILIS, PALUDISME, AMIBIASIS; Traitement Initial et Cure de Blanchiment. Par PAUL RAVAUT. Collection Horizon. Prix, 4 francs. Paris: Masson et Cie., 1918.

THIS little volume contains a preface by Professor F. Widal, the well-known clinician. The parasites of all three of the diseases mentioned are protozoans, and remedies known to act specifically on the latter are quinine, arsenic, and emetine. The three remedies can be combined with one another in such way as to increase their potency—quinine and arsenic in malaria, emetine and arsenic in amebic dysentery. The "bleaching cure" mentioned by the author has apparently the same significance as "sterilisatio magna," and denotes the destructive action of the medicaments on the protozoan parasites. The volume is eminently a product of war medicine, for the troops have been ravaged by all three maladies and the treatment is based on the experience of military men in dealing successfully with these patients.

VACCINES AND SERA IN MILITARY AND CIVILIAN PRACTICE. By A. GEOFFREY SHERA (Hon. Capt., R.A.M.C.), with an Introduction by Sir CLIFFORD ALLBUTT, K.C.B., M.D., F.R.S. Oxford War Primers. Price, $2.50. New York: Oxford University Press, American Branch, 1918.

THE subject matter in this work comprises a voluminous chapter on vaccines and one of about half the bulk on sera; a third section is devoted to specific therapy of diseases of women and children, while a fourth cleans up outlying matter. Vaccines, whether prophylactic or curative, and sera, grouped in the same manner, are subdivided according to dependability into several categories. This is the most conspicuous and characteristic feature of the work, which is eminently practical. To assist the reader in this particular there is a general summary on page 196, which enables him at a glance to decide as to indications for therapy or prophylaxis in a given case. A feature which is less commendable is the classification under one head of severe and indifferent affections. From the clinical side it would seem more efficient to distinguish between lethal and banal affections. This distinction is radical throughout. The subject of an acute and virulent, for example, requires perhaps heroic treatment, while the victim of something no more serious than acne or even boils may be treated over a long period of time in a most conservative fashion.

Society Reports.

SOUTHERN SURGICAL ASSOCIATION.

Thirty-first Annual Session, Held at Baltimore, December 17, 18, and 19, 1918.

THE PRESIDENT, DR. ISAAC S. STONE, OF WASHINGTON, D. C., IN THE CHAIR.

Suture of Ruptured Kidney, with Report of a Case.—Dr. S. L. LEDBETTER, JR., of Birmingham, Ala., said that an early exploration was indicated in subparietal injury to the kidney and suturing the ruptured kidney where possible was preferable to either nephrectomy or gauze packing. Nephrectomy should be reserved for those cases where operation had been delayed and when the kidney was hopelessly damaged. Packing with gauze, where possible, was to be avoided on account of the delayed convalescence, the danger of secondary hemorrhage, and the possibility of infection. Connell had collected sixteen cases of suture of ruptured kidney with two failures, one developing a urinary fistula and the other requiring secondary nephrectomy. He reported the following case: Negro, male, age twenty-four, fell from a scaffolding, striking his right flank against an iron casting. He was seen shortly afterward and, though somewhat shocked, was in good condition. All evidence pointed to an injury of the right kidney without associated injuries. Exploring the kidney twelve hours later, an extensive transverse rupture was found between the middle and lower thirds. This was sutured with chromic catgut, a small cigarette drain inserted down to the capsule and the wound closed. The patient made an uneventful recovery, and on leaving the hospital nineteen days later the urine showed only an occasional blood cell. Subsequent specimens were normal and he understood that the patient was now in army service.

Prostatectomy, with Its Preparatory and Postoperative Treatment.—Dr. BRANSFORD LEWIS of St. Louis stated that after considerable experience with the removal of the prostate by the suprapubic and perineal routes, he had adopted the suprapubic method as the one of choice because it gave the better results. It was free from a number of momentous objections that pertained to the perineal operation, such as ineffectual urinary control, sexual disability, urethrorectal fistula, etc. While a one-stage suprapubic prostatectomy might with confidence and safety be carried out in a patient of middle age and good general condition, there was no doubt about the marked and distinct advantages presented by the same operation done in two stages in the decrepit patient of advanced years, and weakened resisting powers. The opportunity presented by the two-stage operation of establishing a firm adhesion between bladder and abdominal walls was scarcely less valuable than that of establishing suprapubic drainage. Infection of the loose connective tissues surrounding the bladder and extensive suppuration in these cases was one of the most serious dangers attendant on suprapubic work. Once established, such suppuration was difficult to control, and the condition might rapidly become formidable. The ounce of prevention consisted in attaching the bladder firmly and permanently to the abdominal wall around the opening in the bladder by means of chromicized catgut sutures. Spinal anesthesia was commended as serviceable by some operators, but he regarded it as the most dangerous of all methods of anesthesia. His personal acquaintance with some seven or eight instances in which death was attributed directly to spinal anesthesia used by operators well versed in its technique had led him to this conclusion. He knew of no death so far reported from the use of caudal anesthesia, although there had been instances in which physiological effects had been observed.

Dr. JOHN R. WATHEN of Louisville heartily agreed with the essayist that the main thing in prostatic surgery was proper drainage and the avoidance of infection. He disagreed with him, however, when he made the statement that the indwelling catheter should remain in the urethra a considerable time, even nine months, as he mentioned in one case, because his experience had been that the indwelling catheter was not tolerated by the majority of patients for a considerable time, and some patients could hardly stand it at all. He believed the suprapubic operation under local anesthesia was the operation of choice.

Dr. ROBERT T. MORRIS of New York City stated that after the suprapubic operation he liked to fold the ragged fragments into place pretty well and pack them there with neat folds of iodoform gauze, leaving the end of the gauze protruding from the suprapubic wound, and for drainage he used little packs of sphagnum moss, allowing the patient to turn on one side or the other or abdomen if he liked, and he depended upon the capillarity of the gauze and sphagnum moss.

Dr. FRANCIS REDER of St. Louis said that a mortality following prostatectomy rested with the loss of blood. It was the constant bleeding in these cases that caused fatalities, and in the after-treatment of cases of prostatectomy he could heartly recommend the use of the Hagner bag for the control of hemorrhage.

Dr. JAMES E. THOMPSON of Galveston stated that Dr. Lewis left out one of the most important tests we had that would give us a clear idea as to how patients behaved after operative procedures. The value of the hemoglobin percentage was great, as was also the phthalein output, but a valuable test was the estimation of the blood urea.

Dr. GEORGE A. HENDON of Louisville said that in suprapubic prostatectomy it was his practice to pack the cavity lightly from which the prostate had been removed with iodoform gauze or plain gauze, and allow the ends to protrude from the suprapubic incision; but before doing so he put an ordinary Nelaton catheter in the bladder. The first twenty-four hours a lot of clots might form, but by irrigating with six or twelve ounces of warm boric acid solution, the lumen of the catheter was kept open and no clot formed, and all drainage took place through the catheter in the urethra, and that was collected by a urinal between the patient's legs. On the third day he removed the gauze packing and all the drainage took place below through the natural way. He had not had any suppuration or hemorrhages to make him dissatisfied with this method of treatment.

Irritable Bladder in Women.—Dr. CHARLES A. L. REED of Cincinnati said that irritable bladder was characterized by frequent desire to urinate, pain in the bladder often extending to the rectum and perineum, sleeplessness, and nervousness, all in a history of long duration and obstinate resistance to all treatment. The causes of irritable bladder were found outside of the bladder and inside of it. Those that were outside of it embraced pregnancy, uterine displacements, infections of the uterine appendages, ovarian tumors, displacement of the intestines and adhesions. Those that were inside of the bladder were gonorrheal and other infections, tumors, calculi, and ulcers. Among the various forms of ulcers the one which was described as punctate was the most important as being probably responsible for the majority of all intractable cases of irritable bladder. It was a small round ulcer about 2 to 3 mm. in diameter, a few being somewhat elongated. It formed in myriad numbers over an area of from 2 to 6 cm. long and from 1 to 4 cm. broad on the front wall and vertex of the bladder. The underlying pathology was that of chronic interstitial cystitis with static edema, causing macular necrosis of the epithelium. The pathology of the condition and the function of the bladder combined to make the condition incurable by so-called conservative means, as demonstrated by ample experience. The diagnosis could be made only by careful consideration of the history, the presence of occult blood in the urine and cystoscopic examination which should be made in all cases of chronic irritable bladder. The only rational treatment was by excision of the ulcer-bearing area. Three successful cases were reported. Thirty-eight of these cases now on record proved that it was a surgically safe procedure and one by which many, probably the majority, of these sufferers could be permanently cured. The conclusions reached were: "(1) The punctate ulcer of the bladder with its associated pathology is a demonstrated clinical entity. (2) The condition, by virtue of the pathology, is not only chronic, but incurable by so-called conservative methods. (3) The usual limita-

tion of the ulcerative process to the anterior wall and vertex of the bladder make it surgically accessible. (4) The treatment by excision of the ulcer-bearing area is justified by its demonstrated practicability and by its equally demonstrated results."

Dr. Guy Leroy Hunner of Baltimore said it was important to remember the conditions in the urethra that might cause symptoms of irritable bladder. He presented a paper at Louisville before the association in which he called attention to cases of chronic urethritis due to chronic tonsillitis, and he had had many opportunities since then to find that the observations made at that time were correct, and that many of the cases of irritable bladder could be cured by finding the focus of infection and removing it.

Dr. Bransford Lewis of St. Louis noted that Dr. Reed had omitted to accentuate one sort of trouble that to his mind was very frequent and very important, namely, irritable urethra in which the irritability was kept up for from five to twenty years or more, and it was not due to any other cause. There was either a spasmodic contracture or organic contracture which was definitely demonstrable, and this condition was relievable by frequent applications to the irritable urethra.

Dr. Reed, in closing, stated that one thing that had been largely overlooked in the urethra very frequently was the involvement of Skene's follicles, to which Skene called attention thirty years ago, and this condition could be relieved by simple intervention.

A Gauze Sponge Spontaneously Expelled from the Urinary Bladder.—Dr. G. Paul Laroque of Richmond, Va., said that five years ago a woman was operated upon in a city near her home in North Carolina and was told that the appendix and left ovary were removed and the uterus suspended. No drainage was employed. She remained perfectly well for five years and was then suddenly seized with agonizing bladder tenesmus, spasmodic incontinence of urine, an enormous quantity of foul-smelling pus; *x*-ray was negative for stone, and there were no clinical evidences upon examination. Cystostomy was not attempted on account of the violence of pain and inability to hold water in the bladder. Her temperature varied from normal to 101°, pulse was normal to 100. Vaginal examination detected a small mass in the right fornix. There were no menstrual symptoms. On two occasions she had retention of urine and the catheter withdrew on the first occasion a quart of foul-smelling pus containing urine and a week later upon attempting to catheterize her again, a piece of gauze was discovered in the urethra. This was pulled out and proved to be a surgical gauze sponge about two inches wide and ten inches long. The symptoms immediately subsided. In a week's time she was well, cystostomy showing a very small, almost completely healed fistula in the right side of the bladder. The mass could no longer be felt in the pelvis. In a week she left the hospital perfectly well and had remained so.

Malignant Papilloma of the Gall-Bladder.—Dr. T. P. Waring of Savannah reported the case of a woman, forty-two years of age, who had two attacks of puerperal insanity, one of them after an abortion. She had one attack of jaundice after the second attack of puerperal insanity. She had borne four children, three of them without trouble. The family history was negative as to cancer. Present history dated back three years, and started with pain in the right hypochondrium and a feeling of relief on pressure. Three weeks before admission to the hospital she felt a lump in the right side, followed a few days later by pain, which was not severe. There was no fever or jaundice. The only symptom of cholecystitis was a constant feeling of indigestion. A distinct globular mass could be felt in the right hypochondrium, which was a little sensitive to pressure, but otherwise causing no discomfort. At operation a large gall-bladder presented, color rather dark and glistening, walls not very thick. Several masses could be felt in the gall-bladder, and two small lumps along the cystic duct forming part of the tumor mass, apparently in the gall-bladder itself, which proved to be enlarged lymphatic glands. The pathologist reported papilloma, for although the dissection was clean and no other enlarged glands could be felt, the patient developed an obstructive jaundice three months later. This was relieved by establishing a hepaticoduodenal anastomosis over a rubber catheter, making use of the sinus wall to attach to the duodenum, covered and protected by the gastrohepatic and greater omentum. This gave absolute relief for four months. The patient, declining further operation, died two months later from the obstruction.

Congenital Diverticula of the Intestines; Report of Case of a Tumor Growing from the Tip of a Congenital Diverticulum in the Lower Sigmoid Region.—Dr. William T. Black of Memphis said that when the vitelline duct failed to disappear at the end of the seventh week of intrauterine life, a diverticulum was left. These diverticula were present in about two per cent. of the people. They varied from the size of a pea to that of the small intestine, at times being several centimeters in length. They were usually found about 80 to 100 cm. above the ileocecal valve. Through an error in development, they might be found in the large gut. It was Meckel who first described and showed it to be of importance to the surgical world. It was frequently the cause of intestinal obstruction and other abdominal symptoms. He reported the case of a fibromucous peritoneal polyp, weighing 4260 grams, occurring in a female patient, fifty-nine years of age, which was discovered while operating October 4, 1918. This tumor sprang from the peritoneal coat of the tip end of an apparently congenital diverticulum in the lower sigmoid. A preoperative diagnosis was made of a subserous uterine myoma, with cystic degeneration, or an ovarian tumor. The growth probably could be attributed to an embryological condition or fetal rest, or might have followed a diverticulitis, ulceration, or perforation of the diverticulum. The presence of a fecal fistula or mucus appearing at the umbilicus suggested the remains of the omphalomesenteric duct. Tumors or cysts, likewise, suggested a similar condition in this region. The continuance of symptoms of acute or chronic appendicitis, after its removal, suggested a diverticulitis. The patient recovered. Bize, Deve, and Denuce had reported cases of small pancreatic tumors growing from the tip end of a Meckel's diverticulum. Raesfeld described an enterocystoma that developed from a Meckel's diverticulum. Cullen, Cowardine, Rimbach, and others had reported cystic tumors connected to the remains of the omphalomesenteric structure. Rimbach reported a case of cystic tumor the size of a man's head, adherent to the omentum, springing from a congenital diverticulum. In the author's case, the tumor was not connected with any other intra-abdominal structure, except the tip end of a diverticulum. However, a large cyst in the upper portion of the tumor was adherent to the anterior abdominal parietal wall. All diseased diverticula should be removed. Very small or cordlike structures should be excised. Those connected with a large gut, where we had solid feces, should be removed. Where we had a lumen that was large as the small intestine to which it was connected, and was not diseased, it should be left alone for fear of increasing mortality.

Resection of the Cecum and Ascending Colon.—Dr. J. Shelton Horsley of Richmond, Va., discussed the underlying causes of the abandonment of lateral intestinal anastomosis and the adoption of the end-to-end method. Cannon and Murphy had shown that in animals with the end-to-end method there was no stasis of food at the site of operation, whereas in lateral anastomosis peristalsis was abolished where the bowel was united. Dr. Horsley called attention to the triangular space at the mesenteric border of the intestine which was sometimes infected by the operator before it was closed, and to the necessity of cleaning the bowel ends with antiseptics before suturing. He believed that a valve should be made when the small bowel was united to the large. The author described a new operation based on these principles in which the end-to-end method was used and the ileum was projected into the end of the transverse colon and sutured in a manner similar to that used in his method of uniting the small bowel. In addition to this, in order to promote valve formation and increase safety, there was placed a row of interrupted mattress stitches of catgut. To relieve gas accumulation he suggested an enterostomy after the Coffey principle. He reported seven cases which were all the operations of resection of the cecum and

ascending colon that he had done for ten years. All of these patients recovered from the operation satisfactorily. Two of the operations were for intussusception in infants, two for severe intestinal stasis and three for hypertrophic tuberculosis. In one of the cases of tuberculosis there was a resection of several feet of diseased ileum after the cecum and ascending colon had been removed, thus making a double resection in this case.

Practical Considerations in Regard to Permanent Colostomies.—Dr. W. E. Sistrunk of Rochester, Minn., said that at present he was making a colostomy very similar in type to the one which had been described by Mixter. This colostomy was, as a rule, made through a straight incision placed below and about one inch to the left of the umbilicus, although it might be made through a low mid-line incision. An incision of this type possessed distinct advantages. Through it a thorough exploration of the abdominal cavity could be made. If found necessary, a primary resection of the bowel was possible, or the first stage of the three-stage Mikulicz operation could be made; it might be extended in either direction, and if after the exploration it was decided to make a colostomy, this was made through the center or upper end of the incision. The colostomy was made in a loop of the sigmoid flexure, this portion of the bowel being chosen on account of its extreme mobility and the length of its mesentery. After the loop had been lifted out of the abdominal cavity, an incision one and one-half to two inches long was made through its mesentery parallel to the direction of the blood vessels and extending upward nearly to the bowel. A second incision, about one inch long, was then made across the end of the first incision quite near the mesenteric attachment of the bowel. Two strips of gauze were placed in the upper end of the T incision which had been made, and when these were pulled apart a good sized opening was made through the mesentery. The two sides of the entire abdominal wall near the center of the incision were sutured through this opening in the mesentery. The remaining portions of the incision were then closed, a small bit of the bowel being included in two of the sutures to prevent the possibility of herniation of a loop of small intestine. After removing the gauze, a glass rod or rubber tube was placed through the opening in the mesentery between the skin and bowel to serve later as a guide in cutting across the bowel. If necessary for gas distension, a small opening might be made in the bowel any time after twenty-four or forty-eight hours, and after five or six days the bowel was cut across completely with the cautery. As a rule, however, the patients passed gases very readily through the knuckle which had been brought up, and it was unnecessary to disturb it before five or six days. After the loop had been cut across it was found that the two ends of bowels were separated by the entire abdominal wall for a distance of one to two inches. These ends protruded for a distance of from one to one and a half inches above the skin. They might later be cut shorter if thought necessary. The advantages of an operation of this type could be readily seen, and in the author's experience it had obviated some of the difficulties which often occurred following other types of colostomies.

Notes on Two Signs in Chronic Appendicitis.—Dr. Robert T. Morris of New York City stated that two signs belonging to the sympathetic and autonomic nervous system were of prime importance in making a differential diagnosis between chronic appendicitis and other affections of the abdomen and pelvis. These two signs did not belong to acute appendicitis. As a result of the chronic irritation of the appendix, impulses were registered upon the second and third right sympathetic lumbar ganglia known as the fused ganglion in such a way that it became hyperesthetic. Deep pressure upon the abdomen about an inch and a half to the right of the navel and a trifle caudad brought out this hyperesthetic point, which constituted one diagnostic sign of importance in differential diagnosis. The other sign consisted in permanent distension of the ascending colon. It was what he called the cider barrel sign. Percussion upon the normal left side of the abdomen brought out a note suggestive of the cider barrel in October and percussion over the right side of the distended ascending colon brought out a percussion note suggestive of a cider barrel in March. This chronic disturbance of the ascending colon was apparently caused by exhaustion of its sympathetic innervation due to chronic nagging from the irritated appendix.

Surgical Treatment of Goiter.—Dr. Miles F. Porter of Fort Wayne, Ind., summarized as follows: "Usually patients do not consult the surgeon for relief from goiter until the symptoms, either toxic or mechanical, are severe. We cannot hope to achieve the maximum relief that surgery offers in this disease until the patient consults the surgeon before the symptoms become severe. Subtotal thyroidectomy is the operation of choice. Incision should be ample and located with a view to adequate exposure, and the muscles on one or both sides should be divided, when necessary. Incision should follow natural wrinkles and be perpendicular to skin surface. Properly placed sutures will at once coapt divided muscles and fascia and secure against hemorrhage. The hyperactive may usually be distinguished from the inactive or normal portions of the gland because, contrary to the generally accepted idea, these hyperactive portions are lighter in color and softer than the normal. The aim should be to remove the diseased and leave healthy portions of the gland. Portions of the gland to be removed should also be selected with a view of avoiding asymmetry. More than one-fifth of the normal amount of gland structure should not be left behind. Usually it is better to completely divide the isthmus. Preservation of the posterior capsule will protect the parathyroids and recurrent laryngeal nerves. Subcuticular suture, with adhesive plaster is the best method of wound closure. With a few rare exceptions, ether anesthesia is advocated. For the preparation of substandard risks for the major operation injections of boiling water are to be preferred to ligations. Patients with small goiter of the diffuse, hyperplastic variety, may be cured with one or two injections, preferably through a small incision, uncovering the isthmus, so the operator can fill both lobes under guidance of the eye. Goiter symptoms will sometimes disappear promptly upon the removal of foci of infection in tonsils, teeth, etc."

President's Address: The Standardization of Rural Hospitals.—Dr. Isaac S. Stone of Washington, D. C., spoke in favor of bringing the standard of all hospitals, whether large or small, up to that point which would afford the best service to the public and which would require the best medical and surgical training of the staff. Sufficient information had been collected to show the number of poorly equipped hospitals in perhaps all parts of the country in towns and rural districts. Many of these were but a little better than boarding houses, without the essential equipment of house staff or laboratory or, indeed, anything which justified the name of hospital. It was suggested that all hospitals should be inspected by the health officer or commissioner of health, whether they were public or private institutions, and in case they were found up to the standard of requirement they should be duly licensed and required to send in a full report of the treatment of all cases during each year. The writer also favored State aid to rural hospitals when necessary, to provide hospital relief in country or remote outlying districts. Especial attention was given to consideration of rural hospitals as social service centers and for the care of obstetrical patients whose homes were remotely situated or who were unable to obtain competent professional attendance.

Treatment of Tumors of the Upper Jaw with the Cautery.—Dr. Joseph Colt Bloodgood of Baltimore said that the employment of the cautery in the partial or complete removal of malignant tumors was an old method. His own experience during the past five years had demonstrated that we had much to learn as to the details of its application. When we compared the results of operations for the removal of tumors of the upper jaw with the knife alone with the results of the removal of identical tumors with the cautery, we found that we had distinctly decreased the mortality, and when we had accomplished cures it had been with less mutilation. Whether the actual number of cures had been increased could not be demonstrated at the present time. The reduction in mortality was associated with the employment of local anesthesia alone, or in

combination with light chloroform general anesthesia. In many instances it was safer to remove the disease involving the upper jaw in stages. It was remarkable how much could be done under local anesthesia alone. When a general anesthetic was necessary, chloroform, in his experience, seemed to meet the indications best. It did not interfere with the use of the cautery. It was the best anesthetic when operations were performed in the region of the oral cavity. It should never be pushed to complete narcosis. The patient had no memory of pain and, although he was so lightly under the influence of the anesthetic that all reflexes were active, he remained more or less quiet. When chloroform was not pushed to complete narcosis the danger seemed practically eliminated, and the operations could be repeated at intervals of three or four days. In some of his cases there had been as many as fourteen operations. The surgeon should hold himself responsible for the anesthetic and direct its administration. In all of his cases the pulse and blood pressure were recorded every five or ten minutes. The chloroform was rarely administered longer than one hour. When the cautery, instead of the knife, was employed the operation could be discontinued at any moment. The duration of the operation and the number of operations largely depended upon the general condition of the patient and local extent of the neoplasm. When the cautery was employed it was possible to remove the tumor piecemeal and to destroy from tumor tissue into the surrounding healthy tissue without danger of dissemination, while with the knife one must give the tumor tissue a wide margin and remove the entire mass *en bloc* at one operation. In tumors involving the upper jaw the complete excision with the knife, when the disease was extensive, always sacrificed more healthy tissue than when the cautery was employed, and the danger of this single extensive removal with the knife was greater than the removal in stages by the cautery. In the removal in stages with the cautery it was also possible to have a pretty positive microscopic control as an indication that enough had been done. One also learned quickly to distinguish granulation tissue in which there was no tumor tissue from that which still contained tumor tissue by its gross appearance, which could be checked by the removal of a piece for microscopic study with the cautery. The new growth should be attacked with the cautery from two points. One should burn the tissue at the border of the tumor. This not only destroyed the infiltrating area, but excited in the healthy tissue beyond a granulation tissue which of itself was largely protective against secondary invasion, at least during the period of complete removal. The second attack should be upon the new growth itself, if possible, from the center out. These two methods of attack were varied according to the size of the neoplasm and its local growth and the anatomical character of the surrounding uninvolved tissue. He found that he was helped by a thorough knowledge of the character of the local growth and its microscopic appearance based upon a thorough study of similar cases recorded in the Surgical Pathological Laboratory of the Johns Hopkins Hospital. Details of the method of attacking tumors of the upper jaw would be given in the completed paper with illustrations.

Radium Demonstration at the Howard A. Kelly Hospital.—Dr. HOWARD A. KELLY of Baltimore pointed out the continuously expanding domain of radium as a therapeutic agent, emphasizing especially its value in the treatment of new growths, anemias, leucemias, and Hodgkin's disease. Specimens of ores from which radium was obtained were shown, the common salts of radium and radium emanation were described, and the adaptation of the latter to medical usages was pointed out. Dr. Kelly emphasized the fact that radium was not a cure-all, but a valuable aid to surgery and dwelt on the importance of early radical treatment in both domains. In conclusion he pointed out that our present knowledge of the biological and therapeutic effects of radium was rudimentary, and that a vast field for investigation lay just ahead.

Dr. WALTER LANTSBERRY demonstrated the method of separating radium emanation from radium by means of mercury pump and liquid air processes. He then showed some of the physical effects of radium emanation and radioactive deposit, and finally demonstrated some of the completed apparatus used for treatment.

Dr. BURNAM and Dr. KELLY showed sixteen patients who had received radium treatments. These were in the order of presentation:

CASE I.—Miss L. K., aged eleven. Multinodular ovarian carcinoma. Operated on, but tissue only partially removed in February, 1918. Under radium complete disappearance, which had persisted up to the present time.

CASE II.—Miss V. J., aged twenty-three. Posterior mediastinal sarcoma, which had led to paraplegia. Treated between July and December, 1914, with complete recovery. An active healthy working woman with no evidence of paralysis or other disturbance.

CASE III.—Mrs. H. F., aged forty-seven. Cervical Hodgkin's disease, which had disappeared after two treatments in June and July, 1918.

CASE IV.—Mr. J. D., aged thirty-two. Universal Hodgkin's disease. Under treatment for a year. Photographs showing enormous glands. Complete disappearance of glands in neck. Still evidence of change in blood. This case emphasized the importance of rest and feeding.

CASE V.—Mrs. V. F., aged twenty-nine. Medullary carcinoma of right breast and of glands of axilla and neck. Complete disappearance save for very small nodule in breast. Only four months under observation.

CASE VI.—Mrs. E. S., aged fifty-six. Extensive carcinoma of breasts. Complete retrogression of skin nodules and lump in breast without irritation of integument six months after undertaking treatment.

CASE VII.—Mr. I. B., aged fifty. Squamous cell cancer of larynx. Disease limited to larynx. Operative removal by Dr. Samuel Crowe, March 30, 1917, followed by repeated radium exposures. Still entirely well.

CASE VIII.—Mr. H. N. R., aged fifty-five. Extensive basal cell carcinoma of larynx causing obstruction. Tracheotomy and heavy exposure with radium, September 11, 1913. Complete disappearance of growth which had persisted up to the present time. Normal voice.

CASE IX.—Mrs. J. H., aged twenty-two. Round cell sarcoma of tonsil and pharynx. First seen September 6, 1916. Last treated February 4, 1917. After complete disappearance of the growth the tonsils were removed and found normal. No evidence of trouble. Clear throat and neck.

CASE X.—Mr. W. G., aged twenty-four. Unilateral tonsillar hypertrophy or round cell sarcoma. No evidence of trouble since disappearance of growth in August, 1918.

CASES XI, XII, XIII and XIV were instances of localized squamous cell epithelioma of the mouth, well respectively for six weeks, four months, six months, and nine months.

CASES XV and XVI were two instances of skin epithelioma cured respectively for seven and three years.

The Treatment of Hodgkin's Disease.—Dr. CURTIS F. BURNAM of Baltimore stated that during six years he had seen and treated more than one hundred cases of Hodgkin's disease and malignant lymphoma. He wished to emphasize the importance of general *x*-ray, blood, and tissue examination. Blood examination, while quite valuable, was much less reliable than tissue diagnosis. Two glands should be removed in order to secure enough tissue. He advised against extensive operative removals. He employed radium treatment supported by rest in bed, forced feeding, and iron. Where radium was not available he urged the use of the *x*-ray. A critical analysis of cases treated demonstrated that better results were obtained where tissue examination was characteristic of lymphosarcoma than where it showed definite Hodgkin's disease. Also, in Hodgkin's disease the results were better where the polymorphonuclear leucocytosis characteristic of extensive Hodgkin's had not developed. Treatment was much more satisfactory in chronic than in acute cases. In the former, disappearance of gland masses was almost invariably associated with improvement in the general health. No routine treatment applicable to cases indifferently could be prescribed. Each patient must be given individual attention. The best guide to treatment was to be found in the effects of the gland masses, the blood, and the general health

the patient. Gamma radiation at distance of one and a half to five inches from the surface with amounts of radium varying from 500 mg. to several grams, the time of exposure being inversely proportional to the amount of radium employed, was indicated. The radiation should be carried out so that every affected part might receive adequate dosage, and the treatment should be repeated at intervals until all evidence of disease had disappeared. The results obtained were highly encouraging. Where lymphosarcoma was diagnosed, two cases had been well for more than five years, one with extensive neck, and one with abdominal, involvement. Four cases had been apparently well for over three years; one with pharyngeal and neck involvement; one with mediastinal, one with tonsil, neck, and groin, and one with neck and axillary involvement. In the cases of Dorothy Reed's Hodgkin's disease, one patient with mediastinal and neck involvement had been well for four years, and two cases for more than three years. One of these had neck, axilla, groin, and iliac, the other groin, axillary, neck, and mediastinal involvement. No analysis was given of those cases under observation less than two years.

Mustard Gas Burns.—Dr. WILLIAM P. CARR of Washington, D. C., reported a number of cases of burning with mustard gas. He spoke of the remarkable difference between these burns and ordinary burns or scalds. The remarkable features were, he said, as follows: (1) A long period between exposure and the appearance of any symptoms, which varied in his cases from sixteen to thirty-six hours. No disagreeable sensation was felt on exposure and patients were sometimes not aware that they had come in contact with the gas until a day or two later. (2) The destructive action of the gas absorbed into the tissues continued for days and in one case continued for two and a half months. (3) The symptoms began with stinging and itching sensations, much brown pigmentation of the skin and a few hours later vesicles appeared which soon coalesced into large blebs filled with coagulated lymph stained a deep yellow with broken down hemoglobin. These blebs always destroyed the whole thickness of the skin and might extend deeper. They were solid and looked and felt much like lipomata after they had been removed. Fluid from these blebs was very irritating and might cause burns on the sound skin. Some of these blebs were two or three inches in diameter and elevated an inch above the surface. (4) During the active stage the burns were extremely sensitive. (5) Some persons were practically immune to the gas and the degree of susceptibility varied greatly in different inviduals. (6) Healing was fairly rapid except under the blebs, where continued destruction after their separation or removal might continue for a long time after other parts of the wound had healed. (7) The most satisfactory treatment he found was removal of the blebs with curved scissors, thorough cleansing with sterile water, thorough drying with a warm air blower, and the application of ambrine or paraffin with a spray. Cauterizing sloughs with silver nitrate was followed by severe reaction and did harm. (8) Very little scar followed under ambrine or paraffin treatment.

Some Notes from the Examination of Five Thousand Selected Service Registrants.—Dr. ALEXIUS MCGLANNAN of Baltimore reported some points from the examination of five thousand men by Drs. Requardt, Hutchins, and himself, surgeons to Medical Advisory Board No. 2, Baltimore. There were 3500 whites and 1500 negroes examined. Inguinal hernia was found in 294 whites and 78 colored men; femoral hernia only 7 times; umbilical hernia in 5 whites and 20 colored. Of 255 varicoceles only 2 occurred in black men. Undescended testicle was found in 26 cases. Among other congenital defects, there were 2 cases of absence of the pectoralis major muscle.

Anesthesia.—Dr. HENRY O. MARCY of Boston said that the history of surgery gave unmistakable evidence that from the very early period of Egyptian civilization, through the many centuries, the medical profession made earnest effort to control pain and lessen suffering because of surgical need. The remedies used were considerable in number. First, and most important even to the present time, was alcohol and its derivatives, of which sulphuric ether was the most important. The knowledge of the effect of the poppy was certainly of long ago, and its socalled juices were used in various products. The ancient Peruvians early ascertained the value of the cocoa plant; its leaves were in general use among all classes, from the laborers to the Incas, who by royal edict consecrated it to the gods. Inhalation of various volatile products was in more or less common use and the problem of the control of pain was never forgotten. It was a singular coincidence that men unknown to each other, of limited knowledge and training, should independently and almost simultaneously have demonstrated the great value of sulphuric ether. America was justly credited with the discovery and introduction of this priceless boon. On the other hand, Sir James Simpson was one of the leading surgeons of Europe in training and knowledge. To him was rightly due the discovery of chloroform as an anesthetic. Dr. Marcy emphasized the just value of anesthetics, not alone in the relief of the suffering incident to surgical intervention but especially in the revolutionary progress of the surgical art, broadening the field of surgery into that of true science. To the present generation the great surgical advance was accredited; the discoveries of Pasteur, Lister and his pupils thus having completed the Esculapian temple of the present. The building of the fathers in the early centuries was ever to be held in reverence by the worshipers of the present day. The future was yet full of promise and the field of medicine at the present could enroll its victories, not less brilliant than those of surgery. In both, however, as never before, science pointed to still greater achievements.

Reconstruction of the Uterus.—Dr. CHARLES R. ROBINS of Richmond, Va., approached the subject from two points of view: first, the obvious advantages of exploring the cavity of the uterus through a direct incision. In this way many cases could be relieved without resorting to the radical measure of removing the uterus. From the other viewpoint the consideration was the removal of the pathological portion of the uterus and its reconstruction from the portions left. This procedure was facilitated by the anatomy of the organ. The blood supply and the tubes entering from the sides made it possible to remove as much of the intervening portion as might be necessary. The only thing necessary to leave was a continuous cavity from the tubes to the external os. This operation could most frequently be practised in the treatment of fibroids. It was not intended that it should be generally used because the cases in which it was indicated or possible were comparatively few. However, in young unmarried women and in married women who had not borne children we would be justified often in whatever risk we might entail of unsatisfactory results or later development of fibroids. Two cases were reported. One in which a young unmarried woman was relieved of a profuse menorrhagia due to a fibroid infringing on the endometrium, and the other in which fibroid and fibrosis of the uterus were removed by extensive resection extending to the internal os and the reconstruction of the uterus by suturing the lateral portions together. In this case the patient subsequently married and became pregnant three times without pathology, except that she aborted in the first two pregnancies. Her last pregnancy, however, resulted in a robust, living child.

Gynecological Pelvic Drainage; Its Indications, Methods, and Materials.—Dr. J. WESLEY BOVEE of Washington, D. C., contrasted the attitude of the medical profession toward drainage forty years ago and the present. He claimed there was still much need for the use of drainage material in pelvic surgery, at the same time deprecating the suprapubic use of it and pronouncing in favor of the vaginal route for its use. He mentioned the various materials in use, but especially recommended for the purpose paraffinstearin gauze as prepared by the formula of Dr. Hart E. Fisher, chief surgeon of the Chicago Elevated Railroads (*Jour. A. M. A.*, 1916, LXVI, 939), which he had used since March, 1916. The chief advantages claimed for it were (1) its non-adhesion to the tissues and consequent easy and painless removal, and (2) its permitting endothelialization of denuded areas of pelvic peritoneum without the formation of lasting adhesions.

Visceroptosis.—Dr. CHARLES L. BONIFIELD of Cincinnati, Ohio, said that some of his cases of ileosigmoidos-

tomy had been under his observation for five years and were still doing well. In none had he found it necessary to remove the colon, although the colon was removed in one case by a surgeon while he was out of the city. He had always felt that his youthful enthusiasm led him to do an unnecessary operation. Some of them had had slight trouble with feces getting into the colon above the anastomosis, but to the best of his knowledge in none of them had it been serious, and as time went on it became less and less frequent. Reed of Cincinnati for a time removed the colon in all of his cases of ileosigmoidostomy, but he found the operation attended with a high mortality rate, and in later operations he left the colon, but severed it just above the anastomosis and brought that end out to the skin on the right side of the abdomen and the end of the ileum out on the left side, so he could wash through and through the unused portion of the bowel. His results with this procedure were very satisfactory and he never found it necessary to remove the colon afterward. The same beneficial results could be obtained by doing an ordinary appendicostomy or cecostomy without severing the colon. The mucus and any feces that accumulated in the transverse colon could be washed into the lower bowel, but his experience, although limited, would lead him not to do even this until symptoms indicating it arose. He performed cecosigmoidoscopy on three patients, but his results were not as satisfactory as he had always obtained from ileosigmoidostomy. A large part of the fecal current continued to flow through the old channel and to produce the old symptoms. The result of his study and experience with this condition would lead him to believe that many cases required no surgical treatment; that others required operative treatment only for the pelvic condition; others would require fixation of the kidney as well, and for the type where colonic stasis was most severe ileosigmoidostomy was the best procedure yet devised, and that the colon should be removed at a second operation and only when symptoms made it necessary.

Treatment of the Undescended or Maldescended Testis with Particular Reference to End Results.—Dr. WILLIAM B. COLEY of New York City read a paper with this title in which he reported 415 cases and drew the following conclusions: "(1) In most cases of undescended or maldescended testis the etiology points to a congenital origin, often influenced by the element of heredity and frequently associated—particularly in the double variety—with other developmental defects. (2) As to the question of the functional value of the undescended testis, while it cannot be definitely answered in an individual case, it is probable that in a considerable number of cases, at least 10 per cent., the testis retains the power of spermatogenesis. (3) The testis should rarely be sacrificed, especially in children, for two reasons: (*a*) Because of its possible functional value; (*b*) because of the interstitial cells which are present in all cases and which have an important influence in the development of the male characteristics of the child. (4) The tendency to malignant disease is relatively considerably greater in the undescended than in the normal testis. (5) Operation should be advocated in children who have reached the age of eight or ten years, for the following reasons: (*a*) For the radical cure of the hernia with which the undescended testis is practically always associated and which often cannot be controlled with a truss without causing pain and irritation to the testis; (*b*) by bringing the testis down into the scrotum at this period there is a possibility of causing further and more normal development of the testis. (6) Operation in adults over the age of fourteen should be even more strongly urged, for the following reasons: (*a*) In order to cure the accompanying hernia; (*b*) in order to place the testis in a position in which it is much less liable to trauma, thereby lessening the chances of malignant degeneration; (*c*) for the mental and moral effect upon the patient."

Notes on the Treatment of War Wounds in the Hospitals of the A. E. F.—Colonel CHARLES H. PECK, M. C., U. S. Army, formerly Senior Consultant, General Surgery, A. E. F., stated that the scientific treatment of war wounds was developed greatly during the second and third years of the war in the French, British, and Belgian services. It passed from the stage in which all wounds suppurated profusely, to the discovery of the Carrel-Dakin method of chemical sterilization, and later to the method of early "debridement" healing by first intention in a large percentage of cases. Successful early debridement depended upon well equipped operating hospitals near the fighting line; upon conditions of combat and transport which permitted of evacuation of the wounded from the field to the operating hospital in less than 15 hours; and upon an adequate number of skilled operating teams to care for all wounded promptly in time of battle. These conditions had been met in the French and British Services by the evacuation hospital and the casualty clearing station, established 8 to 12 miles behind the lines, and by large numbers of mobile operating teams which were moved as needed to meet the changing demands of battle at different points. The American Service was developed on similar lines, but soon had to meet the changed condition of open warfare as contrasted with the fixed line of trench fighting, which had existed for more than two years. In open warfare the frequent delays in evacuating wounded from the field; the difficulty of providing for early operation near the front for all cases needing it; the necessity of using small mobile hospitals, and improvised operating units in field hospitals, instead of well organized evacuation hospitals, had interfered seriously with the ideal treatment of war wounds. In spite of these difficulties and new problems, the Medical Department of the A. E. F. had met the situation in a masterly way; had provided adequate hospitalization and skilled surgeons for the care of the wounded, and had performed this gigantic task for an army of two million men with a minimum amount of confusion and delay. The excellent morale and the good physical condition of returning overseas wounded was evidence of the efficiency of the service.

The Limitations of Cesarean Section.—Dr. E. GUSTAV ZINKE of Cincinnati, after a brief reference to the history of cesarean section, the evolution and completion of the doctrine of narrow pelvis, the introduction of the compromise operations (namely, induction of premature labor, the high forceps, version of the child, and embryotomy in any of its forms), and a general consideration of the positive and relative indications for cesarean section, as well as the reasons for the present popularity of the operation, summarized as follows: "(1) Abdominal cesarean section is positively indicated, as in the past, in all cases in which the child cannot be delivered by any means, dead or alive, through the parturient canal. (2) The operation is not only justifiable, but almost imperative, and should be selected as the best mode of delivery in all cases of deformed, narrow, and contracted pelves in which the diameters are so reduced in size as to forbid the test of labor, the use of the high forceps, or version of the child upon the feet. (3) Abdominal hysterotomy will furnish the best results for both mother and child in all of those cases of placenta previa in which the hemorrhage is either profuse or moderate and protracted, and beyond control. When an elongated or unobliterated cervix or rigid os complicate placenta previa, cesarean section is all the more imperative. Fortunately, in the majority of these cases, the hemorrhage may be effectually arrested; elongated cervices are quite rare; and an unobliterated cervix, or rigid os, usually yield to well applied tamponade, or the careful and skillful use of the rubber bag. (4) Cesarean section may be chosen as a just procedure in cases of sudden and profound eclampsia, or severe toxemia in a primigravida when associated with an elongated or unobliterated cervix, acute suppression of the urine, general edema, and cyanosis. In the milder cases of this disease, when the life of the child is considered equally as important as, or more important than, the life of the mother, the operation finds a justification. This fact, more than anything else, renders cesarean section almost entirely unnecessary in the treatment of eclampsia. (5) As to the advisability of abdominal hysterotomy in cases of asthenia, no matter what the cause, the justification of the operation rests upon the mature and accurate judgment of an able, conscientious and experienced attendant. That, occasionally, both lives may be saved by the performing of this operation in these circumstances may be granted; but that the operation will be but rarely indicated for this condition, also admits of no doubt. (6) In the past, cesarean section was not resorted to

often enough; at the present time, it is performed too frequently. In order to guard against an abuse, it may be well to establish the custom that the cesarean operation should never be performed without the consent of an experienced consultant of recognized standing and an authority on obstetrics. (7) Cesarean operation should never be regarded lightly because it is easy of performance; on the contrary, it should always be considered a formidable procedure, one which may be followed by serious consequences; and it should not be forgotten that, even under the most favorable circumstances, the operation invariably involves extensive exposure of the abdominal and uterine cavities; it means an abdominal and uterine cicatrix and, nearly always, more or less extensive adhesion between the uterus, abdominal wall, omentum, and intestines. In addition to this, it is well to remember that the danger from a septic infection cannot be, and never will be, entirely eliminated. (8) The question as to whether an existing septic infection is a contraindication has been discussed repeatedly and extensively. Judging from the favorable results reported by men who have performed cesarean section when the patient showed symptoms of infection, one is led to believe that the cases in which recovery did take place were not really of the type classified as true septic infection, but rather that they were cases of mild sapremia. A strictly septic infection is always systemic and almost invariably fatal; a sapremia is, usually, local in character, and even if some of the saprophytes do find their way into the circulation the police force within the organism, as a rule, promptly disposes of them, and the patient recovers notwithstanding the cesarean section."

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held March 19, 1918.

DR. EDMUND P. SHELBY IN THE CHAIR.

Pulmonary Abscess Following Aspiration of Sea Water. Dr. JESSE G. M. BULLOWA presented this paper in which he reported four cases showing that the inspiration of sea water was apparently a frequent cause of pulmonary infection which might lead to abscess formation. In three of the cases recovery was spontaneous, while the fourth, a more severe type, was treated bronchoscopically. In all of these cases there was a history of sea bathing and of having swallowed sea water just previous to the appearance of symptoms. The outstanding symptoms in these cases were cough, initial high temperature, purulent or mucopurulent sputum, flatness, bronchial voice and breath sounds, and increased fremitus, referred to one side of the chest. There was an absence of tubercle bacilli in each instance. The first three cases recovered under rest in bed and sedatives, in the course of from three to six weeks. The fourth case was more severe, giving a history covering over six months, and was treated bronchoscopically. About seven weeks ago Dr. Lynah bronchoscoped this patient and aspirated pus from the posterior branch bronchi of the left lower lobe. The pus was cultured and developed a *Staphylococcus albus*, a yeast fungus, and two types of streptobacilli. Following this procedure the sputum lost its odor, the boy improved rapidly and gained weight. This was probably due to improved drainage resulting from the dilatation. About three weeks ago the odor returned and the boy was again admitted to the Polyclinic Hospital, where he was bronchoscoped a second time by Dr. Lynah and the cavity in the right lower lobe washed out with tincture of iodine. There was a very slight though definite improvement from this procedure. About a week later he was again bronchoscoped and washed with iodine, the bronchoscope being passed into the affected bronchus, a distance of 32 cm. from the teeth, and 10 per cent. silver nitrate was applied. There was a characteristic ulcerative turnescence in the bronchus leading from the cavity. How salt water caused lesions in the lung was an interesting problem. One could not say whether the fluid carried down an extra charge of bacteria from the mouth with which the tissues became saturated, producing the phlegmon in the lung, or whether the salt water acted as a foreign body and by some chemical action inhibited the cilia which should expel it, or whether the salt water had a peculiarly irritating action on the pulmonary tissue. It was also possible that there was an edema of the pulmonary tissue sufficiently intense to cause a retention of the normal secretion which decomposed and acted as a foreign body. The diagnosis depended upon the probable inspiration of sea water in the so-called "colds" which were subsequent to immersion and on the presence of unilocular physical signs. Confirmatory evidence obtained by *x*-ray examination and the characteristic appearance of an ulceration of the bronchus leading from an affected area were further aids in the diagnosis. The absence of tubercle bacilli was valuable confirmatory evidence though not conclusive, as patients with tuberculosis might acquire this condition. It seemed probable that the proper understanding of the etiological factors and the employment of modern methods and study would result in the improved care of these sufferers, and that a widespread recognition of the mechanism of this type of pulmonary abscess as a foreign body irritation and the prompt employment of bronchial aspiration would prevent the occurrence of some of these cases. This fact should be brought home to all surgeons who were likely to see cases of submersion, as would doubtless be the lot of those who went overseas.

Dr. JACOB PILLER asked Dr. Bullowa if he considered the first three of these cases pulmonary abscesses.

Dr. BULLOWA said "no," he thought they were phlegmons.

Dr. PILLER recalled that it had been his good fortune, in 1915, to observe six or eight cases of pulmonary abscess following tonsillectomy, and he had also followed several cases in private practice. In none of those cases was there observed anything more than a very brief temporary spontaneous cure. In one case, after hygienic treatment, the radiographic shadow cleared up but upon the man's returning to work the symptoms recurred, and he had since become steadily worse. None of the others did clear up and all had been bronchoscoped and were without question true pulmonary abscesses. The *x*-ray showed in the majority of the cases abscess formation around the root of the lung. Two were at the base, and the shadows were all much heavier than those shown by Dr. Bullowa, and were characterized not so much by their severity of symptoms as by their long continuance.

Dr. HENRY LOWNDES LYNAH said that he had been seeing one of Dr. Bullowa's cases. In his personal experience he had seen a lung abscess follow a tonsillectomy, but had never seen one follow the inspiration of sea water until he saw this case of Dr. Bullowa's. However, he was not surprised that a lung abscess should follow the inspiration of sea water, because the colon bacilli was very generally found in the sea water about New York and might be the cause of infection. Dr. Yankhauer had treated many lung abscesses by bronchoscopy. In bronchoscoping these cases he had never been able to see a definite abscess cavity; the only thing he had been able to see was pus coming from a small bronchus.

Dr. SHELBY congratulated Dr. Bullowa on the results obtained in these cases. He said he had seen many cases of lung abscess, but he had never seen a case recover without operation. He believed we had come to consider that these were surgical cases, only to be cured by surgery, and the idea of aspirating them through a bronchoscope struck him as a most advantageous and excellent procedure, and he hoped that it would have a large field of application.

Dr. BULLOWA, in closing, emphasized the fact that the recognition of these cases of pulmonary infection due to the inspiration of sea water and the possibility of their resulting in abscess was important. These cases were foreign body infections of a definite type. Dr. Evans had seen two such cases. Frenkel and Stahlin, as well as Godlee and Stewart, reported no cases of this kind in their works on diseases of the lungs.

The Work of the Cardiovascular Board at Camp Upton.—Captain EDWARD J. RILEY, M.R.C., read this paper in which he stated that the work of the board of cardiovascular examiners included the following: (1) The preliminary sorting of those who presented

unmistakable signs of heart disease, such as well defined mitral stenosis, aortic regurgitation or aneurysm, cases which presented an appreciable displacement of the apex beat to the left, and cases with a severe and persistent form of cardiac irregularity, and also those presenting signs of exophthalmic goiter. (2) The subsequent reexamination of soldiers who suffered from the strain of training. (3) The study at the hospital of such cases as were indefinite and needed observation. Recruits were examined within twenty-four hours of their arrival. During the time a large increment of men was arriving it had been the custom to examine about 1,800 a day. The general examination was made by six examining teams, working in two shifts. The power of rejection was not given to these men, so a case in which there was any question of the fitness of the recruit was referred to a special board of examiners. It was estimated that in order to complete the examination of 1,800 men a day, 200 men per hour must be examined. Therefore, three teams working, each man must examine 60 odd men an hour; in order to complete the examination of 60 men an hour he could allow himself approximately one minute for each examination. The general examining room was very noisy and one could imagine that a great many organic valvular diseases might easily slip by, but to show how careful the examiners were Dr. Riley read the figures relating to three of the increments of men that arrived at the camp in daily quotas of 1,800 or 2,200 men a day. Of one increment numbering 10,843 men, 339 were referred for special cardiovascular examination. Of these 279 were accepted and 60 were rejected. Of a second increment numbering 1,150 men, 66 were sent for special cardiovascular examination, and of these 55 were accepted and 11 rejected. Of a third increment numbering 8,365 men, 320 were sent for special cardiovascular examination, of which 302 were accepted and 18 rejected. Taking these three groups together, there were 20,358 men, of whom 89 were rejected on primary examination for cardiovascular disease which would incapacitate them for full military duty, 625 were accepted, and 71 were rejected after a second examination for organic cardiovascular disease. According to instructions from the Surgeon General's Office, medical examiners might accept for general military service recruits showing: (1) Loud systolic murmurs, audible at the apex and in the left back, if unassociated with any definite enlargement of the heart, with snapping first sound, or accentuation of the pulmonic second sound, in whom the response to exercise was normal, but the actual physical signs found present would be entered on the record. (2) Displacement of the apex downward to the sixth interspace within the nipple line, without evidence of hytertension or aortic disease, could be accepted with notation. (3) Displacement of the apex toward the left beyond nipple and not associated with signs of mitral disease, with normal response to exercise. (4) Basal systolic murmurs not associated with cardiac hypertrophy or palpable thrill might be accepted with notations. (5) Cases of tachycardia not associated with hyperthyroidism or tuberculosis, with normal response to exercise, might be taken with annotations and request for reexamination. (6) Mild cases of arrhythmia were accepted. Practical experience had shown that the presence or absence of systolic murmur was of no value in estimating the soldier's capacity for work, and this practical conclusion held irrespective of the character of conduction or point of maximal audibility of the murmur in question. When cases were referred to the cardiovascular board for primary examination a complete record was taken of the name, age, occupation, and the abnormal signs for which the case was referred, as well as the previous history of the man. After the general physical and cardiac examination, the recruit was subjected to exercise, having him hop on one foot 100 times; if he could not complete the 100 hops with one foot he did so with the opposite one. His heart was then auscultated while he was standing and then in the supine position. The heart rate after exercise and the time required for it to return to normal limits was recorded. Under caption D the findings of the special examiners were recorded. Under caption C the recommendation of the special examiner was noted. The recommendations thus far were only to accept or reject, there being no waiver for special duty. After the examination of an increment was completed a duplicate report was forwarded to the Surgeon General's Office. Many of the cases presenting themselves for examination at the present time were very puzzling, especially those sent with the diagnosis of tachycardia. In a few of these cases the condition quieted down and the recruits were accepted for duty; some few were persistent and tuberculosis was suspected and the men were referred for a special lung examination. A great many presented the symptoms of hyperthyroidism, this complex being observed in 13 of 60 cases rejected in one increment. The subsequent examination of the soldier who suffered from distress upon exertion was made once a week at the recruiting barracks in the camp, and the regimental surgeons brought these cases to the special board of examiners. It could readily be seen how a soldier would grasp the statement made by a physician that his heart was affected, especially if he were not anxious to serve. To tell a soldier directly or indirectly was to prejudice his return to duty. So the use of the cardiac terms for describing the cause for the symptoms was discouraged and the term "effort syndrome," so wisely chosen by Dr. Thomas Lewis of the Hampstead Military Hospital, England, had been adopted. The reexamination was conducted in exactly the same way as the special primary examination. For the most part the chief complaint was equally divided between breathlessness on exertion and pain over the precordium; many complained of palpitation, faintness, dizziness, sweating, and exhaustion. Inquiry showed that these symptoms were most likely to occur after exercise and that double-quick time for the most part was the cause. During the survey for tuberculosis a division was practically combed of all cases of organic heart disease. Monthly reports were sent to the Surgeon General's Office of the cases examined and reexamined and a description of each case was included.

Dr. Selian Neuhof said that he wished to speak on the adventitious heart sounds heard at the apex. Last summer he had occasion at the local examining boards to make examinations; in some cases he found a thrill-like impact with the first sound at the apex. These cases had been to a number of doctors and all sorts of diagnoses had been made. Upon auscultation one at first got the impression of a real presystolic mitral murmur. The thrill in question was, however, systolic in time and could be quieted by having the patient hold his breath at the end of inspiration. Under such procedure the murmur would disappear and the heart sounds become normal. In a few cases sounds were noticed that were due to localized pleuropericarditis at the apex, probably from an old pneumonia. Nothing was said of these sounds in textbooks, but having one's attention called to it might be of assistance in distinguishing organic lesions from adventitious sounds.

Dr. Bullowa related an interesting experience that he had had on one of the local boards and as a visitor to its advisory board. He observed that some men who had rapid hearts at the local boards and who were sent for examination to the advisory board had lost their abnormality when examined at the advisory board. He had also observed a few cases in which there were adventitious sounds that disappeared under vagus pressure. There were a large number of overweight men who on examination were found to have hypertension. These were young men and sometimes the blood pressure reached as much as 280 mm. They seemed to be suffering from a pituitary disturbance which was associated with a genital hypoplasia.

Dr. Shelby asked whether in these cases kept under observation with physical training they had any of anemia, and whether when they found these men who came from sedentary occupations and did not pass the tests they had made any observations with reference to the hemoglobin. Some of these men who were under par and came from sedentary occupations had a hemoglobin percentage of from 50 to 75, and that was a factor that might be taken into consideration.

The Cardiovascular Ward at Camp Upton.—Dr. Ami Edgar, Captain, M. R. C., presented this contribution, in which he stated that there appeared before the Cardiovascular Board a number of cases of uncertain and indefinite character which required a period of observation in order to classify and deal with them properly

and fairly. Among these were the organic cardiac conditions already described by Dr. Riley, together with a fair proportion of conscious exaggerators and true malingerers. The object of the observation hospital was for the immediate removal from duty of such cases as might suffer more or less permanent harm, and for the invaliding of men out of the service who had permanent disease unfitting them for further duty, and for the treatment of the remainder of these doubtful and uncertain cases to the end that they might be returned to duty at the earliest possible moment. They maintained at the Camp Upton Hospital an observation ward and two convalescent wards where the retraining exercises were carried on. All cases unfit for further service were eliminated as rapidly as possible, the procedure being practically a repetition of the work of the Cardiovascular Board in Camp. A considerable number of cases found in the cardiovascular ward were from time to time collected from the various wards, having been sent to the hospital for other than cardiac conditions. These men were, as a rule entirely ignorant of any cardiac disorder, which was usually, of a kind not easy to diagnose offhand, and having allowed them to pass at a single examination was quite excusable. This left them with patients who displayed the symptoms and signs of the "effort syndrome," complicated or not by the presence of systolic murmurs. They did not make any further attempt to diagnose organic disease of valves or muscle at this time for the question now became one of prognosis rather than of diagnosis. The frequency with which these symptoms developed during convalescence from febrile affections demanded for those cases also a very gradual transition from hospital to duty, and accordingly they were added to the lot. All these cases were placed on graduated exercises, directed by a sergeant and two assistants. The exercises were adapted from the manual of drill and were in a measure familiar to the men. They were taken daily at stated times and the patient advanced to a higher grade and more difficult exercises according to his response to to-day's exercises. Each patient was examined after taking a new exercise and more often if it was considered necessary. Observation was made and noted of heart rate, respiratory rate, and objective signs of distress were carefully compared with subjective symptoms. The appearance of the man coming from drill, his expression, color, breathing, and heart rate, were invaluable objective clues to his tolerance of exercise. The patients gradually classified themselves according to the highest grade of exercise that they could bear without distress, and in estimating fitness for duty these were far the most important guides, for a man's observed capacity to accomplish work of a given order was the only dependable test of such capacity. Observation of the physical signs while the patient was at rest were absolutely unreliable for estimating capacity for work. A man with stationary aortic disease was frequently capable of far greater and more prolonged strain than was a man with the severe "effort syndrome" symptoms who had no murmurs. Neither could the patient's statements be relied upon to any extent. The very properly called "effort syndrome" group of symptoms invariably presented some very interesting and frequently puzzling points. Some of these cases were with great difficulty separated from the organic. The chief symptoms which these patients complained of were breathlessness, an almost constant feature and almost without exception all out of proportion to subjective symptoms; exhaustion, provoked to a degree far in excess of that due to fatigue in healthy men; pain, which was present in 70 to 80 per cent. of the cases and varied from precordial uneasiness to severe, sharp, stabbing pains, though most frequently a dull ache of indefinite character was present; palpitation, commonly the expression of a vigorous heart action which was present or severe chiefly during exercise or when under emotion, though it might be maintained under all conditions; fainting, sometimes genuine, which might occur under almost any condition, as standing, walking, marching, or after inoculation; giddiness, which was present in more than 70 per cent. of the cases; sweating, also of very frequent occurrence. In the effort syndrome the heart rate averaged 85 to 90 or even 100 or more, and in most cases was an exaggerated response to normal stimuli. Systolic murmurs were dealt with according to instructions from the Surgeon General's office. The essential factor in dealing with the irritable hearts of soldiers was to draw their attention away from the heart. Such terms as "cardiac strain" and "irritable heart" should not be used in the presence of the soldiers if they could be avoided. The expression "effort syndrome" was noncommital from the pathological standpoint and adequately described the clinical picture, in that it expressed the fact that the chief symptoms were unmasked or aggravated by exertion. As the retraining of these men progressed they were able to make still further eliminations, as, for instance, if a man showing breathlessness on exertion had been tested objectively and this was found to be persistently severe, or those in whom the heart rate was persistently above 120, even in the recumbent position, or those in whom a simple exercise test produced marked objective signs of distress, namely an anxious expression, a respiratory rate of 35 or more, which persisted while the patient was recumbent, and a pulse rate which fell to within five beats of the pre-exercise level on lying down two minutes. It was at this stage of the game that the malingerer and conscious exaggerator were met up with. Dr. Edgar said they observed the entire training period of the 77th Division, which was almost entirely a metropolitan division, many of the men coming from sedentary occupations. While these men had been carefully and intelligently trained, it might be wiser in conscripting men from sedentary life to give them a more graduated course of training, for the sudden transition was without doubt the cause of considerable disability in a certain fairly large proportion of these men in the early weeks of camp life. The hospital retraining was a splendid one.

Dr. Selian Neuhof asked whether they were using any drugs of the bromide group in the cases of tachycardia, or in those cases having fairly well-marked precordial pain.

Dr. Louis Faugeres Bishop expressed the opinion that the work carried on by the cardiovascular boards in the Army was most extraordinary in regard to the rapid manner in which the army men had come up to the standard of those who had been working on cardiovascular diseases for many years. Of course every man who specialized in diseases of the heart made one rediscovery and that was that exercise was the best remedy for heart disease. Formerly it was thought that rest was the best treatment for a patient with cardiovascular disease, so the general practitioner always put the patient to bed and the specialist in cardiovascular diseases came along and got those people up. The army men had in a short time come to hold the same views as the heart men had reached through long observation. It was also extraordinary the way in which the army men had put these views into practice in such a short time.

Dr. Shelby said that those of them who had been examining the recruits were very anxious to hear the final decision in reference to cases that had slight cardiac symptoms. They were glad to know that they could take cases not entirely normal and by properly training make them fit. It was gratifying to know that in cases in which it was difficult to make the decision as to whether the men should be accepted or rejected that by a series of exercises they could find out whether the men were fitted for service or not.

Dr. Edgar, in closing, said they had had some very few cases of anemia. They had had some men who were very much under par in every way, and one could not say definitely that there was any one thing that was the cause of their condition, and they had had a few cases of anemia. As to the use of drugs, they were not using drugs, for a case that required digitalis was unfit for military service. Exercise, good food, and good hygiene were the measures they were employing in the treatment of these cases. They did not allow these men to go to bed. The bromides they had used in the cases of exophthalmic goiter, but simply to tone them up.

The Relation of Bronchoscopy and Laryngoscopy to the Field of General Medicine.—Dr. Henry L. Lynah made this presentation, which consisted of a lantern slide demonstration. He said that he felt a little out of place in attempting to teach the internist about

bronchoscopy since those interested in general medicine did not seem to be much interested in bronchoscopy. Dr. Lynah showed slides illustrating the position in which the patient was placed for bronchoscopy and called attention to a number of technical points in the procedure. He stated that the measurements of the tracheobronchial tree varied in circumference from 4 cm. at the age of two years to 17 cm. at the age of 23 years. He emphasized the importance of having the *x*-ray taken in the lateral position in trying to locate a foreign body. Among those wearing tubes it occasionally happened that a tube disappeared and it was thought that the tube had been coughed up and lost; later the tube would be found to have been pushed down into the lung. This would not be discovered until an *x*-ray was taken. The tubes were so constructed that they could not fall into the lung, but it was possible to push a tube down if a forcible effort was made to remove it. A case of peribronchial abscess for which no cause could be assigned was found on bronchoscopical examination to have been caused by the presence of a safety pin in the bronchus; this served to show the value of a bronchoscopical examination. In cases such as Dr. Bullowa had reported the bronchi showed, when examined bronchoscopically, a soft edematous tumescence which tended to occlude and interfere with drainage, and the ulcerated area that was caused by the passage of the irritating fluid from the abscess cavity. Dr. Lynah said he did not think the value of bronchoscopy would be realized by the general practitioner until he learned that it was possible to go on with the bronchoscope and tell whether a child had bronchial diphtheria or not. Dr. Gover had recently done some very interesting work showing that this could be done. Before it was demonstrated that one could recognize the presence of bronchial diphtheria by means of the bronchoscope and could remove the cast that frequently formed in the bronchi, these cases often went unrecognized. It was well known that even when the presence of a bronchial cast was discovered and the cast removed it was likely to recur. Now, after removing the cast, the bronchus was swabbed out with antitoxin and a tube left in, and it had been found that the cast would not reform around the tube. In these cases of bronchial diphtheria in which a cast obstructed the passage to the lungs the pathological changes were likely to be very great; in one instance almost complete necrosis of the lung had taken place. This was in a man over 80 years of age who was supposed to be suffering from pulmonary edema. The bronchoscope revealed the presence of casts in the bronchi. The man died as the result of drowning in his own secretions. Cases of tracheobronchial diphtheria often looked much like bronchitis, but they might be distinguished by the absence of respiratory murmur and the increased resonance, together with the aid of a bronchoscopical examination. Bronchoscopy could be performed in twenty minutes in a child and in thirty minutes in an adult. There was no danger incident to the procedure when it lasted only this short time. Dr. Lynah also showed illustrations of pouched diverticula in the bronchi and said that although efforts had been made to clean these diverticula out the patients all died.

Dr. LEWALD recalled that Dr. Jackson had said that nobody need go to Pittsburgh to be bronchoscoped since Dr. Lynah had taken up this work. He said that the question of abscess of the lungs had interested him very much and that he had been able to follow many of these cases. Some of the cases did not seem to have pus pockets but seemed more like cases of bronchiectasis with some infiltration of the bronchi. The pus seemed to come from the bronchi. A true abscess was formerly regarded as an indication for surgical interference, but our views were undergoing something of a change since we had learned what could be done by bronchoscoping these cases and washing out the bronchi. Dr. LeWald said they had a case at St. Luke's Hospital in which Dr. Green washed out the bronchus with iodine, and after that was done there was a change in the character of the secretion, and the odor was diminished. He felt sure that when the advantages of bronchoscopy were better understood more of these cases would be treated as medical rather than surgical cases. Dr. LeWald related an instance in which a patient was operated on for empyema as a result of which there was a persistent sinus and later it was found that a tack was the cause of the trouble. This led him to insist that cases of supposed empyema should be radiographed before being subjected to operation. There was always the possibility of the presence of a foreign body even in those cases which showed a true exudate.

Dr. DOUBLEDAY asked Dr. LeWald if he had any pictures of thymus glands. He said the reason he asked this was because he had had some cases of enlarged thymus glands in which no shadow was shown. It was an important matter to know the value of the *x*-ray in determining the presence of an enlarged thymus.

Dr. LEWALD in answer to Dr. Doubleday's question said that in Cincinnati they had had half a dozen cases in which a child when crying and excited at the time of the roentgen examination showed an apparently enlarged thymus gland and at another time the shadow would have entirely disappeared. At the Mayo clinic one of the largest thymus glands that they had found at autopsy had given no *x*-ray shadow. The theory on which we might account for this was that at times the blood supply and the congestion caused the gland to show very distinctly and at other times when the condition was different it would not show in the *x*-ray.

Dr. LYNAH, in closing, stated that while bronchoscopy was practically harmless, there might possibly be some danger in the procedure in a case in which there was a sharp pointed pin or tack in the bronchus, since passing the bronchoscope might cause such a sharp point to rupture into the lung and kill the patient immediately. This was the only danger connected with a bronchoscopy, while if a foreign body were present and were not removed, trouble was sure to follow later.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

TEXAS STATE BOARD OF MEDICAL EXAMINERS.

Austin, June 18, 1918.

(*Continued from page* 222.)

BACTERIOLOGY.

1. Describe Gram's method in full and explain what is meant by the terms "Gram positive" and "Gram negative."

2. What is meant by a "pure culture" and how do you make it?

3. What is meant by "natural immunity"? What by "acquired immunity"?

4. Name and describe the bactericidal agents in the blood.

5. Differentiate morphologically the cocci from the bacilli and give examples of each.

6. What are the two divisions of staphylococci and what are the essential characteristics of each both as to morphology and their effects on the human system.

7. Describe the *Entameba histolytica* and differentiate it morphologically and pathogenically from bacillus coli.

8. Name the pathogenic organisms that gain entrance to the human body by means of insects and name the insect which is the agent of transmission of each particular organism.

9. To what division of pathogenic organisms does the infecting agent of diphtheria belong and what other organisms are frequently found in the same infected area?

10. What is meant by a "carrier" and what pathogenic organisms are distributed by these agents?

PATHOLOGY.

1. What is caseation? In what disease is it typically found?

2. What tissue changes would be likely to occur in an untreated case of nephrolithiasis?

3. Describe the pathological course of an inoperable case of prostatic carcinoma.

4. What changes, remote and proximal, are likely to occur in cardiac decompensation?

5. Describe the gross and microscopic appearance of tubercular wrist.
6. Describe grossly and microscopically a cancerous liver. Give location of growth to which it is likely to be secondary.
7. What is uremia?
8. Describe a gummatous testicle, grossly and microscopically.
9. Describe the pathology of the cord in tabes dorsalis.
10. What is hypertrophy? Atrophy? Dystrophy? Atony? Hyperemia?

PHYSICAL DIAGNOSIS.

1. How may perforation of the bowel in typhoid fever be recognized?
2. Differentiate rheumatoid arthritis from chronic rheumatism.
3. How may leucemia be distinguished from pernicious anemia?
4. Give symptoms and physical signs of aortic regurgitation.
5. What are the physical signs of acute pericarditis?
6. What are the physical signs of dilatation of the stomach?
7. How may emphysema be distinguished from pleural effusion?
8. How may eclampsia be distinguished from epilepsy?
9. Differentiate acute intussusception from acute dysentery.
10. How may tetanus be distinguished from spinal meningitis?

OBSTETRICS.

1. Describe the placenta.
2. What methods are used to maintain health during pregnancy?
3. What is to be learned by abdominal auscultation in pregnancy?
4. Diagnose pregnancy in the sixth month from spurious pregnancy.
5. What are the causes of abortion? Why is abortion more dangerous than delivery at term?
6. Describe the third stage of labor and give management.
7. Give causes, diagnosis and management of uterine inertia.
8. What is prolapse of the funis? What is precipitate labor?
9. How is a retained placenta to be delivered?
10. What complications in obstetrics justify abdominal section?

ANSWERS.

BACTERIOLOGY.

1. *Gram's method:* "Certain organisms, when stained and afterward treated with a solution of iodine and washed in 95 per cent. alcohol, give up the stain; others retain the color when subjected to this process. These latter organisms, examples of which are the anthrax bacillus and the pneumococcus, are said to be "gram-positive," or to "stain by Gram's method." Those losing the stain are "gram-negative." This method affords a means of measuring the relative permeability of microorganisms to soluble substances. The gram-positive bacteria are those in which the iodine gentian-violet combination penetrates more or less deeply into the interior of the cell; the gram-negative varieties are only superficially affected: (1) Stain in anilin gentian-violet for one and one-half minutes. (2) Wash in water. (3) Treat with Gram's solution (iodine, 1 part; potassium iodide, 2 parts; water, 300 parts) until purplish black, one and one-half minutes. (4) Decolorize with 95 per cent. alcohol for at least five minutes, wash, dry, and mount.

"A contrast stain with fuchsin or 0.5 per cent. solution of safranin may be made if desired (for example, in examining gonorrheal pus); twenty-four-hour agar cultures should be used. For sections, prolong the process."—(Jordan's *Bacteriology.*)

2. A *pure culture* is one that contains only one kind of microorganism.

To make a pure culture: "All that is necessary is to inoculate the liquefied gelatin with the mixture of bacteria, and after thorough agitation so as to separate each cell from its neighbor, to pour the liquid on to the surface of a sterile plate. The gelatin now solidifies and imprisons, as it were, the separated cells. Each of these now multiplies and reproduces its kind; eventually, in the course of a day or two, a small growth, perhaps of the size of a small pinhead, appears. This is called a colony, and since it is derived from a single cell it constitutes a pure culture. Such is the principle of the dilution method for obtaining pure cultures. The isolation once accomplished, all that is necessary is to transplant the colony to sterile culture media so as to keep up the growth."—(*Reference Handbook of the Medical Sciences.*)

3. *Natural immunity* is that power of resistance, natural and inherited, and peculiar to certain groups of animals, but common to every individual of these groups.

Acquired immunity is this resistance acquired (1) by a previous attack of the disease, or (2) by the person being made artificially insusceptible. The chief conditions which give immunity are: (1) A previous attack of the disease; (2) inoculation with the specific microorganisms in small numbers or of diminished virulence, so as to produce a mild attack of the disease; (3) vaccination; (4) the introduction of antitoxins; (5) the introduction of the toxins of the bacteria.

4. *Bactericidal agents in the blood:* (1) There is present normally in the blood serum, *defensive alexins* (substances which act with an amboceptor to produce lysis); (2) *bacterialysins* (substances which kill bacteria with or without lysis); (3) *phagocytes* (chiefly polynuclear leucocytes which consume bacteria); (4) *opsonins* (which so act upon bacteria that they may be taken up by the phagocytes).

5. The *cocci* are spherical; the *bacilli* are rod shaped. *Examples of cocci: Staphylococcus pyogenes, Streptococcus pyogenes, gonococcus. Examples of bacilli: Bacillus typhosus, B. diphtheriæ, B. tetani.*

6. *Varieties of staphylococci:* "According to a number of observers, agglutination experiments point to the existence of at least two races of staphylococci that may be distinguished as 'pathogenic' and 'saprophytic.' The serum of animals injected with the saprophytic race has a much higher agglutinative power for the saprophytic races than for the pathogenic variety, and conversely. In nearly all other respects the two races are almost identical, although most observers agree that only the pathogenic race produces hemolysin and leukocidin."—(Jordan's *Bacteriology.*)

7. The *Entamœba histolytica* is a protozoon, measuring about 15 to 40 microns in diameter; the cytoplasm contains a nucleus, vacuoles, and food particles; it has short pseudopods. It causes amebic dysentery.

The *Bacillus coli* is a bacterium, varying in length from 2 to 4 microns, and in breadth from 0.4 to 0.8 micron; it may occur as a short, oval coccus; it is motile, has spores, but no flagella. It is a regular inhabitant of the intestinal canal, and under certain favoring conditions may cause septicemia, cholera, cystitis, and other pathological conditions.

8. *Pathogenic organisms that gain entrance to the human body by means of insects* are: *Plasmodium malariæ* (by Anopheles mosquito); the organism causing yellow fever (by Stegomyia mosquito); filaria (by Culex mosquito); the organism of dengue (by Culex mosquito); trypanosoma (by Glossina, a tsetse fly); the organism of poliomyelitis (by Stomoxys); the bacillus of typhoid, diphtheria, influenza, trachoma, cholera, dysentery, anthrax, tuberculosis, and the streptococcus of erysipelas the organism of smallpox (by flies); the spirochete of relapsing fever, and the organism of Rocky Mountain spotted fever (by ticks); the bacillus of typhus fever (by lice); *Bacillus pestis* (by fleas).

9. The *Bacillus diphtheriæ* is a pathogenic bacterium, non-motile, non-spore-forming, aerobic, and non-flagellated.

Other organisms frequently found in the same infected area are: The *Streptococcus pyogenes, Bacillus xerasis, Staphylococcus pyagenes,* pseudodiphtheria bacilli.

10. *Carriers* are persons who, though apparently well, harbor within their bodies and distribute to their environment pathogenic bacteria. Diseases thus "carried" are: Typhoid diphtheria, meningitis, tetanus, influenza, pneumonia, malignant edema, Asiatic cholera, dysentery, and perhaps poliomyelitis and other diseases.

PATHOLOGY.

1. *Caseation* "must be regarded as a post-necrotic change in which the necrosed area becomes converted into a structureless cheesy mass of varying consistence, composed of fatty and albuminous granular detritus. It is typically met with in tuberculous lesions, particularly in the lymph-glands, and also occurs in syphilis, in inflammatory lesions, and occasionally in rapidly growing tumors. Caseous matter may be absorbed, or become encapsuled or calcified."—(Hewlett's *Pathology.*)

2. In *untreated nephrolithiasis* there may result: Hydronephrosis, pyelitis, pyelonephritis, pyonephrosis, abscess formation in or near the kidney; the opposite kidney may become hypertrophied; the affected kidney generally shows overgrowth of the interstitial connective tissue with atrophy of the renal cells.

3. "*Carcinoma of the prostate* occurs as a nodular, yellowish-white mass, which projects into the urethra and neck of the bladder, soon becomes ulcerated, and forms deep, ragged excavations. The disease early gives metastasis to the inguinal glands. The growth develops from the glandular cells of the acini of the organ, which form cylindric, elongate, cellular masses, with branched extensions and occasional large cell-nests. The interstitial tissue may be unchanged, or may be very rich in cells, and apparently in active proliferation. The tumor invades the neck of the bladder, seminal vesicles, and rectum, by continuity of tissue, gives metastasis to remote organs, and is rapidly fatal."—(McFarland's *Pathology.*)

4. *Changes likely to occur in cardiac decompensation:* "When compensation fails, the various organs of the body suffer congestion. The lungs are first affected in disease of the left heart (mitral and aortic disease). The capillaries of the pulmonary alveoli become overfull and encroach upon the lumen of the alveoli, or by elongation stretch the alveolar walls and render them inelastic. In either case proper respiration is prevented—a condition which is further aided by the retarded pulmonary circulation. As a result of these conditions, dyspnea (cardiac asthma), cough, and expectoration develop. In extreme cases edematous exudation takes place, and in long-continued cases cyanotic induration of the lung occurs. In such instances there may be continuous cough and respiratory insufficiency. When the right heart fails, the liver, spleen, gastrointestinal mucosa, the kidneys, and the peripheral circulation suffer congestion. The liver may become greatly engorged, and in certain cases (tricuspid regurgitation) actually pulsates with each ventricular systole. The swollen liver cells and the engorged vessels cause obstruction of the biliary capillaries, and consequently produce jaundice. To some extent this may be due to associated congestion of the biliary channels. Congestion of the gastrointestinal mucosa may occasion various forms of gastric or intestinal derangement."—(Stengel's *Pathology.*)

5. *Tuberculous disease of the wrist:* "In instances beginning in the synovial membrane there are formed more or less abundant soft, spongy granulations, which may eventually fill the entire joint-cavity. These are pinkish or whitish in color, and may show gray or yellow spots or tubercles quite plainly. Later this granulation-tissue tends to degenerate, becoming mucoid or breaking down by suppurative or cheesy change. In the early stages the soft tissues of the joint are considerably inflamed and edematous; later they may show ulcerative or necrotic change, and similar alteration may occur in the articular cartilages. Puriform softening of the granulations and the tissues of the joint may lead to the development of *cold abscesses* within the joint, and the latter may eventually burrow to the exterior. In cases progressing unfavorably the joint is greatly disorganized by the advancing necrotic changes. The abnormal productions are either discharged or inspissated, and ankylosis of the joint by fibrous adhesions takes place. The external appearances of tuberculous joints are often quite distinctive. The joint is swollen and boggy, or somewhat elastic to the touch, and usually more or less distorted from subluxation. There is little evidence of acute inflammation. In cases terminating in ankylosis the bones are generally left in faulty position in consequence of the formation of adhesions and the irregular contractions of muscles."—(Stengel's *Pathology.*)

6. *Secondary carcinoma of the liver* "is usually due to the dissemination in the organ of tumor cells from carcinomata of the stomach, intestines, pancreas, or gall bladder. But it may be the result of metastases from the mamma, esophagus, uterus, and various other parts of the body. In secondary carcinoma the cells resemble more or less closely the type of those forming the primary tumor.

"The form in which the carcinoma in the liver occurs varies considerably. Sometimes the tumors are single, but more often multiple; they may be very large, or so small as to be scarcely visible to the naked eye; very frequently numerous small nodules are grouped in the periphery of a larger one. They are sometimes deeply embedded in the liver, sometimes they project from the surface. The liver is frequently and sometimes enormously enlarged. The nodules are usually whitish or yellowish or pink in color or bile-stained, and they are often the seat of hemorrhages, and may become softened at the center, forming cysts filled with degenerated tumor tissue often mixed with blood. The nodules are sometimes hard, sometimes soft and almost diffluent. Fatty degeneration in the tumor is frequent, and may be recognized by yellowish streaks or patches on the sections. Owing to the degeneration and partial absorption of the central portions of the tumors, the nodules on the surface of the liver frequently present a shallow depression at the center. The tumors may be sharply outlined against the adjacent liver tissue, or may merge imperceptibly into it. They may be so large or numerous as to occupy the greater part of the enlarged organ. The neighboring liver cells may be flattened and atrophic. The tumors may press upon the portal vein or its branches, or upon the gall-ducts, and thus seriously interfere with the functions of the organ. Sometimes, however, the tumors are very large and numerous without apparent interference with the function of the liver. *Melanotic carcinomata* sometimes occur in the liver, most frequently as secondary tumors. In some cases, instead of forming separate, distinct nodules, the cancerous growth develops in the form of a diffuse infiltration of the organ, so that the often greatly enlarged liver is irregularly mottled with white and reddish brown masses, and may then somewhat resemble certain forms of chronic interstitial hepatitis."—(Delafield and Prudden's *Pathology.*)

7. *Uremia* is the name given to a group of symptoms (such as headache, drowsiness, stupor, coma, vomiting, twitching of muscles, convulsions) due to retention in the blood of poisons which should have been eliminated by the kidneys.

8. In the *testicle, gummata* "may be single or multiple, small or large. The usual type is the large syphiloma from 1 cm. to 10 cm. in diameter. The smaller, often multiple, lesions give rise to surface irregularity, justifying the term syphilitic nodular orchitis. Large solitary gumma is probably more frequent. Such syphilomata possess fibrohyaline peripheries and frequently necrotic or caseous centers. The points of softening (necrosis) may be multiple. The tunics of the testicle are often involved and fluid may collect in the serous sac. . . . Gummata contain lymphoid and epithelioid cells, with a very slight amount of trabeculæ; occasionally giant cells are present; coagulation necrosis, hyaline degeneration, and fatty change may cause the center to resemble caseous material."—(Coplin's *Pathology.*)

9. In *locomotor ataxia* the posterior columns of the spinal cord and the posterior nerve roots are involved.

The posterior columns of the spinal cord are gray and shrunken, and show considerable overgrowth of connective tissue in the columns of Goll, Burdach, and Lissauer; this process extends upwards from the lumbosacral region; the posterior nerve roots degenerate and become atrophic. The meninges over the affected parts become opaque and adherent. Some of the cranial

nerves may also atrophy, notably the optic, but also the motor oculi and vagus.

The process is destructive and progressive; it is not a simple wasting, although the nerve fibers are atrophied, but it is characterized by irritation, changes in the axis cylinders, overgrowth of the connective tissue, and sometimes congestion; the spinal ganglia may be affected.

10. *Hypertrophy* is an increase in the size, weight and functional activity of a part beyond the limit of health and due to an orderly enlargement or multiplication of its normal constituents.

Atrophy is a decrease in the amount of tissue, owing to diminution in size (simple atrophy) or number (numerical atrophy) of the cells of which it is composed.

Dystrophy is disordered nutrition (either diminished or perverted).

Atony is the lack of tone or contracting power or vigor of a tissue (generally used of muscle tissue), also undue relaxation.

Hyperemia is excess of blood in the dilated vessels of a part; it may be active (or arterial) or passive (or venous).

PHYSICAL DIAGNOSIS.

1. *Intestinal perforation in typhoid fever:* Sometimes there is severe, sudden pain localized in the abdomen, and sometimes there is little or no pain. Marked tympanites, great weakness, collapse, anxious look, small, rapid pulse, and difficult breathing are present. The legs are apt to be drawn up, and nausea and vomiting may ensue. Hepatic and splenic dullness disappear, and leucocytosis may be present. The treatment is surgical; laparotomy, with suture of the intestine, should be done as soon as possible. In the meantime opium (or preferably morphine) should be administered.

2. *Rheumatoid arthritis and chronic rheumatism:* "It is difficult and readily may be impossible to distinguish between arthritis deformans and chronic rheumatism in the early stages. In more advanced cases the former presents greater deformity of the joints, while rheumatism tends rather to ankylosis with comparatively slight alteration in shape, and, moreover, is likely to attack a larger number of articulations than arthritis deformans. It is proper to state that by some writers arthritis deformans is regarded as an advanced stage of chronic rheumatism."—(*Reference Handbook of the Medical Sciences.*)

3. *Leucemia* may be differentiated from pernicious anemia by an examination of the blood. In *leucemia* there is a marked increase in the number of leucocytes, and in the spleno-medullary form myelocytes are observed; in the lymphatic form the lymphocytes are much increased. In *pernicious anemia* the red cells are notably diminished in number, the hemoglobin is relatively increased, the red cells vary in shape, size, etc.; the leucocytes are not increased, but (occasionally) may be diminished.

4. *Symptoms of aortic regurgitation:* "So long as the cardiac hypertrophy is just sufficient to compensate for the valvular condition, there are no symptoms, but as the muscle walls continue to increase symptoms of cardiac hypertrophy present themselves, such as forcible cardiac action, with marked pulsation of all the vessels, including the capillaries, the characteristic forcible and receding pulse ('water-hammer pulse' or 'Corrigan pulse'), headache, insomnia, tinnitus aurium, congestion of the eyes and face, etc. Precordial pain is usually present in aortic disease. It may be a sensation of constriction in the cardiac region or it may consist of sharp, shooting pains extending to the arms—anginoid attacks. As soon as the slightest failure of compensation occurs, the cardiac action becomes excessive and distressing. Palpitation is present and causes anxiety and fear on the part of the patient.

When there is complete rupture of compensation, there develop, either gradually or rapidly, dyspnea, increased on exertion, cough, cyanosis, hepatic enlargement, renal congestion with scanty, albuminous urine, ascites, and dropsy. If mitral insufficiency is now superadded, general venous stasis and death rapidly follow. Sudden death is most frequent in this form of valvular heart disease."

Physical signs of aortic regurgitation: "Inspection shows that the cardiac impulse is forcible and displaced downward and to the left. The pulsation is visible far beyond the normal apex. *Palpation* confirms inspection. It may at times serve to detect a diastolic thrill over the base of the heart and the adjacent large vessels. The Corrigan pulse and the capillary pulse are recognized by palpation. *Percussion* serves to demonstrate an increase in the area of cardiac dullness downward and to the left. Occasionally it is increased upward and to the left of the sternum as the result of hypertrophy of the left auricle. *Auscultation* reveals characteristic alterations in the heart sounds. The first sound is forcible; the second sound is replaced or associated with a churning, rushing, or blowing murmur of low pitch, well heard at the second right costal cartilage (aortic area), but most distinct at the junction of the sternum and the fourth left costal cartilage. It is diastolic in time, and is transmitted downward and toward the apex. A presystolic rumbling murmur (Flint murmur) may occasionally be heard over a limited area at the apex."—(Hughes' *Practice of Medicine.*)

5. *Physical signs of acute pericarditis: "Inspection* during the early stage shows excited cardiac action as evidenced by the impulse. During the effusion stage the impulse is feeble, undulatory, or absent; it is usually displaced upward, very rarely downward, the precordium bulges, and the abdomen protrudes when the effusion is large. *Palpation* during the early stage serves to detect an excited or tumultuous impulse, and in very rare instances pericardial friction fremitus. During the effusion stage the impulse is feeble or absent, and when present is considerably displaced. Tenderness may be elicited. *Percussion* is normal in the beginning of the disease, but as the effusion forms the cardiac dullness becomes enlarged vertically and laterally. If the accumulation of fluid is considerable the dullness assumes a triangular shape, with the base on a line with the sixth or seventh rib, extending from the right of the sternum to the left of the left nipple, and the apex at the sternal attachment of the second rib or higher. The shape of the dullness is sometimes altered by changing the position of the patient.

Auscultation at the onset reveals excited cardiac action and usually an exocardial murmur or friction sound, synchronous with the cardiac sounds and uninfluenced by respiration, but often increased by pressure with the stethoscope. Later, as the effusion forms, the cardiac sounds are feeble and deep-seated at the apex, becoming louder and distinct toward the cardiac base. The friction sound is sometimes heard at the base. As absorption progresses, the friction sound returns, being replaced shortly by the normal heart sounds."—(Hughes' *Practice of Medicine.*)

6. *Physical signs of dilatation of the stomach: "Inspection.*—The abdomen may be unduly prominent. In some cases the outlines of the enlarged stomach are distinctly visible. Peristaltic waves extending from left to right are frequently seen, especially in stenotic dilatation. *Palpation.*—When the stomach-walls are sufficiently tense, the boundaries of the organ may be determined by palpation. In many cases of obstructive dilatation a tumor can be felt at the pylorus. *Percussion.*—When the stomach contains fluid, an area of dullness is found at the level of the umbilicus, or below it when the patient is erect, but not when he is lying down. This area of dullness also disappears upon the complete evacuation of the stomach. After artificial inflation of the stomach with air or carbonic-acid gas percussion reveals an increased area of gastric tympany. *Auscultation.*—The detection of splashing sounds over the stomach in the morning before breakfast or seven hours after a Riegel test-meal points to dilatation. *X-rays.*—Skiagraphs taken after the ingestion of large quantities of bismuth subcarbonate suspended in buttermilk or porridge have proved of great value in the diagnosis of gastrectasis. *Examination of the Stomach-contents.*—The detection of remnants of food in the stomach in the morning after a simple supper renders the diagnosis of severe motor insufficiency certain, and that of dilatation highly probable."—(Stevens' *Practice of Medicine.*)

7.

Empyema.	Pleurisy with Effusion.
1. Usually a history of previous disease, as pleurisy, phthisis, general debility, etc.	1. History of an acute attack following exposure to wet, cold, etc.
2. Constitutional symptoms well marked.	2. General condition remains quite good.
3. Temperature often reaches 105°.	3. Temperature seldom over 102°.
4. Chills and profuse sweats common.	4. No chills or sweats.
5. Fluid remains unless it is withdrawn.	5. Fluid disappears under appropriate medical treatment.
6. Exploring needle withdraws pus.	6. Exploring needle withdraws serum.
7. Whispered pectoriloquy sometimes heard below the level of the fluid.	7. Absence of voice sound below the level of the fluid.

—(Cutler's *Differential Diagnosis.*)

8. *Eclampsia* is a vague term. Assuming that a uremic convulsion is understood:

Uremic Covulsions	Epilepsy.
1. History of Bright's disease.	1. History of epilepsy.
2. Edema.	2. No general edema.
3. Convulsions migratory in character.	3. Convulsions general—tonic then clonic.
4. No change in pupils.	4. Dilated pupils follow spasm.
5. No biting of tongue.	5. Tongue bitten.
6. Waxy countenance.	6. Countenance cyanotic.
7. Albumen and casts in urine.	7. Urine normal.
8. Temperature low.	8. Temperature elevated.
9. Deep coma follows convulsions.	9. Mild coma or sleep.
10. No initial cry or pallor.	10. Initial cry and pallor.

—(Cutler's *Differential Diagnosis.*)

9. In *acute intussusception*, the patient is usually an infant, child, or young adult; a sausage-shaped tumor can generally be felt in the right iliac or umbilical region; the stools are mucous and bloody; there are abdominal pains, constipation, and vomiting.

In *acute dysentery*, there is great tenesmus and diarrhea; there is no vomiting, and no abdominal tumor; the stools are very frequent, and may contain the ameba coli or some bacilli, with blood and mucus.

10.

Spinal Meningitis.	Tetanus.
1. No traumatic history.	1. History of traumatism.
2. Face not peculiar.	2. Risus sardonicus.
3. No jaw symptoms.	3. Lockjaw.
4. Great pain on motion.	4. Intense hyperesthesia.
5. Spasm produced by attempts to move.	5. Spasm caused by external irritation.
6. Paralysis follows spasms.	6. No paralysis.
7. Temperature elevated.	7. Temperature nearly normal.

—(Cutler's *Differential Diagnosis.*)

OBSTETRICS.

1. At full term the *placenta* is a soft, spongy mass, roughly saucer-shaped, from six to nine inches in diameter, about three-quarters of an inch in thickness at the central point, and weighs about one pound. It is *formed*, partly from the mucous membrane of the uterus, and partly from the chorionic villi. Its *functions* are: (1) To supply nourishment to the fetus; (2) to act as a respiratory organ for the fetus; (3) to act as an excretory organ for the fetus; (4) it is also supposed to provide an internal secretion. Its *usual location* is on the anterior or posterior wall of the uterus, near the fundus.

2. The patient should be instructed fully in the hygiene of pregnancy, by which is meant the care which should be observed by the pregnant woman for the preservation of health and strength both of herself and of the fetus. The pregnant woman should take moderate exercise in the open air; in the last month massage may take the place of exercise. Daily bathing in tepid water, care of the teeth, regularity of the bowels, ample sleep in a well-ventilated room, plenty (but not too much) of simple, nourishing and easily digested food at regular hours, clothing not too tight, especially about the abdomen and breast; attention to the nipples, regular examination of the urine, and the restriction of marital relations are the main points to which advice should be directed.

3. By *abdominal auscultation in pregnancy:* (1) The fact of pregnancy can be ascertained; (2) the fact that the fetus is alive can be ascertained; (3) the position of the fetus can be diagnosed; (4) the existence of twins may be diagnosed; (5) the condition of the fetus can be ascertained; (6) some observers assert that the sex of the fetus can be ascertained.

4. *Pregnancy at the sixth month* is diagnosed by the presence of the fetal heart sounds, and active and passive fetal movements. In no other conditions are these present.

In *spurious pregnancy* the uterus is not enlarged, there is no fetal heart sound; fetal movements are absent, and the administration of a general anesthetic causes the "tumor" to collapse.

5. *The causes of abortion and premature labor* may be briefly enumerated as follows: "(1) Any pathologic condition of the ovum, membranes, or placenta, such as apoplexies, cystic degeneration of the chorionic villi, and cellular infiltration of the placenta. (2) Certain general diseases of the mother, including syphilis, typhoid fever, the exanthemas, and conditions interfering with proper aeration of the blood, as pneumonia and valvular heart disease; various systemic poisons, as malaria, lead, and arsenic; certain blood diseases, as grave anemia and leukocythemia; various local conditions, such as metritis, salpingitis, and ovaritis, cystitis, appendicitis, and placenta prævia. (3) Diseases of the father, such as syphilis, phthisis, and nephritis, in which the spermatozoa are diseased or of lessened vitality. (4) Death of the fetus from any cause. (5) Traumatism, as from a fall, a blow, or a kick on the abdomen. (6) Spasmodic muscular action, as in chorea, uncontrollable vomiting or coughing, convulsions of any kind. (7) Reflex causes, as violent emotion or mental shock. When the uterus shows a tendency to contract under the slightest stimulus (irritable uterus), any trivial cause, such as a long walk, a hot bath, or even the sight of another woman in labor may result in abortion. (8) Criminal abortion, caused by the use of drugs, vaginal and uterine injections, and the introduction of an instrument into the uterus."—(*Pocket Cyclopedia.*)

Abortion is more dangerous than delivery at term, because: (1) The patients frequently make light of the condition and do not take the same care of themselves as they would after a confinement; (2) the liability to sepsis and hemorrhage is greater; (3) subinvolution and uterine displacements are more liable to occur.

6. *Third stage of labor:* "By the time the child is fully expelled the placenta is often separated from the uterine wall and lying loose in the now contracted uterine cavity. The womb may be felt as a hard, irregularly globular ball above the pubes. There may be an interval of one-quarter or one-half of an hour's rest from pains, if the case be left entirely alone. Then, sooner or later, gentle pains again come on, the placenta is doubled vertically, the fetal surface of one half in apposition with that of the other, and the organ protruded endwise into the vagina, from whence it is, by other slight pains, finally expelled, together with some blood, remains of liquor amnii, membranes, etc. The womb now contracts into a distinctly globular, hard mass, no bigger than a cricket-ball, thus effectually closing the uterine bloodvessels and preventing hemorrhage, which last is further stopped by coagulation of blood in the mouths of the open blood-channels."—(King's *Obstetrics.*)

Management: In the *third stage of labor* the physician should seize the fundus of the uterus through the abdominal wall and knead and rub it until it contracts vigorously; then he should press it down in the direction of the axis of the pelvic inlet. This should last for about a quarter of an hour after the child is born. The placenta, after it is expressed, should be carefully taken by the physician so as to be sure that it is *all* expelled; at the same time care must be taken that no particle of membrane remains behind. Fuidextract of ergot may be administered.

7. *Uterine inertia* may be *caused* by: Debilitated constitution, exhausting disease; uterus weakened because of congenital malformation, inflammation, or too frequent child-bearing; adhesions to neighboring structures; tumors of the uterus or neighboring tissues; distention of the bladder or intestine; displacement of the uterus; premature escape of the liquor amnii; pregnancy in an old primipara; hydramnios; twin pregnancy; fright or mental emotion.

The cervix dilates slowly or not at all; if the membranes are ruptured the fetus makes little or no advance; the woman shows evidences of fatigue and may be anxious or restless; the skin gets dry, the pulse small and rapid, the temperature elevated, the tongue dry and furred, nausea and vomiting may supervene, and delirium and coma may follow.—(From Webster's *Obstetrics.*)

Treatment consists in removing the cause if possible; the bladder and bowel should be emptied; opium, morphine and chloral may be given so that the patient may get a little sleep, at the same time food may be administered; the uterus may be massaged through the abdominal walls; hot vaginal douches are sometimes helpful; the vagina may be distended with a rubber bag; if the membranes are ruptured, a Champetier de Ribes bag may be placed in the lower part of the uterus; an anesthetic may be necessary; quinine, strychnine, and ergot have been recommended by some, and condemned by others; the newest remedy is pituitrin, which may be injected into the muscles in doses of from 1 to 1½ c.c., provided that the cervix is dilated and that there is no obstruction to delivery.

8. *Prolapse of the funis* is the condition in which the umbilical cord hangs down alongside of or in front of the presenting part of the fetus.

Precipitate labor is a labor in which the child is delivered with unusual rapidity.

9. *Delivery of retained placenta:* "A finger—one or two—must be insinuated between the uterus and placenta at some point already partially separated, or, if no partial separation exists, at a point where the placental border is thick, and then passed to and fro, transversely, through the uteroplacental junction, acting like a sort of blunt paper knife, until separation be complete. Another mode is to find or make a margin of separation as before, and then peel up the placenta with the finger-ends, rolling the separated portion toward the palm of the hand upon the surface of the still adherent part. Great care is necessary to avoid peeling up an oblique layer of uterine muscular fiber, which might split deeper and deeper until leading the finger-ends through the uterine wall into the peritoneal cavity. Should such a splitting begin, leave it alone and recommence the separation at some other point on the placental margin. It is sometimes only possible to get the placenta away in pieces. These should be afterward put together and examined to indicate what remnants are left behind. It may be quite impracticable to get out every bit, but small remnants or thin layers too firmly adherent for removal do not distend the womb enough to create hemorrhage from their bulk, and the subsequent danger of septicemia from their decomposition may be obviated by injecting warm (2 per cent.) creolin water into the uterus twice daily, until everything has come away."—(King's *Obstetrics.*)

10. *Cesarean section.*—"*Indications:* The cases in which it is performed are: (1) Extreme deformity of the pelvis, in which delivery by forceps and version is excluded, and in which craniotomy is either impossible or would be more dangerous to the mother than cutting into the abdomen and uterus; and in which there is not room for a successful symphyseotomy. Such cases present the '*positive*' indication for cesarean section; there is nothing else to be done. Flat pelves having a conjugata vera of 2¼ inches or less, and justo-minor pelves with a conjugata vera of 2½ inches or less, present this positive indication; (2) cases of more moderate pelvic contraction in which craniotomy is possible; but cesarean section is agreed upon to *save the life of the child;* (3) mechanical obstruction in the pelvis from fibroid, cancerous, bony, or other tumors which cannot be pushed up out of the way or be safely removed; (4) irreducible impaction of a *living* child in transverse presentations; (5) in women dying near the end of pregnancy the child, if alive, is rapidly delivered by *post-mortem* cesarean section; (6) various other obstructions from inflammatory adhesions, atresia, constrictions, etc., of the vagina, and uterine displacements, may rarely require the operation; (7) recently the operation has been done in eclampsia cases, where more conservative methods of rapid delivery were impracticable; and (8) in placenta prævia, chiefly with a view to lessen the infant mortality attending the usual treatment of this complication."—(King's *Obstetrics.*)

In addition, abdominal section may be required for abdominal tumors, for suppurative peritonitis, for ectopic pregnancy, and in puerperal sepsis.

(*To be concluded.*)

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

A DOCTOR'S DISCOVERY; OR, THE ELIXIR OF LIFE. By JOHN HADDON, M.A., M.D. 134 pages. Price, 3/6 net. Published by A. Walker & Son, Galashiels, Edinburgh.

TRANSACTIONS OF THE AMERICAN GYNECOLOGICAL SOCIETY. 480 pages. Illustrated. Published by Wm. J. Dornan, Philadelphia, Pa.

HANDBOOK OF COLLOID CHEMISTRY. By Dr. WOLFGANG OSTWALD, Dr. MARTIN H. FISCHER, and EMIL HATSCHEK. 284 pages. Illustrated. Price, $3.50 net. Published by P. Blakiston's Son & Company, Philadelphia, Pa.

SURGERY IN WAR. By ALFRED J. HULL, F.R.C.S. 624 Pages. Illustrated. Price, $6.00 net. Published by P. Blakiston's Son & Company, Philadelphia, Pa.

PROGRESSIVE MEDICINE. Edited by HOBART AMORY HARE, M.D., and LEIGHTON F. APPLEMAN, M.D. 414 pages. Illustrated. Subscription price, $6.00 per annum. Published by Lea & Febiger, Philadelphia, Pa.

ADVANCED SUGGESTION (Neuroinduction). By HAYDN BROWN, L.R.C.P. 342 pages. Price, $2.50. Published by William Wood & Company, New York.

ORGANS OF INTERNAL SECRETION. By IVO GEIKIE COBB, M.D., M.R.C.S. 274 pages. Price, $2.50. Published by William Wood & Company, New York.

UNITED FRUIT COMPANY MEDICAL DEPARTMENT, ANNUAL REPORT. 73 pages. Published by Press of Geo. H. Ellis Co., Boston.

A PRACTICAL MEDICAL DICTIONARY. By THOMAS LATHROP STEDMAN, A.M., M.D. 1124 pages. Illustrated. Price, $5.00. Published by William Wood & Company, New York.

STUDIES FROM THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH. 379 pages. Illustrated. Published by the Rockefeller Institute for Medical Research, New York.

STUDIES IN ELECTRO-PHYSIOLOGY. By ARTHUR E. BAINES. 291 pages. Illustrated. Published by E. P. Dutton & Co., New York.

THE USE OF BLOOD AGAR FOR THE STUDY OF STREPTOCOCCI. By JAMES HOWARD BROWN. 122 pages, with 8 tables and 34 plates. Published by the Rockefeller Institute for Medical Research, New York.

STUDIES IN ELECTRO-PATHOLOGY. By A. WHITE ROBERTSON. 304 pages. Illustrated. Published by E. P. Dutton & Company, New York.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 95, No. 8.
Whole No. 2520.

NEW YORK, FEBRUARY 22, 1919.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

GAS POISONING IN WARFARE.*

A STUDY OF THE EFFECTS OF SO-CALLED MUSTARD GAS UPON THE UPPER RESPIRATORY TRACT.

BY GERARD HUTCHISON COX,

MAJOR, MEDICAL CORPS, U. S. A.

EARLY in 1915 a new type of warfare was introduced on the Western front with the launching of the first cloud gas attack against the British. Suddenly confronted with waves of poisonous gas, carried along by the wind, the troops were absolutely helpless, except for the protection afforded by their pocket handkerchiefs, saturated with any available liquid material, not infrequently urine.

It was not long before gas masks were invented, and these now form an essential part of the equipment of all troops operating in the front area.

Cloud Gas Attacks.—The gas is taken to the front-line trenches, compressed in steel cylinders, which are placed in the bottom of the trenches and carried over the parapets by pipes. Cloud gas attacks are dependent upon the direction and velocity of the wind, and are made when there is a strong, steady wind blowing at the rate of from four to eight miles an hour in a direction from the enemy lines toward those of the troops attacked. In most instances cloud gas attacks have been made at night.

At first, chlorine was employed; later it was mixed with phosgene. Both are heavier than air, and therefore roll along the ground, entering trenches, shelters, crater holes, and unprotected dug-outs.

There are certain disadvantages to cloud gas attacks which have led to their abandonment and the substitution of other methods. In the first place, if the wind suddenly changes, the gas is blown back upon the enemy. In the second place, the danger of leakage from the containers is considerable. Then, too, there is the ever-present danger of a shell fragment striking the gas cylinder and thus poisoning the gas operators.

Consequently, cloud gas attacks have been abandoned, and gas shells or gas projectiles, used instead.

Gas Projectiles.—In a gas projectile a part or the whole of the explosive charge is replaced by a liquid which is converted into gas by the explosion of the charge. There are various kinds, viz.: shells, trench mortar bombs, hand grenades, and projectors. Gas shells are frequently not used alone. For example, during a bombardment with high explosives and shrapnel a certain number of gas shells are mixed with the high explosive shells, thus masking the gas attack. The odor from the gases now used is very slight, often almost negligible. The first intimation of a gas attack may be a shell which sounds like a "dud," *i.e.* a high-explosive shell which strikes the ground and fails to explode. In the case of the gas shell, as part of the charge has been replaced by a liquid the noise of the explosive is very much less violent, and thus the first hint of a gas attack is given.

Alarms of various types are immediately sounded, and gas masks are put on at once. The slightest delay on the part of the men in adjusting their respirators may mean serious disability or even death.

Gas Masks.—The first gas mask adopted by the British is known as the P. H. helmet. It fits over the head, and is fastened around the neck under the tunic. (See Fig. 1.) As the material from which this helmet is manufactured cannot be saturated with a sufficient number of chemicals to make it impervious to all enemy gases, its use has been abandoned and the box respirator substituted. The latter is shown in Figs. 2 and 3, and consists of a box packed with chemicals, and connected by a rubber tube with an impervious mouthpiece or mask. The inspired air enters through a valve at the bottom of the box, while the expired air escapes through a valve connected with the rubber breathing tube. The wearer's nose is closed by a clip inside the mask, which prevents the air inside the face piece being breathed back and forth through the nostrils. The mask is also provided with two eyepieces, which are cleaned by means of folds in the material. This box respirator is carried in a suitable canvas container, and is a thoroughly trustworthy and efficient protection against all poisonous gases used by the enemy. Fig. 4 shows a picture of a captured German gas mask.

In the British army, horses are provided with gas masks when they are sent to the vicinity of the trenches with ammunition and supplies. These animals are said to stand a higher degree of concentration of poisonous gases without great damage than is the case with human beings. It is not considered necessary to protect their eyes.

The horse respirator consists of a flannelette bag with a canvas mouthpiece which fits into the animal's mouth. Fig. 5 shows the mask worn in the alert position. Fig. 6 shows the mask as worn during a gas attack. This respirator does not interfere with the use of the bit and reins.

*Published with the consent of the Surgeon-General, U. S. A. This paper was written in France in April, 1918.

Classification of Poisonous Gases.—For our purposes, the gases used by the enemy may be divided into four main groups. It is obviously not permissible, for military reasons, to give a complete list of all enemy gases, or to state the sources from

Fig. 1.—P. H. helmet.

which some of the information contained in this paper is derived.

(1) *Lacrymator* or *tear gases*, of which benzyl bromide may be taken as a type.

(2) *Eye and lung irritant*—of these perhaps the best known is chlorine.

(3) *Lung irritant and asphyxiant*—phosgene.

(4) *Eye, lung, and skin irritant*—"mustard gas."

Pathology and Symptomatology of the Four Types of Gases.—In this connection it is important to remember that a shell gas—for example, phosgene—is seldom used alone, but is generally combined with some other gas or gases, perhaps mustard. Hence the symptoms exhibited by the individual who has been poisoned vary, as one or other of the gases predominates in the mixture.

(1) The lacrymator gases, or eye irritants, produce excessive lacrymation, photophobia, and palpebral spasm. In high concentration they cause irritation of the throat, and nausea; needless to say, they are never fatal.

(2) A typical case of poisoning by chlorine gas, which may be taken as an example of eye and lung irritants, exhibits the following phenomena: Lacrymation, spasm of the glottis, choking sensations, cough, and dyspnea are followed by headache, nausea, and vomiting.

In a severe case the man passes into a state of asphyxial cyanosis, with mental failure and loss of consciousness. The breathing is rapid, labored, and interrupted by spasmodic coughing. At first, the face is cyanotic; as the circulation fails, a gray pallor ensues. Finally, death results.

The writer has not had an opportunity to observe the post-mortem appearance in chlorine gas poisoning, which are said to be as follows: The trachea and bronchi are deep red and congested. There is often a thin, serous exudate in the lungs. Petechial hemorrhages are present on the surface of the lungs, heart, and stomach. Pleurisy and bronchopneumonia, with purulent secretion in the bronchi, are usual findings.

(3) Asphyxiant and lung irritant. Phosgene represents this type of gas. The eyes are very slightly, if at all, affected by the poison, which is characterized by its delayed action on the heart and lungs.

Major Moore of the Royal Army Medical Corps told me that earlier in the war many a man who had been gassed with phosgene, apparently lightly, had started off to the aid post with his heavy pack on his back and rifle over his shoulder. One hour later he falls down dead from heart failure. For this reason, soldiers poisoned with phosgene are now carried back on stretchers, and not allowed to walk.

Unfortunately, the writer has no autopsy notes at his disposal on phosgene poisoning.

(4) Eye, lung, and skin irritant—mustard oil. The symptoms and pathology of mustard gas poisoning will be described later.

This study is based upon a series of 362 cases admitted to No. 1 General Hospital (Presbyterian, U. S. A.), British Expeditionary Force, in two convoys. In the first convoy 32 cases of mustard gas poisoning were examined by the writer. In the second group there were probably a few cases showing the combined action of mustard gas and phosgene.

In a base hospital, where many of the patients are evacuated after short intervals, it is manifestly impossible for one man to examine the upper air tracts of such a large number of patients. After consultation with the commanding officer, Major Darrach, a questionnaire was drawn up and given

Fig. 2.—Box respirator or mask, in "alert position."

to the medical officers in charge of the hospital wards, who filled in the required data.

The writer wishes to acknowledge his indebtedness to the commanding officer and medical officers of this unit for their cooperation and assistance

at a time when they were extremely busy with the care of large numbers of casualties.

In addition to taking many of the histories, the writer has examined personally the eyes, nose, pharynx, larynx, and upper trachea of over 100 cases of mustard gas poisoning.

Fig. 3.—Box respirator applied.

The Questionnaire:

Patient's name.
Date of admission.
When gassed—day or night attack.
Kind of gas.
Interval before onset of symptoms.
First symptom.
Was gas mask applied, and how soon?
Walked or carried to aid station?
How soon after being gassed were you seen by a medical officer?
Was the gas smelled? Yes. No.
Kind of treatment given on way to base.

Symptoms (underline symptoms complained of):

Eye—Burning, photophobia, lacrymation, swelling of the lids, temporary loss of vision.
Ear.
Nose—Burning, sneezing, discharge.
Throat—Choking sensation, tickling, cough, hoarseness, partial or complete loss of voice.
Bronchi and lungs—Cough, dyspnea, pain in chest, sputum.
Burns of skin (location and degree).
Gastrointestinal tract—Nausea, vomiting, diarrhea, anorexia.

Physical Examination:

Eyes.
Ears.
Nose.
Pharynx.
Larynx.
Trachea.
Heart.
Lungs (brief report).
Skin lesion.

Treatment at No. 1 General Hospital.

The following statistics are based upon a series of 330 cases of mustard gas poisoning.

The first and most striking observation is that in mustard gas poisoning there is always an appreciable interval between the time when the individual is gassed and the onset of his symptoms. In 37.6 per cent. this latent period varied from 8 to 12 hours; in 27 per cent. it was from 4 to 8 hours; in 12.6 per cent., 12 hours or longer; 9.6 per cent. developed symptoms in 2 hours or less; while 1 per cent. of the soldiers showed the first sign in from 2 to 4 hours; one man claimed he had no symptoms for 48 hours and another for 36 hours.

The question as to the first symptom complained of elicited the following replies:

	Per cent.
Burning and smarting of the eyes	47.6
Lacrymation	18.6
Vomiting	9.6
Nausea	4.0
Irritation of the throat	3.6
Cough	1.6
Choking sensations in the throat	1.3
Diarrhea	0.6
Headache	0.6
Sneezing	0.3

Two hundred and twelve men, or 64.4 per cent., said they applied their gas masks immediately upon being bombarded with gas shells. Twenty, or 6.3 per cent., stated that they put on the mask immediately after smelling the gas; 12 per cent. did not apply the mask, while 15 per cent. wore the mask at intervals.

Fig. 4.—German gas mask.

Ninety-three per cent. of the men walked to the aid stations, while 6 per cent. were carried on stretchers.

It was stated by 86.1 per cent. that they smelled the gas, which they compared to the odor of mus-

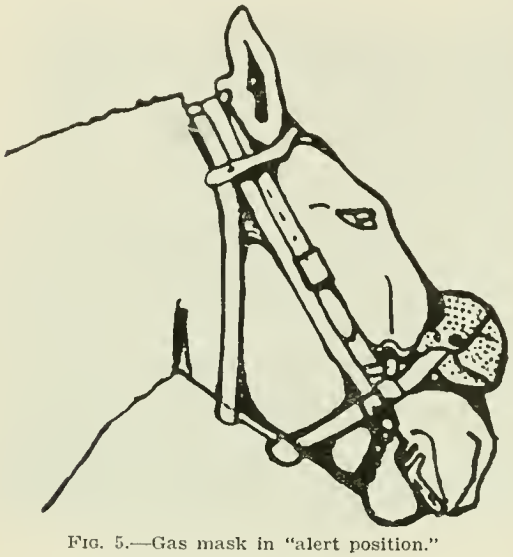


Fig. 5.—Gas mask in "alert position."

tard, pineapple, garlic, or onions; 13.1 per cent. failed to notice any odor. In some cases this may be explained by the promptness with which the respirators were put on when the command was given.

At the casualty clearing stations and at the hospital trains, 90.1 per cent. had their eyes treated by irrigation or bathing, while 9.2 per cent. had cold packs applied. One officer told me he was given a perforated inhaler resembling the Robinson zinc inhaler used by us.

The following table gives the percentages of cases showing symptoms referable to the various organs:

Eye Symptoms.—98.5 per cent. showed one or more of the following symptoms: Burning, photophobia, lacrymation, swelling of the lids, temporary loss of vision.

Ear Symptoms.—5.2 per cent.

Nose.—Burning, sneezing, discharge, 71.1 per cent.

Throat.—Choking sensations, tickling, cough, hoarseness, partial or complete loss of voice, 93.3 per cent.

Bronchi and Lungs.—Cough, dyspnea, pain in chest, sputum, 8.6 per cent.

Cutaneous Burns.—First degree, 5.1 per cent.; second degree, 0.9 per cent.; other burns (degree not stated), 11.4 per cent.

Gastrointestinal Tract.—Anorexia, nausea, vomiting, diarrhea, 80.3 per cent.

Smell.—Of 92 men questioned as to the loss of smell and taste, 82 noted a loss of the sense of smell; 62 lost their taste. The loss of smell and taste is apparently temporary, both usually returning in a few days.

Examination of the Eyes.—Practically all cases showed a conjunctivitis varying in intensity from a mild inflammation to a severe form, with redness and swelling of the lids, accompanied by a purulent secretion and excoriation of the skin at the inner and outer canthi. One severe eye inflammation had some elevation of the epithelium of the bulbar conjunctiva, while many cases exhibited photophobia out of proportion to the amount of inflammation present. Redness of the mucosa of the lower lids often persisted after the subsidence of the redness of the bulbar conjunctiva.

The average mild case was seen walking about on the streets with an eye-shade seven or eight days after being gassed. In a couple of weeks many were almost normal, and able to dispense with their eye-shades.

No corneal lesions were seen in this series. Other observers have noted superficial corneal ulcers in rare instances.

Examination of the Ears.—Ear complications are rare, about 5 per cent. The most common is acute tubal catarrh, with tinnitus, caused by the inflammation extending from the mucous membrane of the rhinopharynx to the Eustachian tube. One man, who presented a chronic purulent otitis media, with a large central perforation, and some pain in the ear, stated that the present exacerbation of his old ear trouble dated from the gas attack.

In cases of perforated ear drum, of course, the gas enters directly into the tympanic cavity, where it produces an inflammatory reaction, unless the ear is protected by cottonwool in the canal.

Another case of chronic purulent otitis media was admitted with considerable pain and some mastoid tenderness, which cleared up with irrigations. A third case showed a myringitis, with a large bleb on the tympanic membrane.

Nose, Pharynx, Larynx, and Trachea.—The conditions found on examination of these organs were almost identical in the great majority of cases. There were redness and swelling of the mucous membrane of the nose, pharynx, epiglottis, larynx, and trachea, varying in degree only, and associated with increased secretion. The mucosa in some cases was slightly reddened, while in the more severe cases it was fiery red.

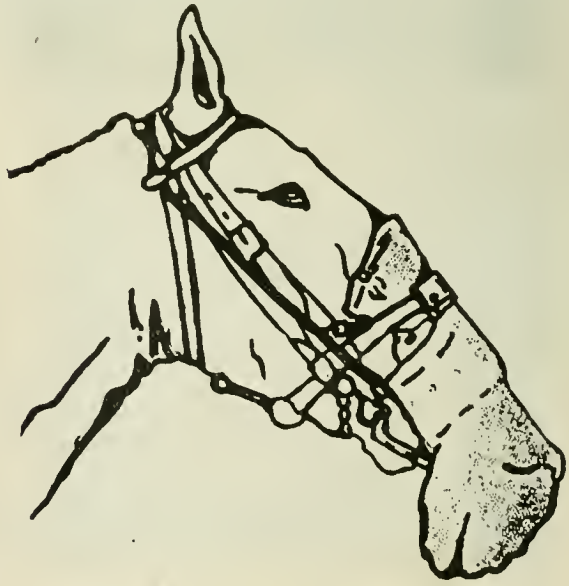


Fig. 6.—Mask as worn during a gas attack.

In the nose, the entire mucous membrane was involved, particularly that covering the inferior turbinates and nasal septum, which were often in contact. The nasal secretion was usually increased in quantity.

In the pharynx, the mild cases showed redness of the posterior pharyngeal wall, with swelling and redness of the follicles. The more severe cases exhibited, in addition, inflammation of the tonsils, tonsillar pillars, and uvula. Lateral pharyngitis was common. The mouth and tongue were unaffected. One case showed swelling and reddening of the lingual tonsil. One man had a grayish slough on the posterior pillar of the tonsil.

In the larynx, as already stated, the majority of cases showed a mild or moderate degree of laryngitis, the entire larynx being uniformly reddened. Reddening and inflammation of the epiglottis were quite uniform, and seemed distinctive of this form of laryngitis, in contrast to the usual findings in acute catarrhal laryngitis as seen in civil life.

In some of the more severe forms, the redness and edema of the false vocal cords was considerable, and out of proportion to the amount of involvement exhibited by the true cords.

Fig. 7.—Typical mustard gas burn of back. (Lieut. Cunningham's case.)

Four cases showed spots of superficial necrosis or ulceration of the laryngeal mucosa. In one patient these necrotic spots were seen on the false vocal cords and on the right true cord. A second case had a superficial white necrosis involving the margin of the epiglottis for a considerable area. A third man showed a superficial small necrotic spot on the left arytenoid cartilage, of which no trace could be discovered on laryngeal examination one week later. In two other patients the margins of the true vocal cords were slightly irregular in outline, evidently due to a slight superficial ulceration of the epithelium.

In a number of men who developed "late aphonia," 4 to 6 days after being gassed, the laryngeal examination showed a picture similar to that of the cases of early aphonia already described, viz., more or less severe inflammation of the larynx. None of these late cases exhibited any areas of superficial necrosis.

Examination of the Heart.—The cases examined here did not show any heart lesions, with the exception of a patient of Captain Peters', who had a slightly dilated heart, accompanied by tachycardia and extrasystole.

In 100 cases, mostly from the medical wards, bronchitis was present in 30 per cent. In the last convoy of about 340 cases admitted to this hospital there was not a single case of pneumonia. It is possible, of course, that pneumonia cases may have been kept at the casualty clearing stations.

Most of the cases of bronchitis clear up quickly, although the after effects on the lungs, such as dyspnea on exertion, are often protracted. One man admitted to this hospital at an earlier date died from lobar pneumonia.

Skin Lesions.—As stated above, 20.9 per cent. of the cases presented cutaneous burns, and of these 5.1 per cent. were first-degree burns and 0.9 per cent. second degree. In the remaining 11.4 per cent. the character of the burn was not stated.

When first seen at the casualty clearing stations, many cases are said to have a dull red rash, which disappears on pressure, and which tends to persist in patches. In the center of these reddened areas blisters are often observed.

The scrotum, back, inner sides of the thighs, and other moist surfaces, are the usual sites for burns. Two of my patients had burns of the buttocks from sitting on latrines.

Fig. 7 shows a typical burn of the back. This man was admitted to Lieutenant Cunningham's ward March 15. He had been shelled with mustard gas shells off and on for six nights. When first observed he presented three small blebs on the back surrounded by a small area of erythema. The burn was treated with 1 per cent. soda bicarbonate solution. On March 20 the erythematous area increased to about twice its original size, the margins became sharply defined, and the blisters broke down. The reddened area then assumed a slightly brownish tinge.

A late bronzing of the skin, particularly of the face, neck, forearms, and hands, was observed in a number of cases, coming on from four to five days after the gas attack. The appearance is not unlike the bronzing of Addison's disease.

Phosgene poisoning differs from mustard gas poisoning as follows: (1) The eyes are very slightly, if at all, affected by phosgene poisoning. Mustard is an intense eye irritant. (2) Phosgene produces cyanosis of the skin, while mustard gas causes a cutaneous redness, with bronzing after a few days. (3) Phosgene is not a skin irritant. Mustard is a severe skin irritant. (4) Phosgene is said never to produce a pseudomembrane in the trachea and bronchial tubes. Mustard, on the contrary, as will be shown later, may cause a complete cast of the bronchial tree. (5) Phosgene is apt to produce edema of the lungs. Mustard is associated with broncho- or lobar pneumonia. Both poisons sometimes cause emphysema.

Before leaving the symptomatology of mustard gas poisoning let us consider for a moment a typi-

cal history of the type of case admitted to the base hospital, which is somewhat as follows:

The soldier was bombarded with gas shells during the night for several hours. Perhaps he was slow in putting on the gas mask, perhaps he took it off too soon. Or, again, he may have been shelled for several nights in succession, and the trenches, shell holes, bushes, etc., have then a certain amount of gas lying about, particularly if there is very little wind.

Some time after the bombardment ceases the individual goes to sleep feeling perfectly well; the following morning, *i.e.* 6 to 12 hours later, he is seized with intense burning and watering of the eyes, accompanied by great photophobia and swelling of the lids. There is usually some irritation and discharge from the nose. Or, again, the first intimation that he has been gassed may be an attack of nausea and vomiting. There is apt to be some irritation of the throat, with cough and dyspnea upon exertion; 12 to 36 hours later a partial or almost complete aphonia ensues. Diarrhea is rare. Cutaneous blisters are fairly common about the moist surfaces of the skin, inner sides of the thighs, scrotum, back, etc.

Such is the usual picture presented by the ordinary mild case of mustard gas poisoning.

Temperature in Mustard Gas Poisoning.—In my own wards there was an occasional mouth temperature of 99° F., which quickly fell to normal. Most of my cases, however, had normal temperatures.

Post-Mortem Findings in Mustard Gas Poisoning.—Major Brewer and Lieutenant Allison of this unit both had opportunities of observing autopsies at British casualty clearing stations in the vicinity of Ypres, in the summer and fall of 1917.

The post mortems observed by Major Brewer were on two men of a group caught without their masks, and hence they were severely gassed. Both autopsies showed the following: A grayish pseudomembrane representing a superficial necrosis of the mucosa of the larynx, trachea, and bronchi to their first ramifications, making a veritable cast of the entire bronchial tree; an extreme bronchopneumonia of both lungs was also present.

The three autopsies observed by Lieutenant Allison were upon men who died within 48 hours after being gassed. They presented practically the same findings, viz.: all died of bronchopneumonia. All three had excessive cutaneous blisters. The lungs presented diffuse bronchopneumonia with a few collapsed areas due to the bronchioles running to these areas being plugged by bronchial casts. The trachea and larger bronchi showed practically complete casts of the tubes. Here and there these casts were adherent to the superstructure. The casts themselves were formed by desquamated epithelium. The finer bronchioles showed the same thing, but to a slighter degree; in places there was simply an intense inflammation of the mucous membrane. The spleen and kidneys were in a state of active congestion.

Pte, P. B., age 30 years. (Autopsy by Lieut. Cunningham, who kindly furnished me with the following notes).

Clinical Notes.—January 30, 1918. Admitted to Casualty Clearing Station. Marked conjunctivitis. Cough. Pain in chest. February 3, 1918. Admitted to No. 1 General Hospital. Gassed four days ago. Very marked conjunctivitis. Temperature on admission normal. Showed rough breathing at both apices. No dulness. A few rales. Pharyngitis and laryngitis. Tenderness in epigastrium. No burns. Within twenty four hours developed temperature of 104, with signs over left lower lobe. Pulse 130 to 160, growing more rapid. Sputum smear and culture showed influenza bacillus. February 8, 1918. Patient died at 7:45 p. m.

Autopsy Notes.—The body is that of a well developed and well nourished man about 28 or 30 years of age. There is a slight palpebral swelling and injection of the ocular conjunctivae. The skin of the arms, particularly the inner humeral region, presents a bluish pink mottling. Slightly enlarged axillary lymph glands; epitrochlear palpable on right side, inguinal glands small. Abdomen somewhat distended and tympanitic. No free peritoneal fluid.

Lungs.—There is over the lower lobe anteriorly what appears to be a thin yellowish white exudate—the lobe is solid throughout, of a reddish color. The upper and lower lobes are adherent with a fresh exudate. The upper lobe crepitates throughout, except for a very thin margin along its approximation to the lower lobe. Section shows the lower lobe to be very granular and grayish pink in color. The upper lobe is congested and somewhat oedematous. Purulent exudate may be expressed from the smaller bronchi. The larger bronchi are injected and oedematous. The bronchial lymphnodes are enlarged and anthracotic. The branches of the pulmonary artery are normal.

Right Lung.—There are a few firm adhesions over the lower lobe laterally. There are a few old adhesions, lower portion of the upper lobe laterally. Some adhesion between the lower lobes by fresh exudate. The greater part of the lower lobe and the outer portion of the middle lobe are solid. The upper lobe crepitates throughout. On section the lower lobe presents a similar picture to that on the opposite side, but is perhaps of a deeper red color. The bronchi show the same velvety congested appearance. The lymph nodes are enlarged. The middle lobe is solid.

Heart.—The right auricle is dilated, otherwise the heart is normal.

Liver.—The liver is relatively normal in size and color.

Spleen.—The spleen is slightly enlarged. The capsule is smooth. The cut surface is mottled reddish-brown. The Malpighian bodies do not stand out prominently.

Kidneys.—Normal except for injection.

Adrenal.—The left adrenal is relatively normal in size. The cortex is paler than normal. The medulla is grayish-white and homogeneous. The right adrenal is somewhat larger than the left. Through the cortex are seen yellowish colored foci scattered throughout.

Bladder.—There is a slight injection of the mucosa.

Prostate.—The prostate is small. No gross change detected.

Rectum.—The rectum contains, in the lower portion, a few dilated hemorrhoidal veins.

Stomach and Duodenum.—Normal.

Aorta.—The aorta presents numerous small subintimal plaques extending down almost to the bifurcation.

Neck Organs.—The tongue, posterior to the circumvallate papillae, is very rough, injected and superficially oedematous. The pharyngeal mucous membrane is somewhat injected laterally, but not to any marked degree. The tonsils are small, normal in appearance. The pharyngeal injection extends down into the oesophagus as far as the hyoid bone. The epiglottis presents on its pharyngeal surface a few small hemorrhagic areas. The false vocal cords are oedematous. The true vocal cords are slightly oedematous. The upper part of the trachea is relatively normal. About 1 inch above the tracheal bifurcation it becomes more and more congested as you pass into the right and left bronchi.

Brain.—There is injection of the cortical vessels; moderate pial oedema. On section the choroid plexus of veins is distended with blood. On section of the cerebrum of mid-brain no abnormalities are noted.

Microscopical Notes:

Lung.—Section shows a uniformly solid appearance There is oedema, and the alveoli are filled with desquamated cells, large cells containing blood pigment and a

few degenerated red cells with a small number of polynuclears. The pleura is thick, congested and oedematous.

Another section shows a markedly thickened and oedematous pleura with a small amount of surface exudate.

Heart Muscle.—Negative.

Spleen.—The capsule in places is thickened. The Malpighian bodies are scanty, and those seen are very small. The central blood vessel presents a thickened wall. There is an excess of blood and blood pigment in the organ.

Kidney.—The kidney except for injection is normal.

Adrenal.—There is a noticeable oedema throughout the section. There are foci of degeneration of cortical cells.

Panereas.—The pancreas is normal.

Lymph Nodes.—Mesenteric lymph node normal. *Bronchial lymph node* shows a dilatation of sinuses which are rather sharply defined and contain large numbers of red blood cells and larger cells containing blood pigment.

Anatomical Diagnosis:

Lobar pneumonia—right and left.

Congestion of mucosa of pharynx, dorsum of tongue and esophagus.

Adhesive pleuritis—old.

Edema of larynx—slight.

Congestion of kidneys.

Summary of Post Mortem Appearances in Mustard Gas Poisoning: Respiratory Tract.—Inflammation of larynx, epiglottis, trachea and bronchial tubes, sometimes associated with ulceration and necrosis of the mucosa and the formation of casts. The bronchi often contain pus. The lungs show bronchitis, sometimes emphysema.

Alimentary Tract.—Pharynx and fauces present inflammation with or without a pseudomembrane or slough. The inflammatory reaction sometimes extends downward into the oesophagus, as in cases quoted above. Acute congestion of the stomach, with submucous hemorrhages occasionally present.

The *heart* is often dilated.

The *brain* shows simple congestion.

The *skin lesions* are superficial, blisters being the commonest type.

After Effects of Mustard Gas Poisoning.—The conjunctivitis, in the vast majority of cases, clears up fairly rapidly. In one or two weeks the eyes give very little trouble, and the patients begin to enjoy life once more. One man, observed recently, had a severe conjunctivitis with considerable inflammation and photophobia three weeks after being gassed.

The laryngitis cases vary considerably. Some clear up rapidly, others are obstinate. In one patient with superficial necrosis of the mucosa of the arytenoid cartilage there was no trace of the necrotic spot one week later, as already stated above, but he was still quite hoarse from his laryngitis.

We have not yet had an opportunity of examining the larynx, bronchi, and lungs of these men after the lapse of a fairly long period, say several months. However, it certainly seems reasonable to suppose that where there has been an intense chemical irritation and inflammation of the larynx and bronchial tree, in some cases, at least, more or less permanent symptoms will persist, such as dyspnea upon exertion, with cough and hoarseness.

Treatment—Prophylaxis.—Failure to carry the box respirator, and slowness and lack of practice in putting it on quickly, are responsible for many cases of gas poisoning. Then, too, it is self-evident that one should not wait to smell the gas before adjusting the mask, but should do so the moment the alarm is given, or a gas attack is suspected.

Adequate protection of the mouths of dugouts and a good system of gas alarms are highly important.

Immediate Treatment.—All severe cases of gas poisoning should be carried on stretchers and not allowed to walk to the dressing stations. As soon as the patient reaches a field hospital or casualty clearing station the clothing should be removed from the immediate vicinity of the patient and taken outdoors, where it is hung on ropes in the air for 2 or 3 days.

The patient himself should be put in a bath of sodium carbonate solution, or, if very sick, bathed on a rubber blanket.

If there is much respiratory distress, ammonia ampules and oxygen, followed by heart stimulants, are used. Venesection may occasionally be of value. The eyes should be bathed with 1 per cent. sodium bicarbonate, after which a bland liquid paraffin oil is dropped in and a bandage applied.

The new American hospital trains are fitted with oxygen tanks and electric fans to blow oxygen toward the patients.

Treatment at the Base Hospital.—The cases treated by us have had the following: Rest in bed. Soft or liquid diet. No smoking. (The patients do not care to smoke if their eyes are closed.) Bicarbonate of soda t.i.d. in thirty-grain doses. Eye bandage or eye-shade. Eye irrigations with 1 per cent. soda bicarbonate, followed by liquid albolene. After two or three days, substitute normal saline for the soda solution.

Cough is treated by the Robinson perforated zinc inhaler, on which is placed 3 or 4 drops of a solution containing equal parts of chloroform, alcohol, and creosote. Maw's steam inhaler, with compound tincture of benzoin, is used at regular intervals for laryngitis and bronchitis. Codeine is a useful drug in controlling the paroxysms of coughing.

Local treatment of the larynx and trachea was not tried during the acute stages. In one subacutely inflamed larynx, argyrol applications seemed to aggravate the subjective symptoms, and its use was abandoned.

The application of a bland mineral oil to the inflamed mucous membrane of the nose, pharynx, larynx, and bronchial tree seems to be the logical method of treating these cases.

This could probably best be accomplished by a compressed-air oil vaporizer, fitted with a mouth and nose piece, something like that of the Bennett ether inhaler. A portable apparatus of this type could be used by the ward nurse, and would not necessitate the personal services of the medical officer.

Facts About the Recent Epidemic.—Joltrain and Bayle refer specially to cases with high temperature and bronchopneumonia in which they obtained favorable results. They learned that these patients acquire a true immunity against further attacks. They employed many remedies—quinine, sparteine, strychnine, camphor oil in large dosage, intravenous injections of collargol and colloidal gold, antipneumococcus and antistreptococcus serum, etc.—*Le Progrès Médical.*

DEFORMITIES OF THE NOSE RESULTING FROM SYPHILIS: HOW SHALL WE TREAT THEM?

By WILLIAM WESLEY CARTER, A.M., M.D., F.A.C.S.,

NEW YORK.

SYPHILITIC deformities of the nose are characteristic, and constitute a distinct class, the treatment and prognosis of which differ so widely from those of all other deformities that their separate consideration is necessary, whether from a clinical, pathological, or surgical point of view. The difficulties encountered, and the unsatisfactory results secured by the older methods, have to a large extent discouraged those who would help these unfortunates, who certainly merit our deepest sympathy and are entitled to our serious consideration; they have been neglected in the past, though there is much that can be done to relieve them.

From time to time I have received communications from my confrères asking for my opinion on the subject of syphilitic nasal deformities and their treatment, and it is in answer to these, and also through a desire on my part to direct attention to this difficult and neglected field of surgery, that I am prompted to make the following observations, which are based upon clinical experience: Owing to the pathology of the disease, the grave metabolic and nutritional disturbances, the amount of scar tissue usually present, the fact that bone and cartilage are the tissues chiefly involved in these cases, and the poor state of health in which these patients are generally found, syphilitic deformities of the nose cannot be corrected by the use of the bridge splint, by the transplantation of bone, by the shifting of tissue, or by the use of flaps, without first taking into consideration the etiology of the condition, combating the destructive influence of the disease which produced the deformity, and restoring as far as possible the general health of the patient. This should be done before any effort is made at surgical correction. Though I am fully aware that operative procedures may be undertaken involving the *soft parts* in other parts of the body without fear of untoward results due to the specific infection, yet I am convinced of the accuracy of my observations in regard to the nose by personal, clinical experience in more than one case, and I will say further that on several occasions in which specific infection had been denied, and was unsuspected by me, the postoperative behavior of the case suggested the etiology of the deformity, and this was subsequently confirmed by the Wassermann test and by the confession of the patient.

Bone transplantation in syphilitic subjects is distinctly contraindicated. Discussion of this subject is superfluous if we consider the pathological changes occurring in the bones in the tertiary stage of this disease, which changes are directly responsible for the deformity which we seek to correct.

While all bones in the body do not show grossly the same vulnerability to syphilitic invasion as the nasal bones, the septum, the bones of the skull, etc., yet we must remember that this vulnerability is strictly a local manifestation of minor resistance to the specific virus, which permeates all of the bones of the body alike. The removal for transplantation purposes, therefore, of a section of any bone in the body lowers its resistance and increases its liability to succumb to the specific invasion; and even if other considerations were favorable the chances of successful transplantation are markedly diminished. Other considerations, however, are not favorable, for in addition to the concentration of specific activity in the nose and its environs the remaining soft tissues of the nose are filled with a mass of connective tissue poorly supplied with blood vessels and hence of low vitality, having no reparative energy, and being utterly incapable of furnishing the requisite nourishment to transplant. The whole situation, therefore, is adverse to the successful transplantation of bone. The making of flaps is subject to the same unfavorable considerations. Flaps, especially those with pedicles, are extremely apt to die; for even if the ulceration has not extended to the skin surface the subcutaneous tissues are frequently so filled with this low-grade connective tissue that the blood supply to the skin is, in a large measure, cut off. To this is added an obliterative endarteritis always present in the third stage of this disease.

In closing a gap in the ala nasi I have, on more than one occasion, had the raw, approximated surfaces fall apart at the end of a week, showing that they possessed no more vitality or reparative energy than two pieces of leather. This experience, however, is not always met with, for if there is little or no scar tissue in the flap, if it is made thick enough, and is not stretched too tight, union will occur.

The prognosis, taking into consideration all of the factors involved, is not good for the correction of extensive deformities such as are usually found in tertiary syphilis so long as the patient is Wassermann positive, and even after we are reasonably certain that the disease is in abeyance we must be guarded in our opinion as to complete restoration of the symmetry of the organ by plastic means. Endarteritis is always present in tertiary syphilis, and this, especially in scar tissue areas, so restricts the circulation that in making flaps, primary union is secured only with difficulty, even if the tension is very moderate.

The difficulties here outlined apply to the nose and its environs, where a combination of diseased bone, cartilage, and scar tissue with the distinctive predilection of the specific virus for this area form a complex rendering successful bone transplantation and plastic measures almost impossible. These difficulties do not, as a rule, obtain in surgical procedures in other parts of the body, certainly not to the same extent as in the nose.

The preliminary treatment, therefore, of syphilitic deformities resolves itself into the problem ot eliminating, or at least getting under control, the specific disease and overcoming the nutritional derangements from which all of these patients suffer to a greater or lesser extent. So far as bone transplantation is concerned, it is useless to attempt it when the metabolic balance is badly disturbed and the patient's nutrition is far below normal.

In all syphilitic deformities I prefer to have the patient under my personal observation for at least two months before operation; during this time the medicinal, dietary, and hygienic conditions are carefully looked after. I can then usually judge whether

or not circumstances are favorable for operation. The degree of success depends chiefly upon the character of the deformity, the amount of tissue destroyed, the age of the patient, his constitutional state, and his nutritional condition.

In all of my specific cases there has been a considerable destruction of the soft parts and the framework of the nose. In all I have found it necessary to transplant bone and cartilage. In addition to this, in some cases I have had to shift the tissues or turn flaps. Where there was complete destruction of the nose I first transplanted the bone into the arm and then transferred the flap containing the bone to the face, thus making an entire new nose. These procedures, in the present state of our knowledge, constitute the only methods to which the unfortunate patient may look for relief. In the majority of cases we may assure him of a satisfactory correction provided that he submits to the necessary preliminary treatment, and provided that the operation is conducted by one skilled in plastic surgery and the art of transplanting bone; for these cases, in my opinion, require a full measure of patience, experience, and technical skill on the part of the operator.

69 West Fiftieth Street.

STUDY OF ETIOLOGICAL FACTORS BEARING ON THE THERAPEUTICS OF BELL'S FACIAL PALSY, BASED ON A REVIEW OF 177 CASES.*

By JOSHUA H. LEINER, M.D.,

NEW YORK.

ATTENDING NEUROLOGIST PHILANTHROPIN HOSPITAL; ASSISTANT ATTENDING NEUROLOGIST CENTRAL NEUROLOGICAL HOSPITAL, BLACKWELLS ISLAND; CHIEF OF CLINIC, NEUROLOGICAL DEPT. LEBANON HOSPITAL; CLINICAL ASSISTANT, NEUROLOGICAL DEPT., MT. SINAI HOSPITAL, O. P. D.

It is claimed by Steinart[1] of Leipsic that the seventh facial nerve is "more often than any other peripheral nerve affected alone." This fact can be fully corroborated when one refers to neurological clinical data and compares the affections of the peripheral nerves.

Because of its relative frequency and the drawbacks it often entails both from an esthetic and an economic viewpoint, any statistical inquiries that may throw some additional light should be reviewed.

Outside of the birth palsies due to instrumental compression (or otherwise) over the nerve at its exit, cervical adenitis, mumps, direct extension of middle-ear disease or caries of the petrous portion of the temporal bone, neoplasm or trauma, the major number are the so-called idiopathic type, due to exposure or rheumatism.

Every neurologist, in taking the histories of these patients, is given invariably the familiar and what seems a stereotyped history of sleeping near an open window, especially after taking a bath, and awaking with a paralyzed face; or sitting in a railway car, near an open window, or sitting in a draft. It has been found by some authorities[2] that about 72 per cent. of all peripheral facial palsies are due to the "catching cold or draft type."

The German claim that this type should be considered as rheumatic (and in fact they call it rheumatic palsy) is untenable. I have found few cases where there was a previous history of rheumatism or a rheumatic diathesis. Then again the consideration of this as a rheumatic neuritis is not borne out by its therapeutics. Clinicians know the absolute futility of administering the salicyl group for this condition.

Philip of Bonn (quoted by Dessert[2]) seems to have given us the most plausible etiological explanation, and that upon a neuroanatomical basis, *i.e.* a congenital narrowing of the stylomastoid foramina. Using this explanation as an hypothesis, the writer was led to a study of a series of skulls, to determine the terminal diameters of the exit of the Acqueductus Fallopii, *i.e.* the stylomastoid foramen. The skulls measured varied from individuals of recent demise to those of twenty years back. What was particularly striking in these measurements was the difference in the diameters of the two sides. Invariably the right side was narrower than the left.

Where the left side was one-eighth of an inch the right side was one-sixteenth of an inch. When the left side was as large at its exit as one-quarter inch the right side was one-eighth of an inch; or in a few instances the left side was one-sixteenth of an inch in diameter while the right stylomastoid foramen was apparently absent, or so small as to be measured in hairs' breadths only. This fact was more striking and illuminating in those skulls that were apparently of females. I say illuminating advisedly, as this bears out clinically that Bell's palsy occurs more often in the female than in the male (*vide infra*).

Through the courtesy of Dr. Joseph Byrne, I quote the figures I gathered at Fordham University. Of 33 skulls measured, 19 showed a smaller right-sided stylomastoid diameter, 9 showed the reverse, and in 5 skulls the measurements were equal on the two sides. The same proportion existed at Bellevue. One must understand that there is still periosteal tissue lining this area.

The next step in sequence would lead to a comparative clinical study; whether the above facts can be borne out and substantiated by clinical records.

A correlative study of the clinical records of the Mt. Sinai Hospital clinics of Drs. I. Abramson and H. Climenko (to whom I extend thanks), as well as of my own records at Lebanon Hospital, has led to very striking data.

One clinic showed 29 cases of Bell's palsy, of which 19 occurred on the right side, 7 on the left, and in three cases there was no record of the side. I take this opportunity to mention the fact that many clinics failed to state the side affected, being satisfied in simply making the diagnosis; this, however, makes it impossible to compile accurate statistics. One clinic showed this to the extent of 25 per cent. While the other clinics did not show the preponderating number of right-sided palsy, nevertheless the conclusion could be drawn that right-sided Bell's palsy occurs more often than that on the left side. This conclusively proves the original anatomical basis mentioned above.

That in view of the anatomical differences between the two sides there should occur a greater

*Read before the Bronx County Medical Society, December 18, 1918.

number of facial palsies than there are at present is obvious; this would be the natural deduction, but other factors enter, such as proportionate size of the nerve trunk, exposure, etc.

Bernhardt's statement that facial palsy is more common in the female is fully corroborated. The records before me show this in the proportion of two to one; furthermore, the anatomical basis is even more convincing.

Starr's view[1] that the season does not affect its frequency of occurrence cannot be concurred with. These cases were divided into two groups: (1) The so-called open-window season (April to September), and the closed-window period (October to March).

One of the series—31 cases—showed 21 cases as occurring between the months of April and September and 10 cases between October and March, inclusive. In another series of 139 cases, 79 occurred between April and September and 60 cases between October and March.

The anatomicopathological explanation is that as a result of exposure of a side of the face to the play of a current of air (draft), which leads to a rapid evaporation of the skin, with an accompanying superficial vasoconstriction and a simultaneous deep-seated congestion, the neurolemma of the nerve trunk becomes swollen and impinges upon the neuro-axial fibers because of the non-yielding bony constriction of the stylomastoid foramen.

That the resulting degeneration is of the parenchymatous, and not of the interstitial type, was shown by Markowski,[2] bearing out the above hypothesis.

Corresponding to the level of the involvement of the nerve, various neurological syndromes arise. This gives us a clue as to the intensity and distance that the nerve trunk is affected. As a general rule, I found (although there are exceptions) the more distal the nerve was involved the fairer the prognosis. In the series of cases I am not considering the seventh nerve involvement as it emerges from the pons, which is usually not a simple neuritis, but is a secondary involvement, due to a basilar meningitis, tumor, etc. The furthest level considered here is up to and including the geniculate ganglion. Involvement of the geniculate ganglion alone in an inflammatory process has been shown by Ramsey Hunt to manifest itself by an herpetic eruption in the external auditory canal and outer ear, just as involvement of any other ganglion would manifest itself. Many unexplainable pains in the ear, without any gross lesions being present in the membrana tympani or adjacent structures, have been shown to be neuralgic in character, due to geniculate involvement. Often this may be the first symptom in a facial palsy, as shown in some of the cases, when the inflammation extends to the nerve trunk outside of the ganglion. We therefore would have in Hunt's syndrome a facial palsy plus an eruption around the external ear.

If the inflammatory process extends to and includes the tympanic branch of the facial nerve which supplies the stapedius muscle, then the patient would complain of tinnitus aurium and hyperacusis. Usually, the patient will complain of this symptom without any inquiry.

As we descend in the Fallopian canal to about one-quarter of an inch above the stylomastoid foramen the chorda tympani branch is given off. When this is affected then there is a loss of taste in the anterior two-thirds of the tongue. The basic sensations of taste are lost. Although affection of the chorda tympani should lead to a dryness of the mouth (as it is the vasodilator of the submaxillary and sublingual glands), nevertheless I often found that there was not only an absence of this symptom, but in some cases an excessive salivary flow with a drooling from the mouth.

Treatment.—This detailed explanation was entered into so that the general practitioner who sees these cases early can appreciate what great benefit he can give his patient by immediate counter irritation in back of the lobe of the ear. Needless to state, cold should never be applied to relieve the congestion. Oppenheim tells of bringing on a Bell's palsy by applying ice to a patient of his who had tonsillitis.

Tincture of cantharides in flexible collodian is one of the best and most practical counter irritants. In Dr. Wm. Leszynsky's clinic this is used as a routine measure in these cases. Unquestionably, the ultimate prognosis could in many cases be favorably influenced by this simple measure, if seen early.

Involvement of the orbicularis palpabrarum prevents the eye from closing entirely, which is not only an annoying and troublesome symptom but may cause a drying of the cornea, conjunctivitis, etc. The eye should be bathed in a mild, warm antiseptic solution, and if inflamed a 10 per cent. argyrol solution should be used. At night I instruct the patient to use a piece of cotton dipped in a mild antiseptic solution, which should be applied to the eye and covered with a bandage. During the day he uses a black piece of cloth or kid leather attached to a string, to cover the eye. For very troublesome buccinator interference a metal hook can be placed under the upper lip, this in turn being attached to the cheek by means of adhesive plaster.

During the first ten days to two weeks no electricity should be given whatsoever. But about the end of this time a test should be made electrically to determine the amount of damage done. If faradic irritability is present in any degree, a more favorable prognosis is in store for the patient. I have seen these patients get better within two weeks.

If the muscles do not respond to faradism, and galvanism shows a reaction of degeneration, the prognosis should be guarded, and it often takes from three to six months to improve. For treatment, the make-and-break circuit should be applied to the motor points of the face at least three times a week. From one to six milliamperes should be used. If, after several months, a tonic contracture of the muscles sets in, then all electricity should be stopped. Warm packs should be applied and effleurage should be given to aid relaxation, if possible. A professional masseur would be the best adjuvant for this procedure. Balls placed beneath the cheek have been used, but I believe this helps very little to relieve this tonic contracture. Needless to state that the patient's general health should be looked after and improved whenever indicated.

If a case becomes chronic, that is, if after a year's treatment the condition is stationary, then the

patient should resort to surgery. The facial nerve is severed and the central end is joined to the peripheral end of the hypoglossal nerve. There is, of course, a coincident paralysis of the tongue on one side, but this leads to very little interference either in speaking or eating, in view of the interlacing and intertwining of the muscle bundles of the tongue.

Conclusions.—1. Bell's facial palsy occurs comparatively more often on the right side; this is shown both anatomically and clinically.

2. It occurs twice as many times in the female as in the male.

3. It occurs more often between the months of April and September, inclusive.

4. Because of the last mentioned fact the primary etiological cause is exposure, and this factor also enters in those cases occurring during the winter months.

5. Counter irritation should be the earliest, and proves the most efficacious remedy if the case is a primary facial palsy.

6. All electricity should be immediately stopped when the first symptoms of contracture appear.

7. Electricity (galvanism) is the only treatment in chronic cases, and should be employed even up to a year after the onset of the paralysis, providing there is no tonic contracture of the musculature. The writer has seen cases that have gotten better after a full year's treatment.

REFERENCES.

1. Textbook of Neurology by Hans Curschman, Mayence, Vol. I, page 123.
2. Dessert, Bonn, 1899.
3. *Berliner klin. Wochenschrift*, 1892, No. 30.
4. Starr's Organic and Functional Nervous Diseases, page 650.
5. Arch. f. Phys. Bd. 23, page 367.

1187 Boston Road.

THE THERAPEUTIC VALUE OF THE SPAS AND HEALTH RESORTS OF AMERICA.

By H. H. ROBERTS, M.D.,
WHITE SULPHUR SPRINGS, W. VA.

Now that the great war has been brought to a sudden close, and the tension under which the American people have been for so many months will be relaxed, there exists not only a demand for spa treatment but a medical problem for the physicians of America.

Many thousands, in the years passed, have made their annual pilgrimage to the European spas and health resorts. All of these spas and health resorts were efficiently organized—managed by experts who understood the medicinal advantages of such treatment; and those who visited these European spas and health resorts know how actively and successfully they flourished. We know that their therapeutic value was based upon sound physiological principles, that their therapeutic efficacy was beyond dispute, and that their reputation was established to such a degree as was attested by many thousands who made their yearly visits.

All this has been changed. During the four years of the war the organizations were thoroughly demoralized; their doctors are scattered, the attendants killed, and in place of tourists their hotels are filled with the wounded and sick; and it will be many years before these spas and health resorts will be available for patronage again.

There are as many spas and health resorts in America that have beautiful environments, climatic advantages, and waters that are well known for their medicinal value. This has been verified by the Medical Department of the Army in the treatment of the wounded and sick as they return from Europe.

The use of water in the treatment of disease is not a new theory, but dates back to the days of Hippocrates, Plato, Homer, and Greek mythology. Even at that early date in the medical world the efficacy of water as a medicinal agent was recognized and used with great therapeutic value.

One unfortunate reason the spas and treatment resorts have not been a success in America is that the commercial idea has predominated, and that they have not been thoroughly and scientifically developed has been due almost entirely to lack of organization.

The success of the European spas and bathing resorts has been due to the system and organization and cooperation of the medical profession. It is not that they had waters more valuable than those in America or that their physicians were possessed of any greater degree of diagnostic skill or therapeutic knowledge, but the whole thing was system and organization.

We have mineral waters in this country just as valuable as the waters in Europe. The analyses show medicinal qualities equal to if not surpassing any of those in Europe. There are in America many springs in which radium emanations are equal if not superior to any of those in Europe. We have waters that are noted for their diuretic action; waters which have a sedative effect upon the nervous system. There are in America many spas and health resorts which are particularly beneficial in the treatment of neuroses and disorders of metabolism.

When the visitor arrived at one of the many European spas, he at once felt the effects of the environment. It was in the air; everybody was talking it; everybody felt it. The result was, the stranger entered into the taking of the "cure" with the greatest enthusiasm and the strictest obedience.

Possibly in no other commercial enterprise of today is there greater opportunity for the establishment of thoroughly up-to-date treatment and bathing institutions than at some of the well-known mineral water springs of America. The opportunity presents itself; the only requirements are experienced medical men, organization, and capital. If the physicians of America would give greater cooperation and encouragement to the development of the American spas, founded upon an ethical basis, success would be insured. Possibly there is no other country which furnishes a more wonderful variety of medicinal waters for drinking and bathing purposes than America.

By the use of water, hot and cold, cellular protoplasmic activity is materially increased—muscle cells, leucocytes, lymphocytes, etc. Cardiac contractions are made stronger, blood pressure may be raised or lowered, depending upon the primary excitant or the secondary depressant action of either hot or cold water. The primary effect and the sec-

ondary benefit will depend upon the temperature, the mode of application, and the duration, as well as upon the condition of the patient.

Blood pressure is raised after the application of cold water. The use of hot water lowers the blood pressure. The cutaneous blood vessels are capable of holding two-thirds of the amount of the blood of the body. This illustrates what a powerful influence is produced upon the blood pressure by any internal congestion, and which is so markedly relieved by the dilatation of the cutaneous circulation either locally or generally.

Respiration is increased by the use of a general hot bath, and as the bath is prolonged the respiration becomes deeper.

We can divert the blood from any congested part of the body with the application of intense moist heat to the surface of the skin. The circulation throughout the whole intestinal tract may be variously influenced by the use of hot and cold water alternately.

In the use of water for the treatment of various diseases of the body, we have an agent which possesses wonderful thermic flexibility. Because of its flexibility we can regulate its application with the greatest precision. In fact, there is no other medium which we now have that will admit of such a variety of applications as water. We can use it in many different forms, not only in its fluid state—hot and cold—but in the form of vapor, douches, sprays, etc., and we can change instantly from one to the other.

The beneficial effects are produced by the mechanical action of the water administered under various degrees of temperature and various degrees of pressure, which may vary from the mildest stimulation to the most intense irritation.

Water with its various gradations of temperature acts as a nerve stimulant, and by increasing or moderating the degree of temperature from high to low or low to high, affects the quality of innervation at the point of contact.

The peripheral sensory nerve terminations are increased or diminished or altered in excitability by the degree or mode of the application of water. This increase or modification depends upon the degree of temperature or force with which the water is applied to the body—the duration, the suddenness or slowness with which it is applied. The application may produce great good or great injury, its effects being exerted either at a local point or generally through reflex action. Marked benefits or injurious effects may result from the extraction or addition of heat to the body generally or locally.

Powerful beneficial action may be brought about by the proper excitation or stimulation of peripheral nerves. Metabolism of the body and digestion may be seriously depressed or greatly benefited by such stimulation. The frequency and force of the cardiac systole may be greatly influenced and local and general nutrition may also be markedly effected.

With the skilful use of water as a medium for therapeutic application we have an agent which affects different disorders of metabolism, or various secretions and excretions, all of which may be made to undergo many changes for good or for injury.

The reaction which occurs after any bath or thermal application will depend upon its intensity, and the curative effect almost entirely upon the reaction of the individual. There is a wide range of reaction after any bath and it varies greatly with the different individuals. The rapidity with which heat is restored after being extracted from the body varies immensely in different individuals. It is of the utmost importance that this be carefully controlled. An experienced physician will readily understand the necessity for the control of reaction in individual cases.

The greater the abstraction of heat the more intense the rise of temperature in the period of reaction. Therefore the duration, the degree of temperature, and the individual characteristics are all of the utmost importance in the use of hydrotherapy. The application of friction and other mechanical stimulation hastens the reaction. If the patient has taken active exercise before the bath the reaction is greatly increased.

The rapidity with which the cutaneous circulation responds to mechanical stimulation is an index to the reactive capacity of the individual. Therefore it is of the greatest importance that the patient be examined and carefully prescribed for by an experienced physician, and only thoroughly trained and experienced attendants should be permitted to give any form of treatment.

Disastrous results and the consequent disrepute of hydrotherapy have been brought about entirely by incompetent operators and pretenders. For this reason baths and other forms of water treatment should not be given as a routine, but should be carefully prescribed by experienced physicians for the individual cases.

Like many other therapeutic measures, hydrotherapy may be used for benefit or abused and great harm result. The apparently harmless medium—water—is a powerful factor for good or evil, and only those who are known to have experience and have been thoroughly trained should be permitted to use it. A thorough examination of the cardiac vascular system should be made before any bath is given.

In the use of water externally we have the various tub baths, varieties of sitz baths; many forms of douche—the Aix douche being one of the most important. The Vichy douche is a modification of the Aix. Compresses, fomentations, poultices, liver packs, wet packs, dry packs; all have their place in the therapeutic field. Nauheim baths are given with the various exercises and combinations of adjunct treatments as are adapted to different conditions.

Medicated baths, pine, rose, lavender, thyme, mustard, and a great variety of perfumed baths for many therapeutic indications of skin and general effects may be used. Mud baths, peat baths, fango baths, bran and meal baths, hot sand baths, etc.; light rays, chemical rays and other electrical effects producing chemical effects and radiant heat upon the body are available.

Electrothermic generators, electric light cabinets with various combinations, steam cabinets, phototherapy, open air sun baths or heliotherapy, scientific tanning of the body, together with many forms of electric treatments, static, sinusoidal currents, galvanic and faradic currents, high-frequency treatments have wonderful therapeutic value. These

baths and treatments should never be administered except under the authority and direction of qualified and licensed physicians.

The application of hot water to the body causes increased elimination of CO_2, and also increases intermuscular oxidation. The local application of heat by hot water, mud, or electricity, produces a local leucocytosis. The color index is raised, leucocytosis and erythrocytosis are increased by the use of cold applications of water to the body. However, it is important that a good reaction be secured, otherwise this result is not produced but the reverse may result.

Hot mud baths, fomentations, poultices, diathermy by electric application all cause a local increase of the leucocytes and diminution in red cells. A warm sitz bath produces reduction in both white and red cells.

Cold water applied to the cardiac region quickens the heart beat and later produces a slow but stronger beat. Hot water produces the reverse effect.

By sipping very hot water, the secretions and peristaltic action of the intestines are increased. The use of warm water, however, will cause the reverse effect. The sipping of very hot water at intervals has a very powerful reflex effect upon organs and glands adjacent to the stomach, such as the gall-bladder and pancreas. The application of intense heat over the gall-bladder, stomach, spleen, etc., increases secretion and motor activity as well as stimulating the circulation in these organs. The general application of heat relieves acute inflammation of the kidneys. If the bath is given short of perspiration the flow of urine is promoted and general renal activity is increased.

The uses to which we may apply water as a medicinal agent are almost innumerable. Many diseases of the gastrointestinal tract, of the pelvic viscera, and of the kidneys, the uric acid diathesis, diabetes, both acute and chronic rheumatism, bronchial catarrhs, acute and chronic congestion of the liver, and all conditions of either local or general congestion and faulty metabolism are benefited or cured by hydrotherapy.

The internal administration of water is equally as important as the external, and the therapeutic value depends upon the temperature, the quantity, and the time of administering.

Water is taken up by the tissues of the body with greater or lesser rapidity. If some normal or pathological condition has produced a profuse perspiration, diarrhea, diuresis, bleeding or any unusual loss of fluid from the body, the more rapidly will water introduced into the body be absorbed by the blood-vessels.

As water comes in direct contact with the digestive canal it has a most important influence upon the nutritive process, on account of its chemical effect and the equalization of the body temperature.

Drinking very cold water reduces the pulse beat, and the temperature of the body will also decline with the pulse beat, but within a few moments will return to the normal.

Cold water reduces the temperature of the stomach and the normal temperature is not regained for several hours. For this reason ice cream and iced drinks are most injurious when taken with meals or at the end of a meal, digestion being retarded for a considerable period.

The lower the blood pressure at the time of drinking water the more rapidly will it be absorbed. Water containing a small portion of saline matter is more readily absorbed. Carbonated waters are rapidly absorbed. Within one hour after water has been taken into the stomach it appears within the tissues and within three hours has been eliminated from the system.

We know that there are spas and treatment resorts in America in which the circulatory and cardiac conditions are treated with just as much success as at any of the special spas of Europe. The Nauheim baths given in America are equal to if not superior to any of those given in Europe. For the treatment of all chronic constitutional diseases, such as rheumatism, anemia, functional nervous diseases, digestive conditions, faulty metabolism, etc., there are none superior.

The field of natural therapy is unlimited in the good to be secured. This has been demonstrated by many years of faithful work of honest and conscientious medical men.

The opportunity is now. Will the American professional and business men allow this opportunity to pass, or shall we have a system of scientifically and ethically conducted spas and health resorts in America which will surpass those of any country in the world?

THE GREENBRIER.

A CASE OF ACUTE MASTOIDITIS WITH PERISINUS ABSCESS, FOLLOWING INFLUENZA PNEUMONIA; OPERATION PERFORMED UNDER NOVOCAINE AND MORPHINE ANESTHESIA.

BY JOSEPH EASTMAN SHEEHAN, M.D.,

NEW YORK,

INSTRUCTOR IN DISEASES OF NOSE AND THROAT IN THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL; ATTENDING EAR SURGEON ST. MARY'S HOSPITAL, ORANGE, N. J.; CONSULTING EAR SURGEON, PORT JERVIS HOSPITAL, PORT JERVIS, N. Y.

THE following case presents some interesting features.

Eight days after an attack of influenza, which ran a severe course, I was called to see Edward P., age 9½ years, Jersey City, in consultation with Dr. Henry Woelfle. The boy complained of severe frontal headache with pain in both ears and was moaning. His pulse was 132 per minute, respiration 48, temperature 104° F. He had a rough, harrassing cough which was non-productive. Dr. Woelfle stated that pneumonia was present with few signs in his lungs. I quite agreed with him. A few râles were only discernible at the right inferior scapular region.

The examination of the right ear showed the tympanic membrane very congested, the head of the malleolus only could be seen. There was no bulging. Examination of the left ear showed a congestion along the course of the malleolus and of Shrapnell's membrane. Examination of the nose showed the turbinates markedly congested and of an angry purplish red hue. The mucous membrane of the septum was also congested. The throat revealed nothing of special interest except some redness along the lateral wall of the pharynx. The larynx was normal.

A 10 per cent. solution of ichthyol in glycerin was ordered to be dropped into both ears twice daily. An oily spray consisting of camphor and menthol was ordered sprayed into both nostrils four times daily. The

pain quite subsided in the course of a few days and the boy complained of no further trouble in his ears.

Nine days after my first visit I was again called to see the patient. Examination of the right ear showed the tympanic membrane of normal appearance. The membrane of the left ear showed marked bulging and was of a red gray hue. The turbinates were still congested. The throat was normal. There was extreme tenderness over the mastoid antrum, emissary vein, and to a lesser degree over the tip. Incision of the membrane was performed and a large amount of sanguino-purulent discharge exuded. The pain and tenderness quite subsided for two days.

Five days after the incision of the drum, I saw the case again. The boy was extremely ill, temperature 104°, pulse 140, respirations 40 per minute. There was a profuse purulent discharge from his left ear. The tenderness over the antrum and emissary vein was very much less than at the time of incision of the drum. Deep pressure over the tip elicited only a fair amount of pain. An operative mastoiditis presented itself. Ether and chloroform were out of the question as he was very toxic from his pneumonia. After consultation with Dr. Woelfle, I decided to perform the mastoid operation under a local anesthetic, in the house.

Operation.—One-half hour previous to the operation a hypodermic of morphine, 0.006, was given. A solution of 1 per cent. of novocaine was injected into the skin along the line of the proposed incision, going well into the surrounding tissues toward the lobe of the ear, the zygoma, occipital bone and downward below the tip. The regular circular incision was made throughout its whole length down to the periosteum, eight cubic centimeters of the solution being used. An injection to the amount of three cubic centimeters was made under the periosteum, reaching well down below the tip, forward toward the ear, posteriorly toward the occipital bone and upward toward the zygoma. The area injected was about two inches square.

The periosteum was incised, great care being taken not to lacerate it, as so doing would prolong the repair of the wound. It was then scraped backward and forward. Dull retractors were used to minimize pain. As we proceeded painful areas were injected, but this was not frequently necessary.

After the bone was exposed, the mastoid cavity was opened with a chisel. Up to this time the patient complained of very little pain; in fact, he was talking and whistling, quite to the amusement of all present. The cells at the tip were particularly large and filled with granulations and pus. The antrum was exposed and found to contain much pus and granulations, which were thoroughly curetted and cleaned. The additus was exposed and carefully curetted of thick granulations. This was the first time the patient complained of pain. An injection was made into the sensitive granulations and the operation proceeded uninterruptedly.

After exposing the bone a little below the region of the emissary vein, a perisinus abscess was noted. The bone was very necrotic, which necessitated the removal of a considerable part of the bony plate covering the lateral sinus, leaving a wide area of the sinus exposed. There were granulations on its outer side, with some ulceration.

After removing all overhanging ledges of bone from the margins of the bony wound, I again inspected the additus and made sure that all granulations were removed from its roof and floor.

Great care should be exercised in removing granulations from the floor of the additus as quite frequently they are attached to the short process and body of the incus; particularly is this true in chlidren.

The wound was flushed with sterile saline solution, mopped dry, and packed not too tightly with iodoform gauze, care being taken that the gauze pressed into every portion of the bony cavity.

Silk sutures were carried through the entire thickness of each flap so that there would be a better skin approximation, and particularly of the periosteal edges. A gauze wick was inserted into the auditory canal. The external wound was covered with the usual dressing.

The wound was dressed daily after 48 hours for ten days, the gauze strip being removed each time and a shorter piece reinserted. As the discharge lessened and the drum assumed a more normal appearance, dressing the wound every second day was quite sufficient.

The patient ran a protracted course of pneumonia. Three weeks after the operation, the wound closed. Examination of the patient at the time of this writing shows him in a very healthy state.

Conclusion.—1. The mastoid operation can be performed with entire satisfaction under local anesthesia, provided the skin, periosteum, additus, and membrane of the middle ear are properly anesthetized.

2. The bone has no sensation.

3. Injury to the facial nerve is immediately noticed.

4. There is practically no after-effect.

5. Local anesthesia should be employed in all cases where the administration of ether or chloroform would be an added danger.

24 East Forty-eighth Street.

THE TREATMENT OF SCABIES IN PRIVATE PRACTICE.

By CHARLES GREENE CUMSTON, M.D.,

GENEVA, SWITZERLAND.

PRIVAT-DOCENT AT THE UNIVERSITY OF GENEVA.

THE prevalence of scabies since the war, even among the well-to-do, is the only excuse for this short note on treatment. What both patient and physician desire is a rapid, effective, and uncomplicated procedure for eliminating the busy little parasite in the skin.

Up to within a short time the treatment of scabies was complicated, very uncomfortable, and rather long, in that several days were occupied in treatment. Quite recently Oppenheim (*Wiener medizinische Wochenschrift*, Nov. 15, 1918) has published what he calls a rapid cure for scabies, based on the treatment of twelve hundred cases. It is carried out as follows:

The entire body is rubbed for a quarter of an hour with sapo viridis, after which the patient enters a warm bath and removes the soap with a brush or wood-fiber. The process of mechanical removal of the soap should last one-half hour.

The patient then comes out of the bath and dries the skin thoroughly with towels, after which the following is applied:

℞

Sulphur. praecip.	25 gram.
Potass. carbonat.	10 gram.
Vaselini	125 gram.

M., ft. unguentum.

Two hours later another warm bath is taken, the ointment is washed off, and, after drying the skin, a zinc paste is applied. This completes the cure.

I have had no experience with the above rapid cure of scabies, but as Oppenheim has resorted to it in twelve hundred cases with apparent success (since he does not refer to failures) it seemed well worth recording.

I have, however, obtained remarkable results in private practice with the following treatment, due to my friend, Prof. Charles Du Bois of Geneva. There is little cutaneous irritation following it and a cure can be obtained within a single night if the

procedure is carefully and exactly carried out.

The patient rubs sapo viridis carefully all over the body and neck up to the chin, care being taken to cover well the interdigital spaces of the hands and feet.

A hot bath of one-half hour's duration is then taken, the soap being removed by *mild friction*. After the skin has been thoroughly dried, the following ointment is rubbed in:

℞

Ichthyol,	10 grams.
Pommade d'Helmerich,*	80 grams.
Camphor. trit.,	2 grams.

M., ft. unguentum.

The patient dons some old underwear and retires for the night, although I would add that the ointment does not stain the clothes.

On the following morning a hot bath, to which 100 grams of hepar sulphuris have been added, is taken, the patient remaining in the water for a quarter of an hour, after which he simply dries himself with towels. This completes the cure.

As the hepar sulphuris requires some time to dissolve, the patient should be instructed to place the 100 grams of this drug, to be used in the morning bath, in a two-quart pitcher of hot water and allow it to remain over night. In the morning it will have dissolved and can be poured into the bath.

In order to render the ichthyol-sulphur ointment more readily accessible to American practitioners, I would suggest the following formula:

℞

Ichthyol,	10 grams.
Sulphur, sublimat.,	12 grams.
Potass. carbonat.,	6 grams.
Camphor. trit.,	2 grams.
Adipis,	60 grams.

M., ft. unguentum.

Precipitated sulphur being somewhat more active than sublimated sulphur, the former may be preferred by some. Its greater activity is due to its extremely fine division and also that it gives off a certain amount of sulphureted hydrogen.

No mention of change of clothing, bed-linen, etc., has been made, as it is assumed that the absolute necessity for so doing is well known to all.

In conclusion it may be said that the treatment outlined can be satisfactorily carried out in any private house, and I am aware of no other method which cures as rapidly without any undue cutaneous inflammatory reaction following, even in those with delicate skins.

3, Rue Bellot.

*The pommade d'Helmerich of the French Codex is composed as follows:

Sulphur. sublimat.		10 grams.
Potass. carbonat.		
Aquae	āā	5 grams.
Ol. papaveris adipis		35 grams.

Fatal Pulmonary Congestion in Influenza.—Tremollières and Durand relate the case of a patient with influenza who succumbed rapidly amid signs of massive congestion of the lungs. Autopsy revealed the following state of affairs: intense areas of congestion simulating infarcts, areas of catarrhal pneumonia and of suppuration, numerous pathogenic microorganisms. Apparently no clinical evidences of pneumonia had developed.—*La Presse Médicale.*

Medicolegal Notes.

Expert Testimony as to Future Physical Condition.—In an action for personal injuries to a brakeman by a fall while boarding a freight car at night, when his leg struck against a keg of spikes on the right of way, it was urged for the defendant that error was committed in the admission of the testimony of one of the physicians introduced by the plaintiff. This inquiry was propounded to him: "Doctor, supposing that the condition you found was the result of an injury which happened on the sixth day of October, 1913, have you a judgment as to whether or not that condition will be progressive?"

After the interposition of a general objection by counsel for the defendant, which would not authorize a review of this contention unless the inquiry was wholly inadmissible, the witness answered: "I think it highly probable that the trouble will progress, in view of what I have seen and the length of time he was hurt."

The further question was asked the witness, "And, if progressive, what would be the result?" to which he replied, "He will be rendered helpless." The objection to this testimony was that it permitted the witness to express his judgment on a probability or to base an opinion upon an opinion. The court said that the hypothesis upon which the inquiry was made was based, not upon an opinion, but an established fact, viz., that the plaintiff had struck the keg in attempting to mount the car, and had thereby sustained the injuries which had been found by the witness upon a personal examination, as a physician, to exist. At best, testimony of this character is advisory and not conclusive. Cognizable of this fact, the trial court gave the jury the usual instruction as to the weight to be given to the testimony of witnesses of this class. They were told, among other things, in the stereotyped language usually employed in this instruction: "That the opinions of expert witnesses neither establish nor tend to establish the truth of the facts upon which they are based." Thus guided and otherwise fully instructed as to their province as judges of the weight and credibility of all the witnesses who had testified, the possibility of their being prejudiced or influenced one way or the other in reaching their verdict by the testimony of this witness was held exceedingly remote, if it existed at all.—Laughlin v. Kansas City Southern R. Co., Missouri Supreme Court, 205 S. W. 3.

Recovery Under Physician's Indemnity Policy.—A physician's policy of indemnity insured him against loss from liability for damages on account of bodily injuries or death suffered by any person or persons in consequence of any malpractice, error or mistake of the plaintiff as a physician, or from any suit against him to enforce any such claim whether it was groundless or not, and the insurance company agreed in the policy to defend any such suit. Suit was brought against the physician, charging him with malpractice in treatment both prior to and after the issuance of the policy. The insurance company refused to defend the suit, as a consequence of which the physician defended it, and settled the claim. It appeared that the physician's treatment of the patient was commenced some time before and continued several weeks after the company issued to him the policy. In a suit on the policy it was held that the company should be required to reimburse the physician for the amount paid by him on account of the patient's suit.

An instruction told the jury that where a physician has an undischarged case at the time of the issuance of a policy of insurance, such as the plaintiff's, and the patient should continue under the physician's care after the policy was issued, this would constitute a continued liability. This was held to be erroneous. There certainly would be no liability under the policy, except for malpractice committed after the date it was issued, and it would make no difference how long the patient continued under the doctor's care, unless it was claimed that malpractice had occurred after the policy was issued. But as it was expressly stated by the insurance company that the plaintiff was guilty of no malpractice, and that the sum paid by him was reasonable, the judgment would not be reversed by erroneous instructions, as there was no defense to the plaintiff's claim. Judgment for the plaintiff was therefore affirmed.—Waterman v. Fidelity, etc., Co., 209 Ill. Appl. 284.

Military Medicine.

Demobilization and Venereal Disease.—A special conference was held at the Royal Institute of Public Health in London on January 8 (*Lancet*, January 18, 1918) to discuss the question of venereal diseases and how best to control them. At this conference there were present English, American, Australian and Canadian medical men. The discussion was opened by Col. J. G. Adami, C.A.M.C., who after somewhat severely criticising the apathy of the Government of Great Britain with regard to the venereal problem proceeded to advocate that before demobilization the soldier should be provided with the means of prophylactic treatment, should be advised where and how to obtain "tubes" without difficulty, and, moreover, be given precise detailed instructions as to the method of employment. For the good of the country he saw no other possible course. Col. Hugh H. Young, M.C., U.S.A., strongly recommended the use of prophylactic treatment which was enforced in the United States Army in 1912, and in the following five years venereal disease was reduced nearly 50 per cent. Lieut.-Col. Sir James W. Barrett, R.A.M.C., in giving the experiences with the Australian troops, said that moral force had been brought to bear, but it was only after the use of prophylactic methods that any general good had resulted.

The sentiment of the meeting was first that the situation with regard to venereal diseases in Great Britain was very serious and due to become more serious when demobilization was in full swing, and secondly that the only measure which appeared to be likely to control the spread was the adoption of what may be termed direct prophylactic methods. Evidence seems to show that such means, when rigidly enforced, is effective in diminishing the spread of venereal infection as was notably shown among the soldiers of the British army in Egypt. There is a great deal of antagonism against the introduction of direct prophylactic measures into Great Britain, based almost entirely on so-called moral grounds. The argument of those who advocate these methods is that such sentiments must not be allowed to imperil the health of a nation. Unless drastic steps are taken during the next few months venereal diseases are certain to spread and as prophylactic measures have proved to be effective in armies, including the American regular army, the Italian army, and the Australian army, there is reason to anticipate satisfactory results from their employment in civil life. It is a matter which requires very delicate handling, but there should be found a way to employ prophylactic measures in civil life which will meet the situation and not too greatly conflict with religious or moral scruples.

Dr. Ralph G. Stillman has returned from service overseas in the medical corps and has resumed practice at 27 East 62d Street.

Dr. Louis J. Ladin has received his discharge from the army and has resumed practice at 1289 Madison Avenue. Dr. Ladin has by permission of the Court taken this name in place of Ladinski, by which he was formerly known.

Dr. Livingston Farrand, president of the University of Colorado, has been appointed chairman of the Central Committee of the American Red Cross, to succeed William H. Taft, and will become the executive head of the National Red Cross organization on the retirement of the War Council, which will take place March 1. Since the entrance of the United States into the war, Dr. Farrand has been the director of the tuberculosis work of the International Health Board in France.

German Medical Practice Restricted.—Evidence of American determination to prevent fraternization between Germans and men of the United States army of occupation was given recently at Coblenz in the issuance of orders forbidding American soldiers to consult German doctors.

Reconstruction Work Facilitated by the Red Cross.—The American Red Cross has placed at the disposal of the Army Medical Corps for use in reconstruction work, an emergency fund of $200 per month for each base and general hospital engaged in this work. There are forty-four hospitals engaged in such activities and the gift will mean an expenditure of nearly $10,000 a month by the Red Cross alone in the work of re-educating disabled soldiers. The money is not to be used for the purchase of supplies, equipment, and service, which must be provided from army supplies or funds.

Psychiatrical Tests for all Recruits.—The recommendations formulated at a recent conference of a corps of psychiatrists of the Medical Corps of the Army have been approved by Secretary Baker. The conference recommended the establishment of a corps of psychiatrists of the Medical Department for duty at recruiting depots to weed out applicants for enlistment who might be adjudged incapable of conforming to army discipline. A second step urged by the conference is the erection of development detachments into which men adjudged as doubtful might be received for study to determine whether they should be passed into the army. Men serving prison sentences would be sent to the development detachments of recommendation of the commandant of the prison. Vocational education at the prisons was also featured in this report, which urges that men dropped from the rolls as deserters after an absence of three months, but who surrender voluntarily, be sent to the disciplinary barracks for trial so that an adequate study of their mental condition may be a factor in determining punishment. A system of correspondence courses for prisoners is also recommended and commandants are authorized to recommend earlier parole for men who complete such courses.

Discharged Tuberculous Soldiers.—Since the beginning of the war twenty-four thousand soldiers have been discharged from the army as tuberculous. Recently Dr. W. G. Stimson of the United States Public Health Service appeared before the Senate Building Committee in order to urge the Government to make more liberal provision for the care of these men.

Army Surgeons for Siberia.—The War Department has issued orders assigning fifty-two medical officers for duty with the American Forces in Siberia. The party, including seven majors,

nineteen captains, and twenty-seven lieutenants, will sail from San Francisco. These officers are to relieve a similar number of medical officers who have been in service and have indicated their desire to return to civil life. Under the policy of the War Department medical officers asking for discharge will be replaced as far as possible by men who have applied for retention in the permanent establishment.

Many Wounded Soldiers Studying.—Of the wounded soldiers in hospitals in the United States, 12,249 registered in December for various educational or other courses of instruction provided by the military authorities. According to a statement issued by the Surgeon General, 2,010 men applied for shop and trade courses, 1,117 for courses in commercial subjects, 564 for agricultural, and 1,633 for recreational courses. The others chose scattering courses. Such courses are now being given in twenty-three army hospitals.

No Let-Up in Red Cross Work.—A statement issued by Henry P. Davison at the Red Cross Headquarters in Washington, under date of February 12, announces that the efforts of the American Red Cross are to go on without abatement in all parts of the world in which activities are being conducted, and that the transition of the organization from a war to a peace basis will follow the line of continued effort rather than a restriction of endeavors. The War Council, however, will pass out of existence on February 28. It is said that Mr. Davison and several other members of the War Council will remain on the executive committee.

Navy Recruiting Office Calls for Hospital Corps.—Lieut. Com. D. P. Wickersham, in calling for recruits, states that special schools have been established for the instruction of men who enlist in this branch of the service. These schools will provide courses in elementary anatomy, first aid and emergency surgery, pharmacy, chemistry, and compounding of medicines, hygiene, care of the sick, and surgical procedures. Those who show special ability may avail themselves of courses in bacteriology and other laboratory examinations and tests, and the *x*-ray. The recruiting office for the New York District is at 34 East 23rd Street.

Grave Accusation Confronts German Doctors.—According to a recent despatch to the *New York Sun*, the suspicion is widely prevalent in British hospitals and among British soldiers returning from German prison camps that the German doctors deliberately inoculated English soldiers with tuberculosis. The British War Office is going to make an official investigation into these charges. It is reported on reliable authority that the number of British soldiers returning from Germany with tuberculosis is appalling. Dr. Theodore C. Beebe, in charge of the American Ambulance Hospital at Neuilly, France, is quoted as stating that although he could not obtain indubitable proof, the evidence tends to confirm the belief the Germans made deliberate attempts to spread tuberculosis throughout France. The feeling is growing among physicians in this country that if charges of this kind, so contrary to the traditions and principles of the medical profession are proven the resumption of fraternal relations with the medical profession of Germany will be absolutely out of the question for many years to come.

Deaths in the Service.—Capt. Howard Emerson Ames, U. S. Navy (retired), of Washington, D. C., died in the United States Naval Hospital, Washington, D.C., December 27, aged 68 years. He was a graduate of the University of Maryland, Baltimore, in 1874, a member of the Greeley Relief Expedition, one of the first sent to Kingston, Jamaica at the time of the earthquake, and was in command of the Chelsea Hospital at the time of the great fire in Boston. He was a member of the Association of Military Surgeons of the United States. His last assignment was at San Francisco, where he was retired on August 7, 1912.

Lieut. Carl Adolph Breitling, M. C., U. S. Army, of Brooklyn, a graduate of the Northwestern University Medical School in 1913, on duty at Camp Greenleaf, Ga., died of bronchopneumonia at Fort Oglethorpe, Ga., on November 5, aged 32.

Lieut. Frederick Wilkinson Olcott, P. A. Surg., U. S. Navy (retired), Washington, D. C., a graduate of the College of Physicians and Surgeons, New York City, in 1884, died at the Government Hospital for the Insane on January 26, aged 57 years.

Capt. Washington Berry Grove, U. S. Navy, a graduate of the University of Virginia, Charlottesville, in 1896, who was in command of the Norfolk Hospital, Va., as executive surgeon from October, 1915, to December, 1918, and who was recently assigned to the command of the U. S. Naval Hospital at Washington, D. C., died in that institution on January 21, aged 43 years.

Capt. Elmer Ellsworth Holt, M. C., U. S. Army, of Mena, Ark., a graduate of Barnes Medical College, St. Louis, in 1898, honorably discharged from duty at Camp Jackson, Columbia, S. C., in December, 1918, died at his home, January 23, from a gunshot wound believed to have been self-inflicted, with suicidal intent, while suffering from mental derangement following influenza, on January 23, aged 51 years.

Lieut. Paul Carroll Dennett, M. C., U. S. Army, of Boston, a graduate of Tufts Medical School, Boston, in 1916, on duty with the Seventy-fifth Coast Artillery Company, American Expeditionary Forces in France, died from influenza in Base Hospital No. 65, near Brest, on October 16, aged 26 years.

Capt. William Frank Guilfoyle, M. C., U. S. Army, of Philadelphia, a graduate of the University of Pennsylvania, in 1905, on duty with the American Expeditionary Forces, and assgined to the Eleventh Infantry, Twenty-eighth Division, was gassed several times, and died in Base Hospital 31, on September 2, 1918, from exhaustion, aged 36 years.

Lieut. Edward Francis Phelan, M. C., U. S. Army, of North Brookfield, Mass., a graduate of the University of Vermont, Burlington, in 1909, aged 32 years, on duty with the British Army overseas, is reported to have died recently.

Dr. Leonard M. Kalaher, M. C., U. S. A., of Jersey City, died February 5, at Base Hospital 78, Toule, France, where he was serving as a surgeon. He was 28 years old.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, February 22, 1919.

THE ETIOLOGY OF RUPTURE OF THE VALVES OF THE HEART.

THE relative frequency of valvular rupture is a well established fact, the best of recent statistics being due to Rannellitti who has collected seventy-nine cases, namely, forty-nine ruptures of the aortic valves, twenty-seven of the mitral, two of the tricuspid, and one of the pulmonary. These figures show that ruptures of the sigmoids of the aorta are about twice as frequent as those of the mitrals, although the former were not recognized until a later date. As might be supposed the ratio of rupture is five cases in the female to ninety-five in the male.

Two etiological factors are in themselves sufficient to produce rupture, namely, an effort or direct trauma of the thorax. The latter is usually a sudden and violent blow over the precordial region, while occasionally the trauma is combined with a fall. No less important for the production of valve rupture is the part played by an effort, but on this point there is still much discussion. Some writers, Barié in particular, makes a distinction between traumatic ruptures and those resulting from an effort, which he terms spontaneous rupture. From the viewpoint of etiology this distinction is excellent and puts order in the much confused question, but its value must not be exaggerated. Ostwald has well seen the principal objection to this distinction when he points out that a muscular rupture is traumatic when it follows a spontaneous sudden movement without the help of any external cause and there is no reason why a valve which has regularly carried out its functions and ruptures after an effort on the patient's part should not be regarded as traumatically ruptured. These remarkes are exact and it is clear that in valve rupture from an effort, trauma is quite as important a factor in the process as it is in the case of certain hernia. In the present state of our knowledge, it would appear logical to admit three types of valve rupture, because there are cases in which both trauma and effort are combined, namely, (1) rupture from direct trauma over the thorax; (2) effort ruptures which result from a single sudden strain, and less frequently, repeated strain, such as bicycle riding; (3) ruptures produced by direct trauma and violent effort combined.

As to the relative frequency of the two etiological factors, Stern's statistics, as well as those published by Rannellitti, show that strain is the more important. The latter writer found that strain alone was the causative factor in forty-three cases out of a total of seventy-nine, the remaining thirty-six being the result of a direct trauma. The two factors just considered are in themselves capable of producing rupture without the aid of any local or general predisposition. Both unquestionable clinical facts and necropsy findings have proved this. On the other hand, some predisposition related to some pathological conditions of the valves on the entire cardiovascular system existed in a very large number of cases. These consisted of changes in the endocardium of the valves due to former rheumatism or some infectious process, likewise arteriosclerotic or syphilitic lesions of the aortic orifice, and finally hypertension which is also a predisposing factor of the first order.

When some predisposing factor is present a very slight trauma is all that is required to produce rupture and from the clinical viewpoint this fact alone is enough to cause one to suspect the predisposition. This is an important sign in medicolegal cases, because the preexisting lesion may have remained clinically latent up to the time of the receipt of the trauma or the subject may, from personal interest, have voluntarily dissimulated the morbid phenomena to which he had been previously subject. The proof of these predisposing factors has been furnished by numerous autopsies, but the pathological findings are only of value when death occurs precociously. If the proof is made only after a certain lapse of time following the receipt of the trauma it may be questioned whether or not the lesions are secondary to the injury.

PROHIBITION AND AFTER.

WHETHER country-wide prohibition goes into effect in July or not, the reign of John Barleycorn will definitely cease next January, and speculation at this time as to the results on the health and habits of the people is therefore not premature. If we may reason from what has happened in those States where real prohibition, and not merely a change of status from stabile to mobile of the saloon, has existed for several years, it is safe to predict an increase in drug addiction with the exit of alcohol. Not that all alcoholics will become "coke" fiends or heroin addicts, for some will die or go daft and many others will gradually lose their longing and recover normal health, but a fair proportion of those now seeking surcease of care and worry in alcohol will be driven to find it in opium or coca derivatives. Others will get the necessary stimulation from caffeine, and the consumption of coffee and tea will doubtless increase, with perhaps the addition of maté and similar little known South American "yarbs."

Then there will be the multitude of "soft" drinks

—the near beer, the unfermented juice of the grape, of the apple, the pineapple, the loganberry, the orange, and some other fruits now little known or cultivated. These fruit juices, still or sparkling, but unfermented, will largely take the place of wine, when the present dwindling private stocks of the latter are exhausted, and for the majority of moderate drinkers, who seldom take enough to "feel" it, they will answer in fair measure the esthetic and sociable requirements of wine. Already some of the brewers whose manufacture of beer ceased two or three months ago, are preparing to make the best of the inevitable and to turn out presentable imitations of beer and especially of wine. The problem of the latter is of course the preservation. Chemical preservatives will not meet with favor, for the "near wine" drinker will dislike the label stating that this package contains such or such per cent. of this or that antiseptic or germicide, and he will be afraid of the possible effects of the drug on "the coats of the stomach"—though he never had any such fear of the 20 to 40 per cent. of alcohol. Pasteurization will be available in the case of certain beverages that are to be consumed within a short time or that are kept in sealed containers, but for the ordinay "bottled goods" without the sting, some other method of preservation will be found desirable. Necessity is the mother of invention, and already certain processes have been devised which promise to meet all requirements, and are even now being employed in the preparation of palatable beverages for the anticipated wants of the drinking public.

The effect prohibition will have on the health of the community will vary according to circumstances. The alcoholics who switch off to drugs will be bettered or made worse according to the degree of the previous abuse of alcohol and that of the present abuse of drugs, and also according to the particular drug chosen as the "dope." The moderate and voluntary drinkers of alcoholic beverages who simply stop, will be no better and no worse in health, though better in pocket; if they substitute "near" drinks in moderation they will suffer no change in health, but if they increase their consumption of caffeine-containing beverages, they will be decidedly worse off. When prohibition becomes an established fact, the pretense that the consumption of light wines and beer in even the most moderate amounts is physically injurious will no doubt be dropped, and a new crusade will be started against some other social habit—probably smoking. And then there will not be wanting well-meaning but irrational medical men unable to see the difference between use and abuse and deducing from exceptions the rule, who will declaim against the evils of tobacco, and maybe at some future business meeting of our national medical society a resolution will be passed regarding the injuriousness of the cigarette, and this will be published as the deliberate scientific judgment of the greatest body of physicians in America. Then, after many days, the pendulum will swing back again.

THE UNIVERSITY OF LILLE DURING THE GERMAN OCCUPATION.

Professor Combemale in *La Presse Médicale* for January 9 gives an account of the four years' occupation of this institution by the Germans. The damage from bombardment was slight and quickly repaired. There was a tremendous explosion near the university buildings during January, 1916, the concussion of which was very destructive to apparatus and all other small perishable properties; but despite the havoc instruction went ahead as usual, although there was no way of replacing the damaged apparatus. Even the broken windows were not glazed for some days. The University Hospital —Saint-Sauveur—was requisitioned by the Germans for military purposes, and civilian patients were moved to private buildings in the neighborhood. In spite of all entreaties by the faculty, the entire equipment of the hospital became incorporated in full into the Germay army machine and could no longer be used for instruction or civilian care. The change, however, was gradual. Yet a great deal of the teaching and therapeutic installation, such as wax models and plates for teaching dermatology, was of no possible use to the invaders. Sometimes, after much red tape, a microscope or some other piece of apparatus was released, but this course was against the policy of the German heads of the hospital.

The military work done in the hospital varied with circumstances, and for several months at a time it was empty. The privileges of the university in the Charity Hospital were also encroached upon. Thus, while normally the university faculty had the use of 200 beds, one-half were appropriated by the Germans. Accommodations for civilians were cut in two at a time when there was much illness among the townsmen and refugees. The greatest interruption to the activities of the university came with the edicts of April, 1916, when a large part of the Lille population was virtually enslaved by the conquerors. The medical students, like other young men, were set at hard labor—not the entire body, but a certain number—and after a short period were promoted from rough manual to mental labors. The mode of selection of the victims is not stated. Another hardship was confiscation of metal apparatus for military needs. Even the platinum in use was seized. The general lack of fuel made it impossible to warm the rooms in cold weather. Professors who had coal then took the students to their houses. Finally, in May, 1918, the university buildings to the extent of three-fifths were suddenly ordered vacated without a word of explanation. The laboratory men were in fact formally dispossessed and their effects dumped bodily in the buildings which were to be spared. Apparently the object was wanton destruction, as there is no mention of removing the valuable installations to Germany. The buildings thus vacated were used for various purposes. Thus one became a telephone exchange, another a refectory, a third a dormitory

for employees, etc. The botanical garden was dug up to sink certain telephone cables. It was at this period that Germany realized her defeat, and these acts appeared motivated by malice alone, the establishment of the telephone plant being a mere pretext, since it could have been done elsewhere. Other university buildings were used for the railway bureaucracy.

About October it was evident that the Germans were slowly abandoning Lille. A general gutting of the place was begun, but apparently the university had nothing further to lose. During the more than four months after the dispossession of the professors these continued to lecture without much regard to time and place and held the annual examinations; and during the entire four years there was no break or defect in the teaching. The teaching body of the medical school and the students were submitted to less hardship than the university faculty and civilian population. The former could complain only of needless harshness, but the latter, as already abundantly shown, were treated with persecution and characteristic German brutality.

The Problem of Mental Deficiency.

Mental deficiency is one of the most serious problems that confronts civilization. The feeble minded constitute a direct and indirect racial menace. They are apt to breed their like and thus tend to deteriorate the standard of a population. If this goes on long the race and nation will suffer very greatly. The problem of the feeble minded is becoming more pressing, as the numbers of such are steadily increasing. How best to deal with the situation is exercising the minds of medical men and philanthropists and is even beginning to attract the attention of politicians. In Great Britain the matter is being considered in all parts of the country by committees appointed for the purpose. It appears to be the matured opinion of those who have made a close study of the subject that the only rational and effective way of dealing with mental defectives, in order that they may do as little direct or indirect harm to the race as possible, is to segregate them. Where the health, mental and physical, of the race is concerned, the happiness of the individual matters but little, and from this standpoint the safety of the country at large should be considered before the comfort of the defective, and therefore the feeble minded should be isolated. However, it is well known that defectives do not suffer from confinement in an institution, but are happier when thus cared for.

Influenza Pneumonia in 1837.

A writer in *El Siglo Médico* for December 7 has investigated in contemporaneous records an epidemic of influenza which in the above mentioned year visited France, Belgium, England, Holland, Prussia, Germany, and Spain. Whereas the coincidence of fulminant pneumonia and grippe has often been remarked, this author calls attention to the special prevalence of the former, which apparently rivaled that of the current pandemic. In London for a certain period the deaths averaged 1000 daily, the predominant cause being pulmonary complications. A contemporary French practitioner writes of the management of these malignant complications of the grippe, which gave to the epidemic a character *sui generis* necessitating a special plan of treatment. The complications were evidently largely bronchitis and bronchopneumonia. In the aged, in both the simple and pneumonic cases venesection was badly borne. Young and robust subjects were bled to tolerance and given Malaga wine. The application of a vesicatory "on the affected side" suggests that much of the pneumonia was lobar. Four ounces of Malaga wine were given daily until resolution of the lung was complete. Weak or elderly subjects were not bled, but treated with Malaga wine, pectoral remedies, and flying blisters. When the entire picture was that of frank pneumonia the habitual treatment of the latter with slight variations was used. This comprised a certain degree of bleeding, vesicatories, and tartar emetic in good dosage. Dr. Nonat, the contemporary in question, states that by means of these modes of treatment he obtained happy results.

Dr. Stephen Smith.

There is, ordinarily, no especial merit in the mere feat of having reached an advanced age, save as the length of years testifies to a clean youth and a sensible middle age, but when a man has not only far surpassed the Psalmist's time but has packed the long years full of good deeds and service to his kind, then indeed he is one whom all delight to honor. Dr. Stephen Smith, who rounded out ninety-six productive years on Wednesday of this week, is one who thus compels the affectionate homage of his colleagues and the admiration of the entire community which rejoices in his continued presence.

News of the Week.

The "American Journal of Care for Cripples," which is the only special periodical in English on provision for the disabled, becomes a monthly with its January issue, according to announcement by its editor, Douglas C. McMurtrie. Although dealing extensively with the rehabilitation of the invalided soldier, the Journal is in no sense a war product, as it is now entering upon its eighth volume. This periodical will contain in the future the studies, translations, and abstracts produced by the research department of the Red Cross Institute for Crippled and Disabled Men, which material has hitherto appeared in a special series of publications. The Journal also continues as the official organ of the Federation of Associations for Cripples.

Dr. Smith Ely Jelliffe, recently retired from the editorial management of the *New York Medical Journal.*

Influenza Fatalities in South Africa.—According to a statement made in the Assembly at Cape Town, the recent influenza epidemic in South Africa caused the death of nearly 129,000 persons.

Typhoid in Russia.—A despatch from Stockholm states that typhoid fever is prevalent in Petrograd, Moscow, and other places in Russia.

In one hospital in Petrograd twelve doctors and forty nurses have died from the disease.

Typhus Again Raging in Belgrade.—A despatch from Belgrade to the State Department at Washington, on February 11, states that typhus fever has broken out in the Serbian capital, especially among the Czech prisoners of war assembled there preparatory to repatriation, and among the Serbian soldiers arriving from the South. A United States sanitary corps, under Captain Stewart, is aiding the Serbian Government in fighting the epidemic.

French Death Rate far Exceeds Birth Rate.—Official statistics recently made public show that in 1913 the births in France outnumbered the deaths by 17,000. This slight excess disappeared in the following year, since which time the births have outnumbered the deaths. In 1914 there were 50,000 more deaths than births; in 1915, 1916 and 1917 there were each year nearly 300,000 more deaths than births, the total excess of deaths over births for these four years being 883,160. Births which numbered approximately 600,000 in 1913 dropped to 315,000 in 1916 and 343,000 in 1917, while the deaths increased, but not in comparable proportions, so that the total decrease in population was due to the great diminution in births and not to any great increase in deaths. These statistics do not include the 1,400,000 killed in war.

Bills in New York Legislature.—A bill has been introduced into the Legislature of New York State, known as the "calcimine and wall paper bill," which opposes the use of wall paper in sleeping rooms on the ground that many cases of blindness have been traced to the coloring matter in wall paper. At a recent hearing this bill was supported by representatives of the New York State Association for the Promotion of Public Health. Another bill before the Legislature provides for the transfer of the powers of the Department of Narcotic Drug Control to the State Department of Health. It is said that Governor Smith is in favor of the Health Department assuming the administration of the Narcotic Drug Law.

Annual Report of State Hospital Commission.—The annual report of the New York State Hospital Commission recently submitted carries a number of recommendations. Among these it urges the building of a psychopathic hospital for New York City, for preliminary treatment of patients and research work. It also recommends the enlargement of the Brooklyn and Creedmore branches of the Brooklyn State Hospital. The report shows that the State spent, during 1918, $10,494,000 for its insane, though the per capita cost per diem was only seventy-two cents. A total of 45,136 patients were treated in the thirteen civil hospitals, and 37,136 patients are now being cared for. Of those discharged 1,687 are said to have been cured. The report shows a marked decrease in the number of cases in which alcohol might be considered the cause of the insanity. At the close of the fiscal year fifty-two of the hospital physicians were on military duty. Dr. Charles W. Pilgrim is head of the State Hospital Commission.

Lenox Hill Hospital Rejects Merger Plan.—At a recent meeting of the members of the Lenox Hill Hospital the proposal to merge the institution with Columbia University was rejected and the trustees were instructed to break off all pending negotiations. One of the objections to the merger was that it gave to Columbia University eleven trustees and to the hospital only ten. The trustees of the hospital had recommended the merger believing that it would be an advantage to the hospital financially.

Children's Home Chartered.—The After Care Home for Crippled Children at 142 Bruce Avenue, Yonkers, has received a charter from the State of New York. Mrs. Matilda Danziger is the founder of the home.

Vanderbilt Clinic Expands Department of Oral Surgery.—Owing to the great need of a clinic in New York City for the care of injuries and diseases of the mouth, jaws, and face, the Department of Oral Surgery of Vanderbilt Clinic has been enlarged, reorganized, and supplied with the most modern surgical equipment. The latest type of *x*-ray and dark room apparatus have been installed, and men specially skilled in mouth and jaw radiography will have charge of this phase of the work. Patients referred to this clinic will receive prompt treatment and those needing hospital care will be admitted to one of the surgical services affiliated with the College of Physicians and Surgeons.

Free Clinic for Speech Defects.—The first free medical clinic devoted to the treatment of defective voice and speech conditions has been opened at 143 East 37th Street, New York. The clinic has as its objects to cure all forms of speech and voice disorders such as stuttering, stammering, lisping, nasality, cleft palate speech, etc. It will take care of defective teeth, mouth, or jaw conditions, when such conditions are the causative factors of defective speech. It will educate or re-educate patients who are deaf or hard of hearing. There will be evening classes three nights a week. The clinic will also maintain a Central Information Bureau and Clearing House for Speech and Voice Disorders.

Charities Aid Association Again Warns of Tuberculosis.—The danger of the development of tuberculosis following attacks of influenza from which recovery has not been complete has led the New York State Charities' Aid Association to issue a second warning, similar to that published several months ago, urging communities to call upon their physicians to hold tuberculosis clinics at frequent intervals. Persons who have had influenza are advised to submit every few weeks to medical examination, and those who are unable to pay a private physician for this service are advised to present themselves at a clinic.

Health Almanac.—The United States Public Health Service announces that its Health Almanac for 1919 is ready for distribution. In addition to the monthly calendar of health hints and notable events, it discusses the control and prevention of various infectious diseases, the disposal of human excreta, importance of clean drinking water, care of the teeth, care of milk in the home, etc. It also tells what the Public Health

Service is doing to protect the health of the people of the United States. Copies of the 1919 Almanac may be obtained upon application to the U. S. Public Health Bureau, No. 3 B Street, S. E., Washington, D. C.

The Medical Section of the American Life Convention will hold its ninth annual meeting at Signal Mountain Inn, Chattanooga, Tenn., March 26, 27 and 28, 1919.

Texas State Board of Medical Examiners.—Governor Hobby has appointed the following on the State Board of Medical Examiners: Dr. W. C. Swain, Dallas; Dr. C. O. Terrell, Eastland; Dr. S. L. Mayo, Bell; Dr. David Berry, Bexar; Dr. R. Y. Lacy, Camp; Dr. D. W. Davis, Jefferson; Dr. D. S. Harris, Dallas; Dr. E. Marvin Bailey, Harris; Dr. T. J. Crowe, Dallas; Dr. H. C. Morrow, Travis; Dr. M. E. Daniel, Fannin.

The Clinical Society of the Hospital and Dispensary for Deformities and Joint Diseases will meet at 41 East 123d Street on Tuesday, February 25, at 8.30 P. M. The paper of the evening will be read by Lieut. Commander William Seaman Bainbridge, M. C., U. S. N., on "Some of the Practical Surgical Lessons of the War."

The New York Physicians' Association will meet on Thursday evening, February 27, at the Chemists' Club, 52 E. 41st Street. The paper of the evening will be on "Internal Secretion," by Dr. Joseph Fraenkel.

Obituary Notes.—Dr. GEORGE W. SALTER, a graduate of the New York Eclectic Medical College, in 1889, died suddenly at his home in Brooklyn, on February 12, aged 68 years.

Dr. CHARLES ANDREW ROBERTSON, a graduate of the Medical Department of Vanderbilt University, Nashville, Tenn., in 1890, died at his home in Ridge Top, Tenn., on January 28, aged 50 years. Dr. Robertson was head of the Ridge Top Sanatorium for Tuberculosis at the time of his death and formerly a member of the faculty of the Sewanee Medical School.

Obituary.

WILLIAM F. MITTENDORF, M.D.,

NEW YORK.

DR. WILLIAM F. MITTENDORF of this city, who died at his country house in Crugers, Westchester County on February 14, was born in Germany in 1844, but came to this country as a young man. He was graduated from the College of Physicians and Surgeons of Columbia University in 1873, and, after study at the ophthalmological clinics of Holland and elsewhere in Europe, began practice in this city as a specialist in diseases of the eye. He was a member of the Medical Societies of the County and State of New York, of the American Medical Association, of the American Academy of Ophthalmology and Oto-Laryngology, the American Ophthalmological Society, the New York Ophthalmological Society, and of many social organizations. He is survived by his widow and three sons, two of whom are practising ophthalmologists in New York City. Dr. Mittendorf was a man of most engaging personality and enjoyed the friendship of a wide circle both within and without the medical profession.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, January 23, 1919.

The Interallied Fellowship of Medicine and the Harvard Medical Unit.—During last summer Sir Arbuthnot Lane, Sir James Mackenzie and Col. H. A. Bruce, the distinguished Toronto surgeon, who has occupied a high place in the Canadian Army Medical Corps throughout the war, made a tour of the United States with the mission to explain what was being done by the Medical Department of the British Expeditionary Forces, so as to indicate the directions in which close alliance could be established between that department and the medical service of the American Army in the last stage of the war, when the great Anglo-Saxon races would be fighting side by side. The British apostles received at the hands of the American medical public, both leaders and proletariat, a welcome of extraordinary cordiality, and on returning brought back to London the definite request from American medicine that London, for the future, should replace Berlin and Vienna as the Mecca for the English-speaking doctor; American science was open for the learning and instruction of Great Britain and her dominions, and similarly London should be open for the instruction and learning of America. The request was a reminder that the reproach should be removed that the American physician and surgeon, desiring to keep in touch with European movements and developments, had in the past sought the great clinics of Berlin and Vienna rather than the London medical schools, because the German races had brought order into post-graduate instruction, whereas in England no definite post-graduate instruction existed at all, and what there was was disorderly. That this is an accurate presentation of the position in London nobody can deny, but that the dawn of the fifth year of a great war was not a fitting time to start on the formation of a great post-graduate scheme was a fairly evident proposition. Then the shadow of a fifth year's fighting vanished, and some industrious and imaginative leaders of medicine in London determined that a start should be immediately made upon a real union of Anglo-Saxon medicine, with London as its European headquarters. In the new movement the Royal Society of Medicine, representing in its various sections all that is best in metropolitan and provincial science, became the center, and an Inter-Allied Fellowship of Medicine was founded, having for the time being its headquarters at the society. Sir William Osler, as a young man a successful Canadian professor, in early middle life a powerful force in scientific medicine and medical education at a great American medical school, and later Regius Professor of Physic in the University of Oxford, where medievalism and modernism run in double harness, was marked out as the chairman of the executive committtee formed to give effect to the scheme. Sir Arbuthnot Lane accepted the post of Hon. Treasurer, while the Hon. Secretaries chosen were Sir St. Clair Thomson, a famous laryngologist, equally as well known on the Continent as in England, Mr. W. Douglas Harmer, surgeon to St. Bartholomew's Hos-

pital, and Mr. J. Y. W. MacAlister, the secretary and librarian of the Royal Society of Medicine. Round these officers a powerful executive committee has been later collected, and the objects of the new alliance, as formulated by the executive committee, were stated this week in a speech by Sir St. Clair Thomson at a farewell dinner to the Harvard Medical Unit. The objects, as set out by Sir St. Clair Thomson, were grouped under four comprehensive headings: (1) The coordination of the resources of medical interest in England, so as to make them available for demonstration, (2) the initiation of schemes whereby facilities can be obtained for visits to, or courses of study in, the various British clinics, laboratories and museums, (3) the collection and distribution of information; and later the possible interchange of knowledge by temporary occupation of professorial chairs, and (4) the promotion of personal friendly intercourse. The primary object of the association is not, it will be seen, the formation of a great scheme for post-graduate study, but on the other hand each of the four objects demands such a scheme and forms a part of it.

The Dinner to the Harvard Medical Unit was the first public act of the new Inter-Allied Fellowship of Medicine, and proved a great success. The members of the Harvard Medical Unit have been during the week paying a short visit to London on their way home from France. The executive committee of the Inter-Allied Fellowship of Medicine invited them to an informal banquet at the Connaught Rooms, London, with a view to publicly thanking them for their enormous services to British arms, and at the same time of indicating that their action in fighting side by side with Great Britain was exactly typical of that racial union to promote which the Inter-Allied Fellowship of Medicine has been started. Lt.-Colonel Hugh Cabot, commanding the Harvard Unit, and in charge of No. 22 General Hospital, in an eloquent speech brushed aside the particular military performances of himself and his officers and insisted that the most important work which had been done by the unit was the bringing together of the medical profession on both sides of the Atlantic. He concluded his speech by saying: "It is to this bringing together of the British and Americans that we have most effectively addressed ourselves. We have been part and parcel of the British service and have given it the best that we had to give. At the same time, we have 'with a decent respect for the opinions of others,' maintained our own manners and customs, and have perhaps lived with a somewhat greater freedom and worked and played a little harder than sound British doctrine would sanction. We have been a gathering place for all sorts and conditions of men, and we desire to acknowledge the debt we owe to Sir William Osler and those associated with him in helping forward this mixing of professional men and women from both sides of the Atlantic." Other speakers at the dinner included Dr. Norman Moore, president of the Royal College of Physicians of London; Sir W. Watson Cheyne, M.D., member of Parliament for the University of Edinburgh, and lately president of the Royal College of Surgeons of England; and Sir John Goodwin, director general of the Army Medical Service, whose personality is familiar to many American medical men. Sir John Goodwin said that more than 150,000 British soldiers had been treated and cared for by the Harvard Unit during its stay in France and that the sentiment of brotherhood and affectionate feeling thus engendered must not be allowed to die down. The closing speech of Sir William Osler, who acted as chairman of the dinner, was an eloquent résumé of his personal knowledge of American medicine. He said that among the advantages of advancing years was the knowledge one might have of three generations, and this was his position with regard to the profession of Boston, which may be called the *cortex cerebri* of the United States. Oliver Wendell Holmes' Brahmin class existed in a larger proportion in the profession of New England than in any part of the English speaking world. It was a peculiar pleasure to him to welcome the Harvard Unit, which contained grandsons of men whom he had known well in the seventies. Opposite to him sat Major George Cheever Shattuck, whose father, Frederick Cheever (friend of student days in Germany and Professor of Medicine at Harvard) was the son of the distinguished George Cheyne, also a Professor of Medicine, the son of George Cheyne (*primus*), called after the famous English physician of that name, and son of Benjamin Shattuck—all of whom had practised medicine in Massachusetts—*caute, caste et probe*. Five generations of Warrens had served Harvard and the Massachusetts General Hospital—John, at present in the anatomical department, son of J. Collins, still alive and well and an honorary F.R.C.S., whose ancestors, Jonathan Mason, John Collins, and John Warren (the founder of the Harvard Medical School) were great figures in Boston. And there were many other medical families—as the Bowditches, Jacksons, Bigelows—which had given an hereditary distinction, as rare as it is valuable in the profession of any city.

The New England spirit—the keen sense of right and wrong, and the desire to help, inspired Harvard to send this Unit long before America could enter the war as a united nation. And with special reference to Lieut.-Col. Cabot he added: "The Unit was fortunate in the choice of the man who has had charge. Dr. J. William White, of Philadelphia, at the outbreak of war and until his untimely death, fought the battle for the Allies against Germany in a way I hope we shall here never forget. And our chief guest and his brother, Dr. Richard Cabot, early entered the propaganda, but they did not confine their work to the Eastern States where sympathy was largely with the Allies, but they went West to the strongholds of German influence and held public meetings, sometimes in the face of stormy and even disorderly opposition. A rude little rhyme about the Cabots indicates their position in popular opinion:

Here's to good old Boston,
The home of the bean and the cod,
Where the Cabots talk only with Lowells,
And the Lowells walk only with God."

The Interallied Fellowship of Medicine thus started should have a great future before it. Learning without priggishness, wisdom spiced with fun, and friendship ready to face criticism make up the spirit of the new society.

Conference of Tuberculosis Medical Officers.—

A conference of the tuberculosis medical officers of the United Kingdom is being held this week, and it is to be hoped that when the result of their deliberations is published it will be found to indicate the directions in which the prevention and control of tuberculosis can be much improved. Tuberculosis medical officers are, it must be understood, a definite part of the sanitary service of the country, and administered through the Local Government Board. The Medical Officer of Health, in localities where the populations warrant the establishment of such a staff, has working with, rather than beneath, him two assistant medical officers of health, one for education purposes and one for the public management of tuberculosis. The scope of the work of the assistant medical officer of health for tuberculosis purposes is indistinctly defined, for his duties must frequently impinge upon the general duties of the medical officer of health for sanitary or epidemic purposes, and on those of the assistant medical officer of health for educational purposes, whose particular clientèle will continually include many tuberculous children. And not only do the relations of the tuberculosis medical officers to the public health service of the country, as a whole, require adjusting from the point of view of function, but the conditions of their service, the uncertainty of tenure, the scale of pay, the opportunities for advancement, the provisions for pension, all require more fair and thorough investigation than they have yet received if a comprehensive and united policy for the control and eradication of tuberculosis is to be pursued by the country, either under the existing dispensation, or under the reign of a new Ministry of Health. The medical officers of sanatariums for the tuberculous, the directors of open air schools, the superintendents of chest hospitals and farm colonies—all these valuable officials are concerned in making the position of the tuberculosis medical officer one that will be desired by good men, and will be provided with facilities and inducement for good work. The conference is being held at the instance of the Tuberculosis Society at the Royal Society of Medicine.

The Reward of Patriotism.—The temporary medical officers with the army are feeling intensely aggrieved at the proportion of honors and decorations which have accrued to them in comparison with the regular officers of the Royal Army Medical Corps. As the latter were only discharging their official duties, while the temporary men, mainly as volunteers, were replying to the call of duty by wholesale sacrifice, in many cases, of their material interests, it would not have been surprising if the decorations and honors had been mostly bestowed upon the latter—for no one suggests that they did not take equal share in all risks and earn equal scientific credit. During 1917, however, and for example, the proportion to deaths of grants of the D. S. O. (Distinguished Service Order) among the regular officers was 25 times higher than it was among the temporary officers.

New Views in Criminology.—Dr. Charles A. Mercier has just been made the recipient for the second time of the Swiney Prize of the Royal Society of Arts, which is awarded for the best essay published during the year on a medico-legal subject. Fourteen years ago Dr. Mercier published a work entitled "Criminal Responsibility," in which he maintained the thesis that in criminal charges justice should take into consideration the grades of responsibility as a guide to liability for punishment. That was not so much a new doctrine as an exposition and extension of certain conclusions of the eminent judge, Sir Fitzjames Stephen, in his "History of the Criminal Law of England," and the book established Dr. Mercier's position as a lawyer as well as a psychologist, though some of the points made in a very controversial performance were of a hair-splitting nature, and though some of the views advanced did not receive general acceptance. The Swiney Prize essay, entitled "Crime and Criminals," is a complement to the earlier work, and for the complete following of its arguments the reader might be expected to have before him not only "Criminal Responsibility" but also two pamphlets entitled "Primary Insanity" and "Human Temperaments" as well as the author's "Textbook on Insanity and Other Mental Disorders." All these books show Dr. Mercier to have an extraordinarily clear-cut conception of the nature of crime and of the proper definition of insanity. His summaries of the normal human temperament and of the influence upon that temperament of individuality and environment are convincing, and the various interrelations of these conditions and factors as they manifest themselves in reality afford him endless opportunities for wit and wisdom, of which he makes good use. Sir Bryan Donkin, a member of the board of directors of convict prisons, points out in a brief introductory note to "Crime and Criminals" that throughout his latest work Dr. Mercier takes the view that the study of crime and its causes is properly the study of all antisocial actions of individual offenders. Dr. Mercier, in effect, states that any science of criminology can be founded on generalizations drawn from observations upon convicted criminals *en masse*. It hardly seems to require Sir Bryan Donkin's great experience to support such a view; everyone knows that knowledge of physiology must precede that of pathology. But Dr. Mercier's attitude throughout the book suggests that he feels himself to be at variance with other psychologists on this and many other points in the natural history of crime and its perpetrators. The attitude of perpetual opposition to his professional brethren, whether justifiable or not, becomes irritating to the medical reader, while the lay reader will derive the idea that save Dr. Mercier all psychologists are fools. But I strongly advise all you readers to get this book because it is a remarkably able presentment of the difficulties arising in the legal treatment of crime, and of the arguments which should sway the medical mind in regard to all such questions.

Period of Incubation of Grippe.—A soldier was interned for grippe, but observation showed that he had simple bronchitis. Having been placed in the grippe ward he developed that affection, the chill appearing just 47 hours after his reception into the latter. English observers have timed the incubation as 41 to 45 hours in one case, 47½ hours in another, etc., and there is sufficient evidence accumulated to fix the incubation period conventionally at about 48 hours.—*Le Progrès Médical.*

Progress of Medical Science.

New York Medical Journal.

February 8, 1919.

1. Commentaries on Hippocrates. Jonathan Wright.
2. The Human Foot, Both Normal and Pathological, Exclusive of Most Types of Congenital Defect. Ethan H. Smith.
3. Teaching Surgery by the Moving Picture. William O. Owen.
4. Remarks on Methods of Teaching Medicine and Surgery by the Cinematograph. R. Tunstall Taylor.
5. Strangulated Inguinal Hernia in Infants. Joseph E. Fuld.
6. Pathogenicity, Cultivation, and Reproduction of Protozoon Parasites. A. J. Hinkelmann.
7. Roentgenological Diagnosis of Cholecystitis and Adhesions. Lewis J. Friedman.
8. The Letterman General Hospital, San Francisco. L. C. Mudd.
9. The Flight Surgeon and the Flying Ambulance. A Flight Surgeon.
10. Recent Gleanings Relative to the Prophylaxis and Treatment of Influenza. Louis T. de M. Sajous.

6. Pathogenicity, Cultivation, and Reproduction of Protozoon Parasites.—A. J. Hinkelmann has come to the following conclusions: (1) The ameba, the *Balantidium coli*, the *Cercomonas hominis*, and the organisms of the trichomonas group constitute a group of organisms that are parasitic to man, and, in common, induce the same pathological conditions with different degrees of severity. (2) The infection by any of these parasites may become generalized through the entrance of the organism into the circulation, after which metastatic lesions in various parts of the body may result. (2) The kidneys are especially prone to the infection, on account of their function in the process of elimination. Remnants, or whole and living organisms, may appear in the urine; and in the case of amebiasis is a valuable diagnostic point. (4) Diarrhea and gastrointestinal disturbances are common clinical manifestations of infection caused by these organisms; but have many degrees of severity, or may be altogether absent. (5) The metastatic lesions, especially in amebiasis, may be manifested directly and apparently as the primary condition. (6) Protozoon parasites may be recovered alive and active from the blood through the method of hemolyzing freshly drawn blood with distilled water and centrifuging. (7) the *Balantidium coli* may be recovered from the blood in culture by placing the blood into sterile distilled water in the proportion of 1 c.c. of blood to 200 c. c. of water. (8) Amebiasis may be suspected in all cases of obscure fever showing a striking difference between morning and the evening temperatures with the leucocyte count remaining steadily about 12,000, regardless of the presence or absence of diarrhea or any suggestive intestinal symptoms. (9) In semi-tropical countries sudden pain in the abdomen with rigidity and fever is not always indicative of appendicitis, but may be caused by an abscess formation due to protozoon metastasis; especially if the leucocyte count rises above 12,000 and does not agree at all with the acuteness of the case. (10) Chronic languor, pallor, emaciation with an eosinophilia and a stubborn constipation, may mean a swarming infection of the *Trichomonas intestinalis* high up in the intestinal tract. (11) Skin eruptions may be caused by protozoon invasion of the blood. (12) These protozoon parasites appear, in varying degrees, to have everything in common. They act alone, or in conjunction with one another; and conditions which predispose an infection by one do so for the others as well. Immunity can not be established, but a valuable amount of resistance appears in all individuals, which combats the invasion in the beginning. When this resistance becomes broken down, the case becomes chronic in some form or other; or the patient succumbs to an overwhelming proliferation of the invading organism, in an acute attack, depending upon which one of the group he has to contend with.

Journal of the American Medical Association.

February 8, 1919.

1. Thrombosis of the Coronary Arteries. James B. Herrick.
2. Tuberculosis Associated with Malignant Neoplasia: Report of Twenty Cases. A. C. Broders.
3. Methemoglobinemia Due to Poisoning by Shoe Dye: Report of a Series of Cases at an Army Camp. Richard E. Stifel and Joseph E. Johnston.
4. Further Observations on Sex Gland Implantation. G. Frank Lydston.
5. Trench Fever: A Critical Review. Wilder Tileston.
6. Outbreak of Typhoid Fever Among American Troops in England. C. B. Hawn, J. D. Hopkins, and F. M. Meader.
7. The Early Diagnosis of Gas Gangrene. Frederick Christopher.
8. Reconstructive Surgery: The Problem of Records. J. Appleton Nutter.

5. Trench Fever: A Critical Review.—Wilder Tileston points out that though trench fever was very prevalent in the British army in France, it was much less common in the French, Italian and German armies, and has occurred only in isolated instances in the British armies elsewhere. The onset is sudden, the first symptoms being dizziness, headache, and pains in the lumbar region and legs, associated with fever. Chilliness is common, but true chills are unusual. There may be vomiting. Headache is not very severe and is more often frontal; in some cases it may be occipital and associated with neck stiffness. Lumbar pain is so severe that smallpox is suggested. In the legs it is first muscular and later becomes localized to the tibiæ; it is rarely in the joints. There is pain in the splenic region; abdominal pain is common and appendicitis may be simulated. An accompanying symptom is a well marked hyperesthesia of the skin on the outer aspects of the legs, on the thighs and in the precordial and left axillary regions. This hyperesthesia is a sign of considerable diagnostic importance, as it is rarely seen in diseases likely to be mistaken for trench fever. Prostration is frequently marked, but may be absent. Constipation may be present, but is not the rule; diarrhea is absent. Eyes are bright and conjunctivæ are injected. though there is no exudate. Nystagmus on lateral motion of eyes occurs in about 85 per cent. of cases as an early and persistent sign. Herpes is rare; tongue is clean or slightly coated. The respiratory tract shows no sign of inflammation and the pulse rate is usually low, but with relapses there is a tendency to tachycardia. Though many writers have stated that the spleen is not enlarged, the American Red Cross Commission found palpable enlargement over some period of the disease in 85 per cent. of cases, and within a few hours of onset in 25 per cent. This enlargement may be encountered at any stage of the disease and sometimes persists only for a day or two, which may explain the fact of its being overlooked. In about 50 per cent. of cases a characteristic but evanescent rash appears, consisting of scattered red macules about the size of rose spots which disappear with pressure and are rarely elevated; this occurs generally on the trunk in successive crops during the original attack and in relapses. Blood examination may reveal a leucocytosis, or in some cases a leocopenia. At the time of a relapse, the picture is more or less characteristic in that neutrophils, lymphocytes, and large mononuclears are all simultaneously increased. Urine rarely shows albumin or casts. McNee, Renshaw and Brunt have distinguished two types of trench fever according to the temperature curve; the short and the long. In the former there is usually an intermission of fever about the third day, followed by a rise after a day or two of normal temperature. The patient becomes afebrile at the end of 7 or 8 days and recovers promptly or suffers a single relapse. In the long type there are usually three or four relapses, occurring at regular intervals and resembling the attacks in ratbite fever. The interval between relapses ranging from four to thirteen days and is usually fairly constant for the individual case. During relapse the temperature is often as high as in the original attack, but rarely remains up for more than 36 hours. The tendency is for the fever to be lower at each relapse and between attacks the patient feels fairly well except for slight pains in the shins. There is also a chronic type of this disease which lasts for many months, following an acute attack. The patient suffers from pains in the shins, aggravated at night and upon exertion. The temperature shows a slight rise in the evening to 99.5 degrees or 100 degrees, and from time to time there may be a slight further rise with increased pain in the shins. Complications are absent, hut soldier's heart is a fairly common sequel. McNee, Renshaw and Brunt have shown the causative agent of trench fever to be an infectious organism. They were able to transmit the disease to healthy

soldiers by intravenous or intramuscular injection of whole blood, and also by the blood of such experimental cases. Experiments with washed red corpuscles were successful, while those with plasma and serum were inconclusive. Filterable plasma and serum and filtered extracts of red corpuscles did not produce disease. The organism is probably contained in the leucocytes and is non-filterable. These experiments have been confirmed by the Trench Fever Commission of the Medical Research Committee of the American Red Cross. Plasma, serum, and extracts of red corpuscles after being passed through a Berkefeld filter did not reproduce disease, and the blood was shown to be most infectious during the first two days of fever and more so in the original attack than during relapses. It was concluded, therefore, that the organisms were contained in the blood and probably in the plasma and that some were thrown down with the red cells during centrifugation. Search for the organism has led to conflicting results. The relapses at regular intervals and the temperature charts suggest a spirochetal infection and these organisms have been found in the urine. Stoddard, however, has shown that this may occur in healthy men. Dimond has isolated hemogregarines in the peripheral, splenic, and hepatic blood in twelve cases of trench fever, but his findings have not been confirmed. Blood cultures have yielded negative results, save that Houston and McCloy have reported the presence of an enterococcus. Animal inoculation has been negative. From the experimental work of Davies and Weldon, it appears certain that transmission is usually effected through the body louse and it is probable that the organism is harbored by the lice and that infection is not purely mechanical. Byam and his associates have shown that infection is transmitted also by the excreta of lice rubbed into the scarified skin, after an interval of seven days or more from the time of feeding on a trench fever patient; this suggests the possibility of a developmental cycle within the body of the louse. Lice were found to remain infective for at least 23 days. Infection has also been transmitted by the Red Cross Commission with filtered urinary sediment and with filtered louse excrement, so that the organism may be regarded as filterable. The virus resists drying and moist heat at 60° C. for thirty minutes, a temperature which kills lice and their ova, but is killed by 70° C. for the same length of time. In regard to immunity, Byam succeeded in reinfecting a patient who had completely recovered from the disease. The incubation period under natural conditions appears to be from 14 to 24 days; when the disease is produced by blood inoculation it is from 5 to 24 days, and in experiments with lice from 16 to 35 days. In the absence of fatal cases the pathology is unknown. Trench fever may be distinguished from influenza by the facts that prostration is usually less and there are no signs of inflammation of the respiratory tract in trench fever, whereas in influenza the shin pains and relapsing type of fever are absent. From dengue it may be distinguished by the character of the eruption, the presence of leucocytosis and the fact that dengue has never been reported north of 41 degrees latitude. Examination of the blood excludes relapsing fever and ratbite fever may be excluded by the history, absence of enlargement of the regional lymph nodes, and the type of eruption. From typhoid and malta fever, trench fever may be excluded by the clinical course and by cultural and serological methods. Prophylaxis depends upon destruction of lice. No effective method of treatment has as yet been devised. Rest in bed probably shortens the course of the illness. Salicylates and coal tar products are indicated for the pain, and morphine may be necessary in severe cases. Dimond reports relief of pain from lumbar puncture. Serum injection has been ineffective, as is arsphenamine. Thyroid extract is recommended by Byam for irritable heart in chronic cases. Detailed reports of experimental work on this disease are included in the report of the American Red Cross Trench Fever Commission, published by the Oxford University Press.

The Lancet.

January 11, 1919.

1. A Final Contribution to the Study of Shell Shock. Being a Consideration of Unsettled Points Needing Investigation. Lieut.-Col. Charles S. Myers.
2. Incidence of Entameba Histolytica and Other Intestinal Protozoa Among 400 Healthy New Entries to the Royal Navy. H. A. Baylis.
3. The Analysis of a Composite Neurosis. Captain F. Dillon.
4. The Prevention and Treatment of Diabetic Coma. P. J. Cammidge.

4. The Prevention and Treatment of Diabetic Coma.—P. J. Cammidge points out that coma may occur early or late in the course of diabetes mellitus, but is particularly prone to develop during the first year of treatment and is more common under than over forty years of age. Exaggerated respiration without cyanosis or evidence of physical cause often appears with dramatic suddenness, inspiration becomes prolonged like the breath preceding a yawn, while expiration becomes forced and more complete than normal—the socalled air-hunger of Kussmaul. A characteristic sweet, fruity odor of the breath is noticed occasionally and may suggest the cause of the air-hunger. The face has an anxious expression, is sometimes flushed, often pale and drawn and of a yellowish tint; the eyes are generally half-closed, the pupils react to light until deep coma occurs and are usually dilated, less often contracted. Softening of the eyeball, due to a fall in the intraocular pressure, is an early and important sign of diabetic coma. The pulse is soft and accelerated, but rarely exceeds 120 a minute. Blood pressure is low. The usually subnormal temperature rises with onset of coma to about 100°, but may fall as low as 90° as death approaches. The extremities are cold and there may be slight edema of the feet. Although coma may develop suddenly, as a rule it is preceded by suggestive symptoms; these, however, may be so slight that they may be overlooked. Regular examinations of the urine, blood, and alveolar air furnish indications of the probable onset of the complication. Ever since Stadelmann in 1883 discovered oxybutyric acid in the urine in cases of severe diabetes, it has been recognized that diabetic coma is usually associated with a high degree of acidosis, accompanied by the presence of acetone bodies in the urine. The appearance of these bodies is usually the first sign of commencing acidosis. The ammonia output of the urine is increased from 0.5 to 1 gram per day to 10 or even 12 grams, and as a rule an excretion of 4 grams a day rarely exists for more than a few days without coma developing. Whereas normally the ammonia nitrogen constitutes 4 to 5 per cent. of the total nitrogen of the urine, as coma becomes imminent this percentage may rise to 40 or 50. A useful indication of serious acidosis is a diminution in the available carbonates circulating in the blood; this may be determined indirectly from a lowering of the carbon dioxide of the alveolar air, which can easily be estimated by Mariott's device, or directly from the blood itself. The results of alkaline therapy, on the whole, have been disappointing and it can hardly be claimed that the death rate has been improved by it; it is a symptomatic treatment which does not touch the source of the trouble, the excessive formation of organic acids. Moreover, large doses of alkali often cause irritation of the gastrointestinal tract, or if given in very dilute solution overburden the stomach by the large amount of fluid and throw excessive work on the kidneys. When taken over long periods, alkalis interfere with digestion, deplete the body of necessary salts, and have a depressing effect on the heart; finally, as Joslin has pointed out, it is possible that their administration may set free acid bodies existing combined, quiescent, and harmless in the tissues and so do harm. Furthermore, Allen's experiments have shown that in diabetic dogs no apparent prolongation of life results from keeping the alkaline reserve of the body normal with alkalis given intravenously or by mouth. Rosenfeld, Hirschfeld, Levy, and others have shown that fat is the chief source of the acetone bodies and that they are derived mainly from the fat of food. The careful control of the fat intake in the diet is one of the most certain practical methods at present at our disposal for preventing acid intoxication and subsequent coma. By this means Joslin reduced his death rate through coma from 64 to 44 per cent. Systematic control of the fat intake in diabetes has hitherto been neglected for the following reasons: (1) The prevalent idea that diabetes is merely a defect of carbohydrate metabolism; and (2) the doctrine that loss of weight by diabetics must be prevented at all costs. Both ideas are erroneous. Diabetes is not a mere inability to assimilate glucose; it

is a defect in the metabolism of carbohydrate, protein, fat, and probably mineral substances as well. Treatment from the first must be based on the hypothesis that a general failure of metabolism is involved. The weakened metabolic functions of the diabetic are capable of dealing with only a definitely limited load or failure of the metabolic processes occurs. If the amount of carbohydrate in the diet is reduced but the total intake of food maintained by adding fat or protein, the metabolic functions will still be overtaxed and the downward progress of the disease will continue. The case will have the characters of a progressive diabetes with steady fall in carbohydrate tolerance, a type frequently met with. If, however, such patients are allowed to lose weight until the body mass is reduced to a level that can be maintained by a total load of food below that which can be efficiently dealt with by their defective metabolic powers, the progress of the disease is checked. Muscular efficiency and weight are not synonymous, and a thin patient feeding within his metabolic limits can do more and is less easily tired than one who is attempting to maintain a hypothetical weight for an individual of his size. It is probable that the death rate from coma may be materially reduced if regulation of the fat intake is exercised from the earlier stages of the disease. Coma is the consequence of autointoxication, but the evidence available suggests that it is a toxemia resulting from a general failure of metabolism rather than a specific toxin; it may be produced by several toxins of different origin acting together. In some cases the metabolic defect may be more complete or rapid in one direction and there may be associated defects in excretion, as in interstitial nephritis. Some of the symptoms met with during the onset of diabetic coma may be the result of the dehydration of the tissues produced by a high concentration of sugar in the blood; and this may also explain the frequency with which coma is precipitated by gastrointestinal disturbances, particularly when there is vomiting or diarrhea, and by conditions where large inflammatory exudates take place. Cases of fatal coma have occurred in which there was no evidence of acidosis and in which air-hunger was absent. These facts favor the argument that toxins other than the products of defective fat metabolism—for instance, those due to imperfect metabolism of protein—may be responsible for the condition. Experiments commenced by the author, but abandoned temporarily, seemed to show that protein metabolism tends to become less and less complete as the disease progresses; this with the presence of amino acids in the urine points to the onset of coma being associated with the failure in the functional activity of the liver, and it seems likely that the resulting imperfections in protein metabolism may be a contributory factor at least in bringing about the condition. A striking increase in the calcium and magnesium loss in the urine is a constant feature in diabetes, and it is possible that this renders the nervous system more susceptible to the action of toxins. It would appear, therefore, that the only "cure" is to prevent all possible causes that may give rise to the condition by so arranging the diet that (1) the patient's tolerance for carbohydrate, protein, and fat is not exceeded; (2) the total load of food is within his metabolic capacity; (3) the diet is correctly balanced; and (4) a sufficient allowance of inorganic salts is provided. If this is done a surprising improvement may be manifest even in advanced cases. The diet must be arranged to fit the patient's metabolic capacity, not his appetite. The treatment of cases with coma should be as follows: Rest in bed and avoidance of disturbing influences; the bowels should be cleared, but excessive purgation avoided; 2 ounces of lemon juice and small amounts of potato and gruel may be given at three or four hourly intervals for twenty-four hours, and the patient should be encouraged to drink as much liquid as possible. If there is vomiting, intravenous injections of saline should be given. After the twenty-four or forty-eight hours the carbohydrates may be omitted for a day or two. Joslin has claimed that better results can be obtained if alkalis are avoided and injections of normal salt solution or even tap water are given. If speedy improvement, however, does not follow the latter, alkaline injections should be given, particularly if there is uremic element. Cardiac stimulants should be administered—digitalis subcutaneously or by mouth, or strychnine, caffeine, alcohol, ether, camphor, ammonia, or pituitary extract may be useful. The administration of oxygen is useless, since the difficulty of respiration is not due to lack of oxygen.

British Medical Journal.

January 18, 1919.

1. The Climacteric of Life. Guthrie Rankin.
2. Bone Grafting in Ununitel Fractures of the Mandible: With Special Reference to the Pedicled Graft. Percival P. Cole and Charles H. Budd.
3. Pelvic Measurement in Ante-Natal Clinics. A. W. Bourne.
4. Primary Sarcoma of the Prostate: Rapid Growth Following Injury. David Newman.

1. The Climacteric of Life.—Guthrie Rankin submits a clinical survey which shows the importance of the climacteric period of life, not only in women but in both sexes. The history of every life is a gradual ascent from the time of birth till its fastigium is reached, and from that point one of decline until it finds its termination in death. The climacteric period, which coincides with life's full maturity, is the time of special liability to the development of disease, hereditary or otherwise. It is well recognized in women, but it is not so generally appreciated that men go through a similar readjustment of tissues, though probably at a later age. Since at this time the protective powers of the body are less active, acute illness is attended with more than average risk. The immediate counterpart in man of the ovarian changes which take place at this time in women is probably to be found in the structural alterations which become established in the prostate gland. It is not surprising that growths of malignant type so often date their inception from this period of unstable tissue life. Most interest, however, attaches to the chronic ailments met with at this period of life, and the author selects three that are commonly met with in men and three more usually encountered in women. Although each ailment may be considered as an entity, they are each related to the other and none is really self-contained. Arteriosclerosis, interstitial nephritis, and diabetes form a group frequently seen in men between fifty-five and sixty-three. Each may be regarded as evidence of a breach of tissue integrity, and in all three cases the common causative antecedent is continued strain—domestic trials, financial worries, emotional storms, and mental anxieties. The stress of carrying on falls primarily upon the nervous centers, the result being neurasthenia. More often than not these ailments overlap one another, and all three are frequently seen together, and their close association makes the onset of one almost certainly the prelude of the others. The indications as to preventive treatment are simple: the strain of life must be ruthlessly curtailed; work must be lessened and leisure cultivated; the diet must be adjusted to the necessities of the condition and the capacity of the damaged organs. A weekly grain of calomel will provide for free action of the liver, and periodical small doses of iodide and nitrate of sodium with arsenic will help to keep the blood tension low, and possibly aid in delaying the thickening of the arterial walls. In cases of interstitial nephritis, the amount of urea in the urine is of more importance than the quantity of albumin. Marked diminution of urea is an evil omen and should be followed by complete rest in bed, a milk dietary, mild alkalis, and free hepatic stimulation. The occurrence of albuminic retinitis is of grave prognostic importance. In diabetes the treatment resolves itself into a suitable restriction of diet and the exhibition of opium. Starvation is not to be recommended in patients of this age; it imposes too great a tax upon the nervous control and imperils serenity of temper and happiness, and in any case the sugar ultimately returns. In younger patients this procedure has much to recommend it. Upon the first appearance of diacetic acid the patient should be put to bed, treated with a more rigid dietary as regards carbohydrates and with a temporary withdrawal of fats, purged moderately, and given bicarbonate of soda with taraxacum in full doses every three or four hours. A reasonable amount of alcohol should be allowed. In women, colitis, rheumatoid arthritis, and hyperthyroidism are the ghosts most to be dreaded at the "change

of life." Women as a class are more careless than men in the proper regulation of their bowels and, suffering from constipation, soon fall into the "aperient habit." In time the tone of the colon suffers, with colonic irritation as the result. The mucous membrane of the large intestine becomes impaired with displacement of abdominal contents. An ulcerative process may supervene which it is difficult to repair; there are niggling pains, troublesome irregularity of bowels, flatulence, and unpleasant borborygmi. Toxemic consequences cause the patient to look ill, impair the general nutrition, and may end in a marasmus almost as pronounced as that produced by malignant disease. Rheumatoid arthritis is almost always rebellious and leads to permanent and characteristic deformity. When the disease invades the vertebral column the miseries and helplessness of the patient may compel for a time complete rest in bed. Until the pathological process has been arrested there is constant risk of intercurrent acute exacerbations, when the joints become red, swollen, and painful, to the accompaniment of disturbed digestion, pyrexia, and a condition of neurasthenia. Fibrositis, sciatica, and lumbago are to be feared as hindrances to the progress of recovery. Graves' disease, though generally met with in an incipient form, may pass from that stage to fuller development, and end in exophthalmic goiter. Even in its minor degree it is accompanied by disturbance of the nervous system, and sometimes leads to a mild degree of mental aberration. The thyroid gland may become enlarged apart from any change in the eyes. Every case is associated with a risk of glycosuria, which from small beginnings may end in a permanent diabetes. Intestinal difficulties are common and the colon may prove troublesome. Pigmentary changes in the skin may declare themselves in the form of leucoderma, and patches of alopecia sometimes becomes established on the scalp. The causative influence in all three conditions is probably a toxemia, by which metabolism is more or less seriously interfered with. Treatment, therefore, should be directed toward combating toxemic intoxication. In colitis douches are sometimes useful, but they may create an undesirable reflex action upon a nervous system already touchy. Beta-naphthol, bromide of ammonium, and bismuth is a useful combination, to which may be added an occasional dose of calomel or podophyllin. A tablespoonful of liquid paraffin should be taken before breakfast every morning. The abdominal wall may be supported by wearing a suitable belt. In rheumatoid arthritis guaiacum is an efficient remedy and should be used in combination with sulphur. The usual treatment by bromides, strophanthus, thyroidin, and arsenic is indicated in cases of hyperthyroidism. In both sexes, however, the success of treatment lies in convincing the patient that the years are beginning to tell their tale and that a new and more subdued plan of life must be adopted.

Berliner klinische Wochenschrift.

December 9, 1918.

The Epidemiology of Cholera at Berlin in 1918; The Epidemic of Cholera in the Autumn of 1918 at Berlin.—The first of these two papers, by E. Seligmann, and the second, by Magnus-Levy, are devoted to the epidemiology and symptomatology of this affection. It will be remembered that the Wolff Agency denied in the lay press that Berlin had been the victim of cholera in the fall of 1918. Of unknown origin, the epidemic began with an employee of the slaughter houses. The inquest held upon several other cases of cholera revealed that they all came from the same meat storage plant in which this employee had worked. The measures put in action following this inquest soon put a stop to the spread of the epidemic. The mortality was 14, or 77 per cent. This extremely high percentage of deaths is explained differently by the two contributors. Magnus-Levy still insists upon the diagnostic value of the "deep expansive respiration," similar to that met with in diabetic coma or in certain instances of uremia. The impression one gets from reading the two papers is that Berlin was hard hit, although the number of cases is eighteen. Perchance were this multiplied by several zeros the correct number of cases might be surmised.

The Treatment of Radiologists' Hands.—G. Holzknecht states that the lesions developing in professional radiologists, among whom are to be found many physicians well used to radiography, are to be considered as precancerous lesions. Instead of surgical removal, which gives rise to cicatricial retraction, the writer is of the opinion that radiotherapeutic treatment is indicated, either with the *x*-ray or radium. The fear of treating these lesions with radiations is disproved by daily practice, but the writer insists upon the use of filtered rays. Of fifty cases treated only three had to have excision of the lesion performed; the others, among whom there were several cases of rapidly progressing ulcerating epitheliomata, rapidly recovered. The dosage was: *x*-ray: 10 to 12 H filtered through 4 millimeters of aluminum at once, or two to three seances of 6 H filtered through 4 millimeters of aluminium at intervals of a fortnight. With radium, 4 milligrams of metallic radium per cubic centimeter of surface were employed filtered through 2 millimeters of silver. Seances lasted from one to eight hours with interposition of a thin layer of cotton padding.

Münchener medizinische Wochenschrift.

December 3, 1918.

The Serology of Typhus Fever, Especially from the Viewpoint of Immunization with the Proteus X 19.—H. Werner and E. Leocreami have attempted the immunization of subjects chosen among a population greatly exposed to typhus fever, by means of an injection of dead proteus X 19. After a certain dose has been obtained the reaction of precipitation, which was at first negative, becomes positive, the volume of the precipitation thus obtained reaching 1/800 or even 1/3,200. Local and general reaction was insignificant. Of the twelve subjects treated none contracted the disease, although in their families 20 per cent. developed typhus. However, on account of the small number of experiments, the writers do not draw any decided conclusions from the results obtained. Examined from the viewpoint of their resistance to heat, the agglutinins thus produced in human blood serum resist up to the temperature of 65° C. Experiments with the sera of convalescents had already shown that these so-called "immune sera" (acquired immunity after infection) did not resist a temperature above 60° C. When in presence of bacterial emulsions the sera studied by the writers offered a marked absorption of the agglutinins by the proteus X 19. The writers refer to a peculiar property of these sera, namely, that they coagulate the bacilli of typhoid, while the bacillus paratyphoid A and B escape this coagglutination. However, this property is not constant. As to Wassermann, artificial immunization against proteus X 19 is without influence on it. From an entirely different viewpoint the writers have noted that the agglutination acts quite as much on dead as on living proteus X 19.

Abdominal Phenomena in Gunshot Injuries of the Spine.—S. Weil recalls, with case reports, that wounds involving the spine may give rise to a peritoneal syndrome simulating a wound of some of the abdominal viscera. The article contains nothing new, the subject having been as fully covered during the past three years in several excellent papers by the French surgeons.

The Treatment of Peritonitis with Ether.—G. Wolfsohn has obtained good results by introducing ether into the peritoneal cavity at the dose of 50 to 100 c.c. during laparotomies for generalized peritonitis. It is to be pointed out, nevertheless, that from what he would lead us to infer his cases were operated on very soon after perforation of the appendix, intestine or stomach had occurred, a fact which tends to remove from this treatment the writer's mortality, which is rather high (18 per cent.), given the circumstances in which he operated.

Deutsche medizinische Wochenschrift.

December 5, 1918.

The Pathology and Clinical Indications of Blood Platelets.—V. Schilling refers to our present insufficient knowledge as to the origin of blood platelets. In place of the various theories which have been proposed for their autogenesis the writer defends the idea that their origin is to be found in the nuclei of the erythrocytes,

and to back up this explanation he describes the formation of the platelets, which can be followed under the microscope in a perfect way. They are completely absent in fresh blood, while very slight disturbances of the circulation free them from the younger forms of erythrocytes, either because they are included within the red blood corpuscle or are adherent to it. Other arguments are in favor of this manner of viewing the subject, namely, absence of the platelets in organisms having nucleated red blood corpuscles; their appearance during autogenesis at the time when the nucleated cells take the place of non-nucleated cells and at a time when the leucocytes have not as yet appeared; the chemical make-up of the platelets (nuclein) is still another proof of their nuclear origin. The writer studies the relationship of the platelets to coagulation, as well as the clinical meaning of their variations. Their increase implies an exaggerated formation of erythrocytes (chlorosis, mild secondary anemia, polyglobulia, scurvy, etc.), their decrease signifies an insufficiency of hematopoiesis (infections, intestinal intoxication, essential anemia, leucemia, etc.).

A New Procedure for Detecting Gastric and Duodenal Ulcer.—L. Freund describes a method which permits one to make an estimate of the sensibility of the mucosa to electric currents and thus detect possible erosions. The stomach is in the first place filled with a barium mush, a gastric catheter furnished with a metal wire fulfills the office of an internal electrode, while a roller placed on the body surface represents the second electrode, which is passed over the gastric area over the front and back. The current is furnished by an ordinary faradic machine with a medium separation of the coils. The patient either complains or not of pain, which is more marked at certain points and can thus serve to localize an ulcer. The writer thinks that this procedure may render considerable service, although he has employed it in a very limited number of cases where a control autopsy could be made.

La Presse Médicale.

December 19, 1918.

Symbiosis of Chancre and Vincent's Ulcer.—Payenneville states that this association has been seen in this fashion, that the ulceromembranous buccopharyngeal affection known as Vincent's angina or stomatitis has coexisted with primary syphilis. It is known that the exciting causes of Vincent's disease can cause lesions anywhere in the body, even on the genitals; and the author has seen the coexistence of the spirochete of syphilis with that of Vincent's disease along with the fusiform bacilli which are also present in that affection. The technique in examining for the treponema ought therefore to be carried out in such a manner as to include a research for the organisms of Vincent's disease. The importance lies in the fact that Vincent's disease when associated with a chancre would be mistaken for secondary syphilis. The author imagines a case of typical Vincent's disease in its usual locality in which examination of tonsillar smears showed also the presence of the treponema. In the clinic he saw a woman who presented an ulcer of the labium majus which had a diphtheroid coat. It bore every likeness to a chancre and there was inguinal adenopathy. The duration was about a month. Smears showed the ulcer to be due to the organisms which cause Vincent's disease. The treponema was absent. On the other hand, the Wassermann was positive. By technical refinements it became possible to discover the treponema. After discussing the more recent methods for staining the latter, he decides on the superiority of Harrison's, who substitutes for the India ink of the Burri method collargol in aqueous solution. The latter is first dropped on a slide and the serosity to be examined is added, one or two drops, and the two fluids mixed and dried. The treponemata show the stain, but if Vincent's spirillum and fusiform bacillus are present they remain unstained. The ultramicroscope is used in Harrison's test. The treponemata are not actually stained, but the staining of the background makes them visible. The other organisms are recognized as fine white threads on the mahogany background.

La Presse Médicale.

January 2, 1919.

Phlebitis and Septicemia.—Dehelly, who has been associated with the Rockefeller Institute Hospital and who has done much in collaboration with Carrel, relates a case which occurred in the War Service of that institution. Septicemia can mean only a condition in which living pathogenic bacteria circulate in the blood. In March, 1918, a Hoboken fireman was interned ten days after sustaining a fracture of the lower third of the leg. This was associated with fracture into the ankle joint and, on admission, the joint was exposed and suppurating. Gangrene had also set in and crepitus could be obtained. An amputation was performed at the middle third of the leg. Clinically the condition was very threatening for the first days, but thereafter the patient did well and made a good recovery. The untoward symptoms were chills and high temperatures and blood cultures then showed living streptococci of the hemolytic type. The apparent improvement was therefore regarded as a mere remission. Nothing was indicated locally and some electrargol was thrown into a vein, but had evidently no bearing on the favorable outcome. While there were no further general symptoms the stump became edematous and pus formed which necessitated an amputation in the course of the thigh. The blood was sterile and remained so. The author found the source of the peculiar behavior in a dissection of the amputated stump in which was a suppurative phlebitis. The wound proper had not been infected in the least, but this isolated infection of a vein had caused a bacteriemia and failure of the latter to destroy life or place it in peril is attributed to prompt extirpation of the focus. The report is very brief and the omission of any active chronology makes it more or less difficult to follow the author until at the end his summary makes the situation plain.

Correspondenz-Blatt für Schweizer Aerzte.

December 28, 1918.

Grippe at an Isolation Hospital Last Summer.—Wanner gives in detail a belated account of the epidemic which is usually of much more significance than the hurriedly published contemporary accounts. At Vevey 314 patients were cared for during a given period. Of this number 282 survived and 32 perished. The causes of death were as follows: bronchopneumonia, 27; pulmonary infarct, 2; cerebral type, 1; pneumonia followed by pyopneumothorax, 1; simple grippe (bronchitis), 1. The mortality was, as seen, 10 per cent.—somewhat less than at Basle, in which city it reached 15 per cent. Many interesting comments are made, such as the almost total absence of nasal sinusitis and otorrhea. Nosebleed, very common, had no clinical significance. About one-third of all victims showed some form or degree of pneumonia. The few cases of primary pneumonia appeared in the overworked. Unfortunately the author could make no autopsies and must depend on the finds of some of his colleagues. To sum up in brief, he would state that foci of bronchopneumonia supervene in a very insidious manner, in striking contrast with the brusqueness seen in measles and whooping cough. In the latter we see stitch in the side, rusty sputum, dyspnea, slight cyanosis, and an ascent in temperature and pulse with nasal dyspnea. These symptoms were practically lacking. Herpes febrilis was extremely rare. Auscultation gave unusual signs. Bronchopneumonia must always be sought at the extreme bases of the lungs, and at the posterior aspects. Only twice were evidences found of implication of the anterior portions of the lungs. The pneumonia therefore showed a hypostatic character. In many instances a small focus could be noted to increase in size. Pneumonia of the apices was found but a few times. The evolution of pneumonia showed a most bewildering variation, and migration and relapse were among the irregularities seen. The mortality from bronchopneumonia was unusually low—25 per cent.—which might have been due in part to diagnostic skill in recognizing even the very slight forms, but the author speaks of higher mortality having prevailed in general.

Book Reviews.

International Clinics. Edited by H. R. M. Landis, M.D. Vol. II. Twenty-eighth Series. 1918. Price, $10.00 per year. Philadelphia and London: J. B. Lippincott Company.

The material contained in this volume is unusually diversified. In the first section, on "Clinics," the following topics appear: "A General Consideration of Pancreatitis," by E. W. Archibald; "Focal Infection as a Cause of Keratitis and Irititis," E. V. L. Brown; "The Interpretation of Urea and Non-Protein Nitrogen Estimations in the Blood in Various Kidney Lesions," John H. Larkin and I. J. Levy; "Clinics at the Lying-In Hospital, New York; Presbyterian Hospital, Chicago; Boston City Hospital, and Massachusetts General Hospital." The second section, on "Medicine," contains two papers, one by C. H. Minor, on "The Psycological Handling of the Tuberculous Patient," and the other by J. E. Lind, on "The Early Diagnosis and Treatment of Syphilis of the Nervous System." Dr. Joseph S. Neff presents an article on "Babies and the Rising Cost of Milk," listed under the section of "Public Health." This is a timely subject in view of the high cost and scarcity of milk in some quarters at the present moment. Three contributions are found in the section on "Obstetrics and Gynecology," one of which is particularly worthy of note. This is entitled "Tuberculosis of the Vulva," written by C. Comberléran of Toulouse, France. He reviews the literature thoroughly and reports two cases of his own. Also from a French writer, Gaston E. Ayraud, is an article on "Primary Tuberculosis of the Conjunctiva," with report of a case, appearing in the section on "Ophthalmology." This is an extremely rare condition. In the domain of "Surgery" there are four presentations, as follows: "Gastric and Duodenal Ulcer," by M. H. Biggs; "Fulminating Appendicitis Complicated by Pneumonia," by G. S. Foster; "Fistula of the Rectum," by Charles J. Drueck; "Surgical Treatment of Exstrophy of the Bladder," by G. P. Müller. The final section, on "History," is given over to a syllabus on the important discoveries, inventions, and operations in obstetrics and gynecology, from the time of Hippocrates down to modern times, arranged in chronological and alphabetical order. Altogether we find this volume most stimulating and profitable reading.

A Compend of Genito-Urinary Diseases and Syphilis, Including Their Surgery and Treatment. By Charles S. Hirsch, M.D., Urologist to the Jewish Hospital and Mt. Sinai Hospital. Philadelphia. Third edition, revised. With 59 illustrations. Price, $1.50. Philadelphia: P. Blakiston's Son & Co.

In spite of such revision as the author has seen fit to bestow on this book, it still needs a thorough overhauling. Printers' errors, slipshod statements, misspelled words, and sentences which defy grammatical analysis are far too numerous. The pages containing the prescriptions with their curious combination of English and barbarous Latin, which formed one of the features of the previous editions, have been omitted; their elimination is, evidently, an easier task than their correction would have been. We would again suggest that this volume be revised and corrected.

Practical Physiological Chemistry. A Book Designed for Use in Courses in Practical Physiological Chemistry in Schools of Medicine and of Science. By Philip B. Hawk, M.S., Ph.D., Professor of Physiological Chemistry and Toxicology in the Jefferson Medical College of Philadelphia. Sixth edition, revised and enlarged. With two full-page plates of absorption spectra in colors, four additional full-page color plates, and one hundred and eighty-five figures, of which twelve are in colors. Price, $3.50. Philadelphia: P. Blakiston's Son & Co.

For several years this work has been recognized as a standard. The new edition has been thoroughly revised and the author has brought it up to date. Among the new features we notice an important chapter on Acidosis; in this chapter the author gives a succinct review of the chemistry of the subject before proceeding to a consideration of the laboratory methods. The chapters on Metabolism, Blood Analysis, Gastric Digestion, the Quantitative Analysis of the Urine, and Growth have been enlarged. In two of the chapters the author has made important changes; these are the substitution of Van Slyke's method of determining the acetone bodies in the urine for all other methods, and the elimination of all methods for the quantitative estimation of urea, except those based upon the use of urease. These changes not only bring the book up to date, but also simplify matters for the student and laboratory worker. If only some fearless author or editor would eliminate 50 per cent. of the numerous tests given in every text-book, the gain would be enormous. The volume lies open at any page, and it has an adequate index. This sixth edition should be even more popular than its predecessors.

Dietetics for Nurses. By Fairfax T. Proudfit, Formerly Instructor in Dietetics in the Lucy Brinkley Hospital and Baptist Memorial Hospital, Memphis, Tennessee. Price $2.25. New York: The Macmillan Company, 1918.

The subject of Dietetics is of the first importance to the nurse, the physician and the patient. Unfortunately, until quite recently, most of the books on this topic which were available for nurses were little more than glorified "cook-books." At the present time, it is thoroughly understood that dietetics must be founded on a knowledge of Nutrition and Metabolism. Such is the basis of the present volume. The author wisely refrains from allowing the book to assume too scientific an aspect; but every chapter gives evidence of a proper scientific basis. A knowledge of dietetics presupposes an acquaintance with the food requirements of the individual, both qualitatively and quantitatively, in health and under abnormal conditions; it also includes a knowledge of the composition and the caloric value of the several foods. In the book before us all these subjects are clearly and thoroughly set forth; and sample diets, with plenty of variety whenever possible, are provided for almost every disease. Details concerning the preparation and serving of the various meals are also considered. Numerous tables, containing much information in condensed form, will be found throughout the volume; and to each chapter there is appended a summary of its contents. Nurses are to be congratulated on having such an admirable book, which is thoroughly practical and which is, at the same time, based on the latest scientific views. Many physicians, too, whose knowledge of dietetics is quite meager and whose views on the subject are correspondingly hazy, might study this volume with pleasure and profit. Proudfit's Dietetics is a work of more than ordinary value; its subject matter is well selected and well arranged; its style is pleasing and accurate; and a knowledge of its contents (on the part of nurses and physicians) will prove an undoubted blessing to many a patient.

Gun-Shot Fractures of the Extremities. By Joseph A. Blake, Lieutenant-Colonel, Medical Corps, U.S.A. Price 4 francs. Paris: Masson et Cie., 1918.

Dr. Blake is a pioneer in the treatment of fractures by suspension and it goes without saying that during the war, on account of his position, he has had almost illimitable opportunities for testing the value of mechanical treatment of fractures of the extremities. The different methods of applying such are given in detail and it may be said that he has brought the system to a state of perfection, hitherto unknown. The book contains numerous diagrams.

Johnson's Standard First Aid Manual. Suggestions for Prompt Aid to the Injured in Accidents and Emergencies. Edited by Fred B. Kilmer, Lecturer in First Aid; Member of St. John's Ambulance Association, the International Congress of First Aid and Life Saving, the American Public Health Association, etc., etc. In Collaboration with Eminent Surgeons, First Aid Authorities and Specialists. Illustrated. Eighth Edition Revised. New Brunswick, N. J.: Johnson and Johnson, 1918.

This is a good book on first aid and is got up and written in such a manner that it is easily comprehensible. Also, it is exactly what its title implies, a first aid book and nothing more. It does not go beyond its province, but gives information on first aid procedure succinctly and concisely. It is graphically illustrated.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON SURGERY.

Stated Meeting, Held April 5, 1918.

Dr. SETH M. MILLIKEN IN THE CHAIR.

THE program of the meeting was furnished by the First Surgical Division of Fordham Hospital.

Subdural Hemorrhage, Osteoplastic Flap.—Dr. ANTHONY H. HARRIGAN presented this patient, a boy 8 years of age, admitted to the hospital on January 14, 1918, with a fracture of the skull. Dr. Harrigan said the child had been injured by a fall of about ten feet, and was picked up in an unconscious condition. He vomited twice, the vomiting being projectile in type. The pupils reacted well, the right being larger than the left. His pulse was 70 per minute; and respiration 30 per minute and rather "catchy." The right side of the parietal bone was tender and covered with hematoma. The muscles were more spastic on the right side. The reflexes showed exaggeration; Babinski was present. Examination by Dr. Byrne showed slight impairment of motion of left arm and left leg. The face was flattened on the left side but not paralyzed, though there was more movement on the right than on the left side. Sensation was impaired on the left side. After rest and sleep both pupils were equal and reacted to light and accommodation. On the following day the patient regained consciousness and his general condition improved. He had minor regular twitchings of the upper lip and right side, lasting five minutes. There were no signs of increased pressure and no signs of palsy. The urine contained sugar. On the second day the patient had a spell of weakness and the pulse rate varied. He reacted well to stimulating enema. There was a Babinski plantar reflex on the left side and a suggestion of such a reflex on the right. The child recognized his parents. On the next day he became very restless, lucid intervals shorter and fewer, respiration slower and somewhat labored. The patient continued in about this condition for several days, when he improved. The pathological examination of the spinal fluid at the time of the patient's admission showed a large amount of blood, but they were unable to make an accurate cell count or butyric acid reaction. At operation, on Jan. 14, 1918, a medium sized flap with the base in the temporal region was turned back. The superior border measured about four inches and was one inch from the sagital suture. Two trephine openings were made at each superior angle. The intervening bone was divided with a Di Vilbiss forceps. A linear fracture of the vault of the skull was seen immediately behind the posterior superior skin margin. The Di Vilbiss forceps grooved into this line of fracture, the fracture serving to complete the division of the bone flap, which was turned down. There was slight epidural hemorrhage, a few small black blood clots. The brain did not pulsate. It seemed under tension. A dural flap with the base above was formed. Considerable blood fluid escaped when the dura was divided. The exploring finger was placed downward to the base of the brain and the brain lifted up. This permitted a considerable amount of black cotted blood with brain tissue to flow out. A piece of bone was removed at the upper angle. The dural flap was not sutured. The bone flap was replaced and closed without drainage. This was a case of subdural hemorrhage with laceration of the brain. Drainage was not employed for fear of introducing infection. The brain appeared intensely congested, and had a dark color. The blood pressure estimates were taken every ten minutes during the operation; but very slight shock occurred. The patient was discharged on January 30, and had made a good recovery.

Case of Osteomyelitis of the Tibia.—Dr. ANTHONY H. HARRIGAN reported this case which occurred in a boy 15 years of age, who was admitted to the hospital with the history, that one week before, while coasting, he struck his left leg against a rock. He experienced some pain. A few days later marked swelling and redness appeared over the left leg. The patient was admitted to the hospital with the diagnosis of osteomyelitis of the tibia. Operation was immediately performed. A long incision was made over the inner surface of the shaft of the tibia. The periosteum was divided. An abscess was found between the periosteum and the cortex of the bone. The medulla of the bone was opened with the chisel; the medullary cavity was filled with pus. Subperiosteal resection of the shaft of the tibia was done, removing practically the entire shaft. The cavity left was packed with plain sterile gauze. The patient had a protracted convalescence but recovery ultimately took place with complete regeneration of the shaft of the bone. The patient now had a strong well-developed limb and could walk and run. A pure culture of staphylococcus was found.

Acute Osteomyelitis of the Femur.—Dr. ANTHONY H. HARRIGAN presented this patient, a boy eight years of age. He stated that the boy was admitted to the hospital on July 27, 1917, with the diagnosis of acute myelitis. One week previous to admission the child fell on the sidewalk striking his knee. There were no symptoms or signs for two days. On the third day after the injury he suffered pain about the knee and over the lower one-third of the femur. The pain increased, becoming boring in character, and the child became feverish and had a chill. His bowels were constipated. The child appeared acutely ill. His temperature was 105° F. The physical examination showed the tongue coated, pointed, and fissured, and slight congestion of the throat. All the second heart sounds ended suddenly and were accentuated; there were no murmurs. The right leg showed marked swelling around the right knee, extending some distance above and below. It was extremely painful on palpation. The reflexes were normal. An operation was performed on July 28, 1917. An incision was made on the outer aspect of the right thigh from the joint nearly up to the trochanter. The muscles were cut down to the bone. Pus was first found subperiosteally near the epiphysis of the knee. The periosteum was reflected and the bone chiselled away, thus opening up the medullary canal well from the epiphysis to the trochanter. The canal was curetted. The bone showed evidence of lesionism being friable and containing pus. A posterior moulded splint was applied. A second operation was performed on August 31, 1917, for cellulitis of the right leg. Pus was evacuated and gauze packing applied. On September 18, 1917, it was necessary to operate again for an abscess of the right leg. A small amount of granulation tissue was twice curetted out of the lower part of the shaft. The foot was forcibly flexed. A posterior moulded splint was applied. The *x*-ray showed osteomyelitis involving the entire shaft of the femur, and a series of *x*-rays taken at intervals after the operations showed gradual regeneration. There was no evidence of bony ankylosis. A culture taken from the bone at the time of the first operation showed the presence of the streptococcus together with a gram negative bacillus. The patient was discharged apparently entirely cured on February 10, 1918.

Birth Palsy (Erb's).—Dr. ALFRED S. TAYLOR presented this patient, a child 15 months of age, upon whom he had operated nine months previously, when the child was six months old. He employed the Sever operation which he described. He emphasized the importance of the postoperative care as a factor in the ultimate outcome following this operation. Attention was given to the details of the after treatment in this case and the functional results were extremely satisfactory.

Hemorrhagic Osteomyelitis of the Femur.—Dr. SAMUEL BOORSTEIN presented this patient. He stated that the work of Barrie had stimulated the surgeons and orthopedists to consider hemorrhagic osteomyelitis as a diagnosis when the patient gave a history of trauma followed by symptoms of myelitis, but not of an acute infectious type, and without fever. The radiogram showed a marked rarefied area in the end of the long bones which progressed rather rapidly. These cases used to be diagnosed as sarcoma of the bones and amputation of the limb was usually urged. Still many cases came under orthopedic observation where it was difficult to differentiate between hemorrhagic osteomyelitis and real sarcoma, and, of course, where an opportunity was offered to operate on the case and get the pathological

findings it should be reported. This patient, thirty-six years of age, came under the speaker's observation in November, 1917. His previous history was negative. His present illness began on October 3, 1917, six weeks, at which time he fell striking his hip. He had since complained of pain in the hip, which was worse at night and was aggravated by walking. In a week or two he began to limp. He was treated for rheumatism by electricity, etc., but no relief was obtained; on the other hand, he progressed worse all the time. Physical examination, on November 16, 1917, showed a marked limp to the right, slight limitation of flexion, adduction and abduction, marked limitation to inward rotation, and some limitation to outward rotation. There was marked tenderness over the great trochanter and some fullness over Scarpa's triangle. The measurements showed no shortening, but atrophy of 1 inch over the right thigh. The *x*-ray taken at this time showed marked bony atrophy involving the entire greater trochanter with definite evidence of cavity formation. The temporary diagnosis was hemorrhagic osteomyelitis. A second *x*-ray, taken six days after the first, showed evidence of rapid progress. The Wassermann was negative and the temperature normal. The patient was operated on, on November 22, by Dr. Nicoll and the speaker. The outer layer of bone was found very thin and brittle, almost ready to burst. The cavity was filled with a mass, grayish or white in color and thick in consistency. There were no bony structures. The walls of the cavity were of irregular outline and some bone bridges traversed the corners of the cavity. There was some oozing of blood. The contents were removed and the cavity well curetted. A drain was put in and a plaster cast applied. The microscopical report by Dr. Heitzman, the pathologist of the hospital, stated that the soft tissue as well as the periosteum showed pronounced congestion, with some hemorrhagic extravasation and inflammatory infiltration. The bone showed a considerable degree of softening and rarefication. The bone marrow was filled to a considerable degree with blood corpuscles, the hemorrhagic extravasation being pronounced. Inflammatory infiltration was everywhere marked and there was a conglomeration of leucocytes present. The diagnosis was hemorrhagic osteomyelitis with osteitis and periosteitis. The pain stopped two or three days after the operation, and the patient was permitted to walk on the cast two weeks later. The *x*-ray taken December 31 showed that the involved region had evidence of bone condensation, probably regeneration. A brace was ordered for the patient, which he wore at present. He has no pain at night, but he could not as yet put his full weight on the limb. A later *x*-ray showed beginning of regeneration of bone.

Chronic Pancreatitis with Fat Necrosis, Multiple Perforations of the Anterior Wall of the Stomach.—Dr. Louis Marton reported this case. He stated that the patient was forty-six years of age and a widow. She was first admitted to Fordham Hospital on November 7, 1917, on the service of Dr. Alexander Nicoll. Her family history was negative. Her present illness began seven days before her admission with constant pain in the epigastrium, radiating to the right shoulder. She vomited, was jaundiced, and had jaundiced sclera. The patient recalled a similar attack five years ago. The diagnosis was made of common duct obstruction. At the first operation by Dr. Alexander Nicoll a search for the gall bladder showed that it was buried in a mass of dense adhesions. After considerable burrowing dissection, a degenerated tit-like gall bladder was found with the common duct thickened and indurated; no stones were found. The head of the pancreas was much enlarged and nodular. The common duct was laid open and drained by two drains, one going toward the ampula and the other toward the hepatic duct. The drains were retained for several weeks and then they were spontaneously expelled. Upon discharge from the hospital her jaundice cleared up and the biliary sinuses closed. Nine weeks after the first operation the patient was brought in again with the diagnosis of ruptured gastric ulcer. Since leaving the hospital she had had pain on and off, associated with spells of vomiting, the character of which was not observed. On May 11 the pain became intense and the patient vomited material fecal in character. Upon admission and on physical examination typical boardlike rigidity of upper half of abdomen was present. At operation a plastic exudate presented which seemed to form a partition between the upper and lower portions of the abdomen. The stomach was found pulled over and adherent to the under surface of the liver. Upon inspection tremendous adhesions, almost the thickness of an index finger, were found extending from the pylorus and duodenum to the head of the pancreas, preventing the stomach from being delivered into the wound. The abdomen was walled off from the right upper quadrant, and as the stomach was peeled from the liver the speaker's finger passed into a hole in the stomach wall which upon first thought conveyed the impression of traumatic injury. However, as the peeling from the liver was continued, the anterior stomach wall was found to have undergone a digestive process. Its consistency in areas was the thickness of fine paper and as many as twenty perforations were encountered. These perforations were conical in form, the base corresponding to the serous coat, a sort of digestion from without inward. The patient's condition became alarming, so a hasty repair was decided upon. This was done by inverting the anterior wall of the stomach and burying this with a row of continuous Lembert sutures, producing a sort of hour-glass effect, and covering this with omentum. A number of white opaque areas were found which resembled fat necrosis of pancreatic digestion. The pancreas was found to be almost double the size it was at the former operation; in fact, so tense that the head and body were explored with an aspirating syringe, exploring for possible abscess or cyst formations. About a dozen points were punctured and aspiration yielded from 1 to 5 c.c. of thin turbid fluid. One cigarette was placed over the head of the pancreas and another toward the under surface of the liver. The abdomen was closed in the usual manner, using kangaroo tendon for reinforcement sutures in the fascia. The patient made an uneventful recovery. At the time she was operated on she weighed 120 pounds and at the present time weighed 180 pounds, having made this gain in eight months, being discharged from the hospital at the end of four weeks. The interesting feature, though puzzling, was to account for the enormous increased distention of the pancreas and recovery in the presence of fat necrosis.

Hemorrhagic Peritonitis. Two Cases.—Dr. Louis Marton presented these cases. He said that probably the name given to these cases was a misnomer, the term peritonitis meaning very little. The first patient was 30 years of age and had been treated for acute indigestion by one physician and for lumbago by another. On November 3, 1917, he had an acute attack of abdominal cramps and after expectant treatment went back to business, but was always uncomfortable. The present illness began with a sudden attack of pain and vomiting. The vomitus was sour. The pain was sharp, radiating to the left side of the back. The patient suffered from nausea and the bowels were loose. The pain became generalized and on physical examination the abdomen was found to be markedly distended but not the painful rigidity associated with a ruptured appendix. On opening the abdomen the peritoneum looked very bluish much as it did in a case of intestinal obstruction. The abdomen was filled with serous fluid and the condition looked very much like a case of acute intestinal obstruction. Finally the ileocecal junction was brought into the wound and the appendix delivered. The gallbladder was found to be full of small stones. A rapid cholecystectomy was done. There was nothing, however, to account for the exudate in the abdomen. After a long convalescence the patient made a good recovery. In the vicinity of the appendix there were areas of hemorrhagic extravasation and distinct inflammatory infiltration. He called attention to the pathologist's report of these small areas of hemorrhagic extravasation and to several distinct circular masses of hemorrhagic extravasation because the case report of hemorrhagic peritonitis was accounted for by finding these little hemorrhagic spots in the appendix. What relation or bearing they had on the cases he had not been able to determine.

Acute Cholecystitis in a Child Two and One-Half Years Old.—Dr. Louis Marton presented this case, a child 2½ years of age, admitted to Fordham Hospital about six weeks ago with the diagnosis of acute intus-

susception. On physical examination the typical sausage-like mass was found occupying the right hypochondriac and iliac region. The child had passed no blood by way of the rectum and that made one look for obstruction. What had been pointed out as visible peristalsis was found to be only the inspiratory and expiratory movements. On opening the abdomen there was no evidence of any gut distension anywhere but there was a tremendously distended gallbladder, the size of a gallbladder in an acute cholecystitis in an adult. It was filled with tarry bile. There was no evidence of any other lesion except marked stenosis of the cystic duct. The child was drained for about three weeks and then the tube was removed and the child seemed to be doing well, but developed bronchopneumonia which terminated fatally.

Operative Treatment of Epilepsy. Four Cases.—Dr. JOSEPH BYRNE presented these cases.

CASE I.—Dr. Byrne said that this patient, a girl 14 years of age, had been run over at the age of three years and was unconscious for quite a long time. At the age of eight years she began to have attacks of petit mal, numbering ten or twelve a day. She finally developed attacks of grand mal when the attacks of petit mal ceased, she had four or five grand mal attacks a day and later these became less frequent, being only two or three a week. She went along in this way until about a year and a half ago when she came under our observation. The usual examination of the spinal fluid and eye grounds, as well as *x*-ray of the head, etc., were made. It was decided on the basis of the signal symptoms that it would be best to operate on the left side of the skull. Since operation the girl was much better. Most of the cases reported on for epilepsy had a few grand mal attacks within the first few days after operation and then there might not be any attacks for a long period. This was what happened in this case. About six weeks after the operation the girl's father treated her rather harshly and she immediately had grand mal attacks. She was given bromides and suggestive therapy. She had thirteen attacks since operation one year ago but had improved most wonderfully in general health and mentality. The bromides were discontinued for long periods without recurrence of the attacks, but recently she had had another attack and she was now getting a small amount of bromides, in addition to treatment along the lines of mental therapy as suggested by Dr. Pierce Clark in the essential epilepsies. She was now attending school, and making satisfactory progress.

CASE II.—Dr. Byrne stated that this patient was a man 55 years of age, who had had many injuries of the skull. As a boy he had been kicked in the head by a horse and had had several accidents. About ten years ago he began to have epileptic seizures. One and a half years ago he had a stroke of apoplexy causing right hemiplegia. He recovered fairly well from this and had been in fairly good condition, still having, however, epileptiform seizures (grand mal) every four to six weeks. He was operated on and was greatly improved. Since the operation, left sub-temporal decompression one year ago, he had had no attacks with the exception of one four days ago. No bromide treatment was given since the operation

CASE III.—Dr. Byrne said that this man was now so well that he had been taken into the Army. He was a traveling salesman with a history of trauma. His attacks of grand mal began as sensory disturbances in the right hand, that was, a feeling of pins and needles or of an electric shock. It was worthy of note that pain was not a feature of cortical irritation. In all cases in which pain was complained of we should find out whether the patient meant the same thing when he spoke of pain as the physician meant. In many cases in which patients complained of so-called pain in the head it was found on analysis that he had no pain in the real sense of the word, but an abnormal feeling which caused alarm, which he called pain for the want of a more definite term. Irritation of the sensory cortex did not cause pain in the real sense, but a feeling of itching without disagreeable effect. Soon after the operation he had several grand mal attacks, but none since leaving the hospital. His attacks formerly came at intervals of one year or ten months apart, so in his case it was probably too soon to state definitely just what benefit he had received from the operation. His general condition was however markedly improved.

CASE IV.—This patient, a man 45 years of age, had a fall between his fourth and fifth year. He lost the faculty of speech and had some paralysis. The left eye now showed optic atrophy, which not rarely followed apparently trivial injuries of the orbit. The patient had formerly been able to attend to his business, but of late years he had been unable to hold a position. It seemed possible that in this case mental therapy had been a help as well as the operation. It sometimes seemed that the mere performance of an operation put the patient in such a state of expectancy that mental therapy could be used most effectively. Since operation this man had no attacks as long as he behaved himself, but if he imbibed too freely or ate intemperately an attack might supervene. Since the operation the patient's condition was so much improved that he got married. It seemed that his sexual power was somewhat impaired. Dr. Byrne said that Dr. Taylor would tell about the operations.

Dr. ALFRED S. TAYLOR said he was not prepared to give the details of the operation, but he would like to make a few remarks in reference to the conditions found in traumatic epilepsy. When the bone flap was turned down the dura was found to be more tense than normal, and there was practically always more or less infiltration of the arachnoid, which was opalescent rather than translucent, as it should be normally. The veins of the cortex were very much enlarged. The superficial layers of the cortex were rather more firm than they were normally. When one incised the superficial layers of the cortex there was soft brain tissue underneath. When one operated on an epileptic he laid himself open to criticism. It had been said that the idea that epilepsy could be benefited by operation was an exploded theory. Their experience in regard to operations on epileptics was that, while there were a few recurrences, in a fairly large percentage of cases the operation effected a cure. One man upon whom they had operated had remained free from seizures for ten years. Others had had no recurrence after five, six, and seven years. It might be said that a small percentage of epileptics, particularly those in whom the condition was caused by trauma, were completely cured; a much larger percentage were improved over a long period of time, and some few were not improved at all. However, as the operative procedure did not incur any risk to life and was a brief operation, it seemed that if a small percentage of cases could be cured and a larger percentage improved, even if the majority of cases did not turn out as well as one hoped, nevertheless performing the operation was not only justified but was demanded, because if these epileptics were not cured or improved they grew steadily worse and of less and less value to the community. Dr. Taylor stated that one of the patients presented had a hemiplegia in addition to epilepsy. In this case a right-sided subcortical decompression was done, and the patient made a good recovery and the spasticity was somewhat relieved. His observations had shown that the cases of hemiplegia that were very spastic had a great deal of brain lesion, and that the amount of brain lesion corresponded, as a rule, to the degree of spasticity.

The second patient, Dr. Taylor said, was a lady who had a hemiplegia following pneumonia; in other words, an embolic hemiplegia. She developed an early and severe spasticity. When she came to the hospital she was carefully examined by Dr. Byrne and it was decided to give her the advantage of an operation. A subcortical decompression was performed, removing a segment of bone about 2 to 3 cm. The dura was tense. It was split radially and the brain was exposed. A cystic degeneration of the cortex was found just above the fissure of Silvius. There was a soft cystic degeneration running up to the cortex. This wound healed by primary union and the patient was given postoperative orthopedic treatment. The speaker said there was one point to be emphasized and that was the choice of cases for operation in hemiplegia. It seemed to him that if one could get this marked improvement in cases of long standing, it was obvious that the best time for treatment was immediately after the hemiplegia had begun. In hemiplegia the operative risk was very slight. One exposed the area where the clot had formed

in the subcortical area, and if one slipped in a groove director the clot would exclude itself. The danger in the operation was twofold. There was the danger of the rupture of nerve fibers in the brain substance, and that was an injury that could not be repaired. If a clot persisted one would have continuous pressure on the surrounding nerve fibers which had not been ruptured, but which if exposed to continuous pressure would become degenerated, so that in order to preserve function it was important to relieve pressure. If one got a case in reasonably good condition, one could do the operation very satisfactorily with very slight risk and could turn the clot out of the brain with almost no danger to the brain substance itself, and one could get better results than by tentative treatment. It was possible to do the operation without any anesthetic, because the patient was unconscious and the operation was not painful. Dr. Taylor referred to several cases reported in the literature in which operation was performed for hemiplegia, and stated that he had one case in which he operated ten days after the hemiplegia began. This woman fell downstairs, was unconscious, and was found to have albumen in her urine. The *x*-ray did not show anything definite, so it was decided to explore her skull. This patient's breathing was stertorous. She was operated on and it was found that she did not have a fracture of the skull, but a clot beneath the cortex. At the end of two or three weeks she died, but not because of the operation but because of a chronic uremia.

Stöffel's Operation for Caisson Disease.—Dr. ALFRED S. TAYLOR and Dr. JOSEPH BYRNE presented this patient. Dr. Taylor stated that the patient had shown spastic paraplegia for over a year and had lately come to Fordham Hospital seeking relief from the spasticity. The obturator was cut and the spasticity was relieved somewhat. The man was now working, which he had not been able to do before this operation was performed. The Stöffel operation was a very simple procedure, consisting in making an incision in the groin and paralyzing the adductor by cutting the obturator nerve.

Tendon Transplantation in Anterior Poliomyelitis.—Dr. SAMUEL W. BOORSTEIN presented these four cases. He stated that though patients suffering from the effects of anterior poliomyelitis visited the orthopedists and were operated on by them, still the surgeons were often consulted about such procedures and it would probably be of interest to see the results of some operations. In fact, tendon transplantations were used in so many operations that the surgeons were as much interested in them as the orthopedists. All the patients to be shown were operated on two years ago, or at least one year ago, so that sufficient time had elapsed to note the improvement. He had used at that time the old methods of putting the tendon through the subcutaneous tissue. At present, stimulated by the studies of Biesalski and Mayer, he had passed the transplanted tendon through the sheath of the tendon to be replaced.

CASE I.—This child, eight years of age, had an attack of poliomyelitis when eighteen months old. He came to Fordham Hospital, in 1915, with marked contractures of the left knee and left tendo-Achilles. The foot was in the position of talipes equina valgus. The child was operated on in November, 1915, when the tendo-Achillis was lengthened and the foot corrected. The entire limb improved after that. On May 1, 1916, the biceps were transplanted for the quadriceps. The patient could walk fairly well using those muscles. Lying on the face, he could extend the leg, but against gravity he could extend it only partially.

CASE II.—This patient, ten years of age, became paralyed at the age of five, both lower extremities being affected. He was admitted to the hospital on April 11, 1916, with marked deformity of both feet and inability to walk. At operation, on April 15, 1916, an astragalectomy and tendon fixation of the peronei was done. The patient improved immensely after that. On April 27, 1916, the right foot was operated on and the contracted tendo-Achilles was split into halves anterior and posterior. The posterior half was lengthened by a "Z" incision and sutured. The anterior half was lengthened and transplanted into the cuboid. The peronei tendons were fixed in the fibula.

CASE III.—This patient, five years of age, came to the clinic on June 27, 1916. The trouble dated from the time she was one year old. The foot was in a position of talipes valgus. As the extensor hallucis was very active that muscle was transplanted to the scaphoid and the tibialis anticus was fixed in the tibia. The transplanted tendon was working very well, but it was not strong enough to hold the arch and the patient would probably need another operation. This patient was presented to show that it was not enough to transplant a muscle, but one must be sure that the transplanted muscle would be strong enough to take the work of the other muscle.

CASE IV.—This patient was six years of age and had had infantile paralysis five years ago. She was operated on last year, when an astragalectomy was done. The result was very satisfactory.

Peripheral Nerve Suture.—Dr. ALFRED TAYLOR and Dr. SAMUEL W. BOORSTEIN presented this patient. (See MEDICAL RECORD, January 5, 1918, page 11). He said that on October 15, 1914, this patient, a young student twenty-two years of age, while playing football, was thrown to the ground sustaining an injury to his left leg. The head of the fibula was pushed outward (dislocated laterally), but the tibia remained in place. The bone was replaced on the field, but the patient could not walk home. In a day or two the knee became swollen and tender, and he had to be confined to bed for five weeks. By that time the swelling and pain subsided and he began to walk, but he had foot drop and, as he expressed it, had no control over the movements of the toes and had very little sensation in them. Five months later he came to the orthopedic clinic of Fordham Hospital for relief of these symptoms. Physical examination showed paralysis of the peronei and tibialis groups. The extensors of the toes were completely paralyzed and there was marked atrophy of the calf and foot muscles. The *x*-ray picture, taken to determine the presence of fracture, was negative. A diagnosis of injury to the external popliteal nerve was made. Believing that the nerve was beginning to regenerate, conservative treatment by using a brace to prevent foot drop, massage, and exercise were resorted to for two months. No improvement resulted. An operation was then decided upon, which was performed on May 4, 1915. At the operation it was found that the nerve at the head of the fibula was embedded in a mass of fibrous tissue for a distance of 2 to 2½ cm. This 2½ cm. of the nerve was removed and an end to end anastomosis performed by carefully coapting the ends where good bundles were found and using a layer of fascia to prevent adhesions. Fine chromic catgut was used as suture material. The nerve was not freed for any longer distance. The knee was put in acute flexion to allow complete nerve union. The skin was united by first intention. The nerve tissue removed was examined by Dr. John H. Larkin, who reported that the mass consisted mainly of connective tissue. Few healthy fibers were present and there were only slight attempts at regeneration. Four weeks after the operation the speaker began stretching the knee gradually, placing it in plaster and changing this every week. The ankle was kept at right angles to prevent foot drop. At every sitting the knee was stretched until the patient asserted that there was a sensation of pain as if pricked by a needle. Two and one-half months after the operation the knee was straight and the brace was reapplied, allowing the patient to walk. At the same time electricity, massage and muscle training were ordered. Four months after the operation the patient could extend the four toes and flex the foot slightly dorsally. Six months after the operation there was increased motion in the tibialis anticus, but not in the peronei. Eleven months after the operation the patient was able to walk without the brace. He even played baseball. He could walk without a limp, but in running limped slightly. Twenty five months after the operation the motor power in the anterior and posterior tibial and peroneal groups had returned completely, though the very delicate tests of Dr. Byrne had shown slight weakness as compared with the sound side. Sensory functions showed more variations. This case demonstrated the value of early suturing of the nerve wherever there is a suspicion of injury to the nerve. If an injury was found it could be repaired. If no injury was found one had only a skin wound to close. The case demonstrated clearly the value of orthopedic treatment; the muscles must be kept in

proper position before the operation and afterward so that the denervated muscles did not stretch. This was a point very frequently neglected by the surgeons and an overstretched muscle would never recover.

Dr. JOSEPH NUTT asked Dr. Harrigan why it was that in the case of the tibia he made a subperiosteal resection, cleaning the bone out thoroughly, while in the case of osteomyelitis of the femur he simply removed the contents of the cavity and drained it. Why was this difference made in the procedure in the two cases?

Dr. HARRIGAN, in reply to Dr. Nutt's question, stated that he removed the entire shaft of the tibia because the fibula still remained to act as a splint for the leg. This prevented shortening and permitted the bone to regenerate without undue contracture of the muscles. In the femur, on the other hand, it would be almost impossible to prevent contracture of the thigh muscles after removal of the shaft of the femur. However, Dr. Harrigan stated that he had removed the shaft of the femur in two cases. In the first case the patient died as the result of sepsis; in the second case the patient was removed from the hospital by his parents and the patient was lost track of. From a practical point of view, it was impossible to remove the shaft of the femur because the plaster of paris cast applied to hold the limb in its proper length quickly became soiled with pus, and had to be removed so frequently as to be valueless as a splint.

Dr. NUTT asked Dr. Byrne whether they operated on cases of epilepsy that did not give a clear history of trauma.

Dr. BYRNE replied that they did and frequently with favorable results.

Dr. BYRNE said he had studied all these cases with Drs. Taylor and Boorstein and they had recently presented and discussed a number of them before the Neurological Society. He would like to emphasize one point with reference to intracerebral hemorrhage of arterial origin. In this condition the moment the blood escaped from the artery the pressure exerted at the site of extravasation represented at least a pressure of 120 mm. of mercury and sometimes a much greater pressure. This pressure comes into competition with the much lower capillary blood-pressure in the surrounding tissues and the result was strangulation of the latter. We had, therefore, even in the case of a very small clot, a larger surrounding area of strangulated tissue which might be readily relieved by simple puncture of the cerebral cortex and the spontaneous extrusion of a small amount of clot or serum. In cases of embolism and thrombosis there were strangulated areas of greater or less extent surrounding the embolized or thrombosed end arteries in the region of the basal ganglion and internal capsule. In these areas reactionary processes of an inflammatory nature took place and very little in the way of exudate or secretion following cystic formation would suffice to so increase the local extravascular tension that the necessary interchange between neural tissues and nutritive media would be an impossibility. There were no true lymphatics in the central nervous system (Sabin) and the exact mechanism of the circulation in the neural tissue was, as yet, but little understood. It was certain, however, that in no region did elements of mesoblastic origin such as blood corpuscles come into direct contact with the neural elements which were of epiblastic origin. The perivascular spaces which took the place of the true lymphatics undoubtedly played an important rôle in neural nutrition as did the neuroglia which was itself derived from the epithelium lining of the neural tube and in intimate relation, on the one hand, with the perivascular spaces and, on the other, with the true neural elements. It will be readily seen that in cases of thrombosis and embolism of end arteries the removal of even a minute amount of exudate or secretion by cortical puncture might be the determining factor in re-establishing circulatory flow and metabolic interchange in certain small but extremely important functional areas such as those encountered in the vicinity of the internal capsule and centro-lateral aspect of the thalamus where, because of the condensation of nerve paths, a minute lesion might have permanent and widely extending paralytic effects. It was of interest to compare with this the rapid disappearance of large amounts of pleuritic exudate after exploratory puncture and the removal of a few c.c.'s of fluid.

Intradural and Extramedullary Sarcoma of the Spinal Cord with Paraplegia of Ten Years' Duration.—Dr. JOSEPH BYRNE presented a specimen which he said was three-fourths the natural size of the tumor. The patient from whom it was removed was thirty-eight years of age. Ten years previously she had had a pain in the area of the distribution of the twelfth thoracic and the first lumbar nerves on the left side. Later the left lower limb lost power. Three years before operation she lost the use of the right leg and presented the picture of paraplegia in extension. During the ten years of her illness she had given birth to three healthy children. The case was presented as a beautiful illustration of localization. By means of careful sensory tests they had been able to localize the tumor on the left side pressing on the pyramidal and spinalthalamic tracts and on the left posterior funiculus.

Dr. ALFRED S. TAYLOR said he did not remember all the details of the operation, but they did a left sided laminectomy and found the tumor lying beneath the dura, but not involving the cord. They had been able to enucleate it without doing a double laminectomy and without danger of damaging the cord. The patient unfortunately was the victim of a mitral stenosis and died suddenly a few days after the operation.

SECTION ON MEDICINE.

Stated Meeting, Held December 17, 1918.

DR. EDMUND P. SHELBY IN THE CHAIR.

Bacteriology of Influenza.—Dr. WILLIAM HALLOCK PARK gave an informal talk on this subject in which he said that we knew little about the etiology of influenza. It was fair to assume, however, that the epidemic was due to a single germ, just as we assumed that measles or poliomyelitis was due to a single germ. It was also fair to assume that the germ causing the epidemic throughout the country was a single strain. This assumption was warranted from the fact that the disease starting in this country in the East could be traced as an entity as it spread through the Middle West and to the Pacific Coast and Alaska. There was no question that some single virus spread through the country, though the disease produced may have been complicated in different ways and degrees by other organisms in different portions of the country. In the Eastern States the *B. influenzae* was the organism which was first considered as a possible causative agent. It had been suggested that this epidemic was a repetition of the epidemic of 1889-90, but it might be recalled that Pfeifler did not find the influenza bacillus until two years after the beginning of that epidemic. The first cases studied bacteriologically were in the neighborhood of Boston, at the Chelsea Camp. The *B. influenzae* was found by Keegan in 25 per cent. of these cases to be the only variety of bacteria that grew in cultures made from the lungs. This organism was found present in large or small numbers in practically 100 per cent. In a large number of cases there was found also the pneumococcus or the streptococcus, but the *B. influenzæ* was present in all cases. In New York we had under observation cases from various localities, from Europe and from Boston as well as from New York City. In the first group of 200 cases examined Dr. Anna Williams found the influenza bacillus in 80 per cent., and later she found them in 98 per cent. of the cases examined. It has been the experience of all that the more one works with the influenza bacillus the more likely one was to find it. One hospital reported that they were not finding any influenza bacillus; Dr. Williams examined the same group of cases and found in all the *B. influenzæ* in large numbers. The results obtained by men like Rosenow and Jordan, who did not find the influenza bacilli, made it necessary to recognize that the *B. influenzæ* seemed to be present more constantly in some parts of the country than in others and also differed at times in the same locality. Of twelve rabbits, each injected with a single strain of influenza bacilli from different fatal cases, every one made a serum which would agglutinate only

its own strain and therefore they had from twelve different cases twelve different influenza cultures. In view of such experiences as this anyone working in the bacteriology of influenza would find his doubts increasing week by week as to the etiology of influenza. Nowhere had they found the streptococcus, pneumococcus, or any other organism with regularity, and furthermore the streptococcus and pneumococcus were divided into immunological groups and the causative factor must be one strain. It was therefore their belief that influenza was due to an unknown organism, possibly a filterable virus, but this supposition lacked evidence. The epidemic of 1889 and '90 was not any more certainly due to the influenza bacillus than the present epidemic. If we did not know the true cause of this epidemic it was difficult to believe that we could stop the epidemic by a vaccine. In New York a vaccine from mixed strains of influenza bacilli was used. It was evident that if one gave three billion organisms composed of twelve different strains that there would be a very small number of any one strain, not sufficient to produce a marked immunological response. Protection might be afforded against complicating organisms where these were of a definite strain as, for instance, one might vaccinate against pneumonia due to Type I and Type II, but this could afford no protection against Type IV. If one simply asked a physician who dealt with a large number of cases what his results were with the vaccines, he would probably tell you that they were good, but if there was a control group of individuals it was usually found that there was nothing or little in their favor. Dr. McCoy's experience was interesting in that the conditions for his experiment were ideal. The persons vaccinated were inmates of a State institution and the outbreak of influenza did not appear until three weeks after the vaccination. When the disease appeared in the institution there were more cases of influenza among the vaccinated than among the non-vaccinated. Dr. Rosenow was for a time perfectly sure that his vaccine made of streptococci, pneumococci, and influenza bacilli was the correct one, but after more extensive experience he had now decided that it must be adjusted to the bacterial flora of each locality. This made it not practicable. If one reviewed the experience of other investigators and hospitals in which groups of vaccinated and non-vaccinated individuals were compared it would be found that where good results had been obtained the vaccination had been done after the apex of the epidemic was passed. In other words, if you vaccinated after the epidemic had passed the apex you would have brilliant results, but in the very beginning of the epidemic the results would not be good. It was most discouraging to have to admit that we had found no germ that could be considered to be the causative agent in influenza and that there was no efficient vaccine or serum. If the virus was a filterable one and therefore probably not visible we were as helpless as we were before measles, and if complications were superimposed on an infection of unknown type it was evident that the problem became very complicated.

Tissue Emphysema in Influenza.—Dr. JESSE G. M. BULLOWA presented an account of seven patients suffering from tissue emphysema as a complication of influenza bronchopneumonia occurring in the Willard Parker and Kingston Avenue Hospitals. There were autopsy reports on two of the cases and two recoveries. In one of the recovered cases the tissue emphysema presented under the skin covering the tenth, the eleventh, and the twelfth ribs. In the others there was a marked emphysema at the root of the neck and over the first and second ribs. In one of the autopsied cases one lobe of the liver was honeycombed with air. Dr. Bullowa thought that the mechanism involved was the overstretching of the lung parenchyma to fill the chest cavity. Some of the parenchyma was over-stretched because of the large amount of inexpansile tissue due to congestion and inflammation. The conditions favoring the emphysema were met by hypodermic injections of adrenalin to diminish congestion, by reduction of the negative pressure of the pleura, by compression and fixation of the chest with adhesive plaster, or by the creation of partial pneumothorax induced in his recovered case by tearing the visceral pleura with an aspirating needle.

The Symptomatology of Influenza.—Dr. WILLIAM R. WILLIAMS presented this phase of the subject. He stated that this disease had been pretty thoroughly treated in the literature. Dr. Delafield seemed to have known this disease in most of its varieties and it had been described in standard works also on the basis of observations made in earlier epidemics. It might be not without interest to speak of some of the manifestations of the disease as they were met in this epidemic and of some of the more frequent complications. We did not know what to designate complications and what the disease. Pneumonia was so frequent that it did not seem right to call it a complication. Very few cases ran a fever for several days without having a certain amount of pneumonia as a part of the condition. Cases observed with the *x*-ray showed early in the disease a shadow reaching out from the root of the lung, which was not that of a normal lung; some of these patients later had a definite consolidation and pneumonia. On the Second Division of the New York Hospital they had had 230 cases, exclusive of those now in the hospital. Among these there were 29 in whom there was a failure to make out the clinical signs of pneumonia; all the others showed signs of consolidation. Of the cases without pneumonia none died. Of the entire series the mortality was 30.4 per cent. Fourteen of the patients died before they were in the hospital for more than a day. Among the more interesting complications were those associated with pregnancy, and this had been found a very grave association since most of the cases aborted without regard to the period of pregnancy in which the disease occurred and almost all of these pregnant women died. Dr. Williams said he was very much impressed by the appalling mortality of severe attacks of influenza in pregnant women. Some cases of heart disease stood influenza very well, even some of those with a history of more or less decompensation. There were four well marked cases of valvular disease, two of which went through the disease quite well and recovered and two died; these were bronchopneumonias with valvular disease of the heart. In chronic nephritis the disease was not as severe as might have been expected; the cases coming to autopsy, however, showed marked kidney congestion; others with chronic nephritis were only moderately worse than those with healthy kidneys. The empyema cases did pretty well and they had not been in a hurry to operate on these cases. They had used the *x*-ray to a considerable extent, having most of the cases with doubtful pleural signs radiographed. The signs had been most deceptive, but if one watched them for a few days the diagnosis could be made. It seemed to him that never before had he seen so many cases with puzzling signs as to whether or not liquid existed in the chest, and they had almost given up the idea of diagnosing the presence of liquid by a single examination. If these cases were examined on successive days one would begin to note râles and resonance. They had found some cases with ordinary phlebitis of the veins of the extremities and if these were confined in bed they did well. They had had some cases with very striking meningeal symptoms in which, if influenza had not been present, they would have been confident that the patients had meningitis. The examination of the spinal fluid and the outcome in these cases convinced them that the patients never had meningitis. They had also had one case strikingly suggestive of tetanus, with tonic spasms of the limbs; the spinal fluid, however, was quite negative, and these symptoms disappeared with defervescence. With reference to the duration of the fever, in the milder cases the fever was of from three to five days' duration. On the other hand he had had a patient who ran a fever for 37 days and in others it had lasted quite as long. There were two types of fever, either a fairly even type or one that was extremely remittent, where the daily minimum might be normal and the maximum from 104° to 105° F. Occasionally patients shot up a temperature during convalescence. They had been unable to find a cause for most of these rises. The disease as most fatal seemed to be somewhat as follows: There were 33 cases under 16 years of age in which they had had no deaths, though since that time they had had two deaths in babies. In the next decade the mortality was about 28 per cent.; from 30 to 40 it was 39 per cent.; from 40 to

50, 35 per cent.; from 50 to 60, 52 per cent. The mortality seemed to be pretty much the same in the third, fourth and fifth decades. There was a much greater number of cases among the earlier decades than in the later. A most striking thing in connection with this disease was the wonderful congestion which existed of which one saw the evidence before death and at autopsy. This congestion seemed to strike everywhere. The patient might vomit blood; there might be a hemorrhagic condition of the gastrointestinal tract; blood in the stools, sometimes in considerable quantities, and congestion of the uterus as demonstrated by profuse menstruation and by abortion, and there was an enormous amount of blood in the lungs at autopsy. If we picked out any one point for emphasis it would be this congestion, which was so overwhelming in the cases of this epidemic seen this winter. It caused epistaxis, hematemesis, blood in the stools, and at autopsy there was hemorrhage in the mucous membrane of the stomach and bowels. There often was blood in the urine. The skin was much congested and cyanotic. Hemoptysis was common. Women who were not pregnant, menstruated; those who were pregnant aborted. Jaundice also occurred as a complication.

Dr. E. LIBMAN stated that, in the first place, as regarded pneumonia in this epidemic there had been the greatest diversity of type, the pneumonias having varied from the most virulent to the mildest ever seen in previous years. The pneumonias were very severe in the early part of the epidemic, being characterized by rapid onset, early general congestion, watery, bloody sputum, high fever, and then there was apt to be a false crisis with a partial drop in the temperature which was likely to deceive the physician. The patient, after an apparent improvement, would then have a smaller pulse and then the rate would become somewhat rapid and the temperature would become high and the patient was almost sure to die. The type of cases varied all the way from cases of this type to the very mildest cases. Whenever one got a case with moist râles he should be guarded in making a prognosis and this had been true of the cases seen during the past few weeks. A patient might do well for several days and exhibit signs only on one side of the chest and then the other side would become involved and the patient would become rapidly worse. Unless the patient had simply a few dry râles one must be very guarded as to prognosis. If at the time of the crisis one heard gurgling râles, even though the temperature was not high, the prognosis was bad. Dr. Bullowa had reported interesting cases of emphysema. Emphysema was due to two causes, rupture of the sub-pleural emphysema, or rupture of a small abscess on the surface of the lung, causing a pneumothorax or emphysema. There was an interesting relationship with tuberculosis. One got cases of influenza in which there was persistent cough and one had to be on watch for tuberculosis. One should examine not only the involved portion of the lungs, but also the apices, especially if the patient kept on running a temperature. On the other hand, an influenza pneumonia could occur in an area in which there had been a quiescent tuberculosis. An examination of the sputum should be made to be sure that tuberculosis had not spread into the seat of the pneumonia. As to the inexplicable rises in temperature—they might at times mean resorption fever due to the products of autolysis of the involved lung. They were now getting pleural complications which in the beginning of the epidemic were almost absent. The presence of diaphragmatic pleurisy might be indicated by sensitiveness of the trapezius muscle. Pain referred to the back of the neck and also some pain on swallowing, and temperature and cough might indicate that a focus was developing near the mediastinum. In one case the physical signs appeared near the spine after ten days of fever, cough, pain in swallowing, and pain in the neck. There were many complicating streptococcus pneumonias in the camps last year, which were contagious in character. Pleuritic effusions might be mistaken for pneumonia, but attention to the apex beat would serve to make the distinction. Sacculated empyemas seemed to be common during the influenza epidemic, but whether they were more common or whether one saw more of them because one saw more cases he could not say. If the apex beat was displaced and if the signs remained absolutely stationary for two to three weeks one might feel confident that there was an effusion and not pneumonia, as pneumonia did not remain stationary for two or three weeks. Sacculations might occur in the interlobar fissure and these gave signs higher in the axilla than behind. If one found flatness and the patient kept on having an elevation of temperature one should search the interlobar fissure (which ran across the scapula) for effusion located under the scapula. One should make a distinction between polynuclear fluid and pus; the latter were the cases to be operated upon. It was the rule not to operate unless real pus was present. If there was an odor the patient should be operated on at once. Dr. Libman also mentioned that he had seen eight cases in which there appeared to have been an infarction in a previously consolidated area. He also referred to the cases of embolism and of thrombosis due to arteritis.

Dr. MAURICE FISHBERG said that all were interested in the pointed remarks made by Dr. Bullowa on complicating cutaneous emphysema. He saw this condition very frequently in cases in which pneumothorax was induced for therapeutic purposes. In most instances cutaneous emphysema was hardly felt by the patient; in some it was an annoying symptom, while in all it was decidedly harmless. All recovered within a few days, or a week, the gas being absorbed during this period. The outlook when this complication occurred in influenza pneumonia was therefore good, unless the other symptoms were menacing. As to the suggestion to induce a partial pneumothorax, Dr. Fishberg could not see clearly any good to be expected. In his experience with artificial pneumothorax, which had been quite extensive, he had arrived at the conclusion that one could not be sure that an attempt at collapsing the lung would result invariably only in a small pouch of gas in the pleura. At times one punctured the parietal pleura, and injected a few hundred c.c. of gas, believing that only a partial pneumothorax had been induced, while an examination a few hours later revealed complete collapse of the lung—a complete pneumothorax. Of course, in such cases the visceral pleura had been punctured and a leakage of air from the lung had occurred. It was thus obvious that attempts at induction of partial pneumothorax in both sides of the chest might prove disastrous. In respect to the influence of influenza on the origin, course, and termination of pulmonary tuberculosis, Dr. Fishberg said that his observations during the present epidemic led him to the conclusion that, excepting in very progressive cases of tuberculosis, influenza had no influence on this latter disease. At the Montefiore Hospital, there was an epidemic of influenza in which most of the patients in one ward were affected. The temperature rose in the affected patients, the symptoms of influenza were all present, but within a week or ten days there was, in most cases, an abrupt ending by crisis; in some, by lysis. The physical signs in the chest remained the same as they were before the complicating disease made its appearance. In but few of active cases was there noted a tendency to progression as a result of the influenza, and but two patients, in whom tuberculous process was progressive and extensive, succumbed. These patients were hopeless cases, but the influenza accelerated them to the inevitable. Observations in his private practice also led Dr. Fishberg to the conviction that influenza had no particular tendency to reactivate latent tuberculous processes. He now saw in his office many pulmonary lesions which had remained as sequelæ after influenza, but they were not tuberculous. Their localization was mostly in the lower lobes of the lung where impairment of resonance, bronchial breathing, and large, moist consonating râles might be heard. But no tubercle bacilli were found in the sputum. In those in whom tuberculous lesions were discovered after influenza, he was able to elicit a history of tuberculous disease before the occurrence of the complicating influenza. It was Dr. Fishberg's opinion that no increase in the incidence of tuberculosis was to be expected as a result of the present winter's epidemic of influenza.

Dr. GEDIDE A. FRIEDMAN said he would like to ask the gentlemen whether really influenza was a disease which affected primarily the respiratory tract. He did

not believe it was because we had a clear nervous type and a clear gastrointestinal type of the disease. As an internist he had seen many cases during the epidemic of a purely gastrointestinal type in which there were absolutely no changes in the chest, and this had brought him to ask whether influenza might not be transmitted through an insect. Until ten years ago everyone considered typhus fever just as we did influenza to-day. However, it was found that typhus fever was transmitted through the body louse and we had had a similar misconception about the Rocky Mountain spotted fever until it was shown to be transmitted by the bite of certain ticks. He asked therefore if it was not possible that influenza was transmitted through an insect, not the louse, or the tick, but the bedbug. His reason for believing this was that the bedbug was everywhere, and had access to both the rich and the poor. Such an insect was in accord with the chief features of the epidemic. The insect must be in accord with the duration of time of the epidemic, that was the virus must be retained six or eight weeks, corresponding to the duration of the acute stage of the epidemic. The bubonic plague was spread in this way by the rat flea, but also by the bedbug, which retained the plague virus 48 days. Dr. Friedman cited several specific instances that lent support to his theory, and declared that he believed that on investigation influenza would assume the same aspect as typhus fever and other diseases, and that if the organism was demonstrated it would be found that there was an insect carrier.

Dr. L. T. Le Wald stated that he had been following some of these cases of influenza and pneumonia with radiographic examinations, and, as Dr. Williams said, there was difficulty in telling whether a collection of fluid was present. It was easy in many cases to tell whether fluid was present or not, but in some it was almost impossible to make a differential diagnosis; one could see a less dense area between the hilum and the diaphragm at times when fluid was absent, which was not there when fluid was present.

Dr. Park, in closing, said it was easy to bring oneself to believe in theories that had little basis in actual fact. As an instance it might be recalled that there was a few years ago a very interesting discussion on the question of poliomyelitis being produced by the rat, and some investigators succeeded in convincing themselves that they had proved this to be the case. As for influenza there were instances that seemed to demonstrate that it was conveyed by direct transmission, as, for example, a man went from his home where there was influenza, to the post office, and within 48 hours several persons with whom he had talked came down with the disease, or a person went from a house where there was influenza to school, and feeling ill, returned home, and within a few days many children came down with the disease. There were so many similar occurrences that there seemed to be no doubt that the disease was conveyed by direct transmission like measles rather than by a parasite. He had received a report from Dr. Irving on his work at Roosevelt Hospital. The nurses had been vaccinated from day to day and quite a number who were exposed came down with influenza before the vaccinations were done, so it seemed that the vaccinated were rather an immune group. There was very little to prove that vaccination did any good. As to quarantine, the evidence seemed to show that goods did not carry the disease, and that fact was additional evidence against the bedbug theory. It seemed that there was some contagion which was probably transmitted by carriers, probably by both the light and the very severe cases in the early part of the illness.

Dr. Bullowa, in closing, said he had probably not made it clear in his report that the cases had no pneumothorax but subcutaneous emphysema and that he had produced a partial pneumothorax. Dr. Fishberg had spoken absolutely of the emphysema that he saw in tuberculosis, but the emphysema in influenza was an entirely different condition. There was nothing in the mechanism of pneumothorax as produced in tuberculosis like that described in the paper. It was difficult to obtain a partial pneumothorax with the Forlanini apparatus, but with the W. Larry Morgan apparatus partial pneumothorax was a safe procedure, which the speaker had carried out successfully several times.

Miscellany.

Constipation as a Problem in Argentina.—The September-October number of the *Revista de la Asociacion Medica Argentina* is entirely devoted to the papers read before an extraordinary session of the Association on the subject of constipation. After President Lavalle had opened the session Mendez read a brief paper on spastic constipation. The treatment of this condition begins with the stomach and is essentially dietetic and the author upholds a diet rich in fresh meat with exclusion of cereals save as broths. The patient should manage to have several stools daily, preferably one after each meal. Castor oil, vaseline, and agar are useful with belladonna as an antispastic. These measures are to be used only over short periods of time as cure or great improvement is expected to follow. Escalier considers briefly the subject of constipation as an entity and subdivides it into groups. President Lavalle covered the subject of the surgical treatment of constipation based chiefly on the teachings and practice of Lane and Lynch. Udaondo discussed the etiopathogenetic factors and alluded first to the great service of the *x*-rays in throwing light on the different factors. We have learned the great frequency of spastic constipation but no longer regard the latter as a disease entity, for it must be viewed as a symptom. We must still find the causes which make possible this spasticity in the given case. When we further bear in mind that atonic constipation is likewise no unity but a symptomatic state, we realize the difficulty at times of making sharp distinctions and often the two expressions of constipation seem identical in etiology. They may alternate and even coexist. Stomach chemistry shows that the great majority of the constipated have hyperchlorhydria. The spastic and atonic states of the intestines are reflected in the similar behavior of the stomach. Constipation of rectal origin is now added to the longer known forms. Novaro discusses certain factors of constipation, as ptosis and colonic disease. He quotes largely from American surgeons with accounts of Jackson's pericolitis and similar conditions which form adhesions. Bosch Arana discusses the surgical management of these cases and of megacolon, and illustrates his articles with numerous original drawings. A number of case histories are added. This paper is much the most significant and original of the session.

Epidemics in Germany in the Fall of 1918.—The official report in the *Office International d'Hygiène Publique* for November shows that the incidence of certain epidemics in Germany has been much exaggerated. Cholera had claimed in all but 17 sufferers up to October 5. Typhus from July 28 to October 19 claimed about 23 victims. Variola from August 4 to October 12 had 10 victims. On the other hand the deaths from dysentery have been very numerous—from August 4 to October 12 nearly 2,000. The impression that food shortage is causing famine typhus is thus efficiently dispelled. Dysentery seems practically confined to Prussia, hence can scarcely be due to any great extent to food shortage.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 95, No. 9.
Whole No. 2521.

NEW YORK, MARCH 1, 1919.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

THE MAJOR GENERAL OF DEATH.

BY CHARLES NAHUM HASKELL, M.D.,

BRIDGEPORT, CONN.

PNEUMONIA has long been the cause of more deaths than has any other disease, and it is, therefore, the most formidable foe with which we have to contend. In the past it has been referred to as the Captain of Death, but now that it has allied itself with influenza and various strains of cocci of bad repute it would seem to have earned the title of Major General.

As a result of my own experience, and the privilege of a goodly number of indirect observations, I am prompted to ask if we are all doing all that can be done in all cases of pneumonia that are entrusted to our care? Personally, I have experienced a degree of skepticism and discouragement in attacking pneumonia, and I find that this attitude is more or less prevalent in the medical profession. I am taking the liberty to make these general comments for the definite purpose of calling particular attention to some recent publications which present to us certain facts which would seem to point the way to more specific therapy in pneumonia, and I am not speaking with any pretense of special knowledge or experience.

I am assuming that under stress of professional demands, such as we have experienced in the past few months, many of us have overlooked some of the more technical reports with which we have been generously supplied in recent literature, and much of it, I am sure, would have escaped my attention had it not been for the alertness of my professional friends and associates, and my personal observations would have been limited but for their courtesy.

The more recent successes in the treatment of pneumonia have been due largely to the all important and absolutely indispensable cooperation of clinician and pathologist, and I cannot too strongly emphasize the fact. The clinician, however, is the first to come in contact with the patient, and therefore the burden of responsibility rests upon his shoulders.

It seems to me that the successful treatment of pneumonia depends to a considerable degree upon two things: first, its early recognition; and second, its prompt treatment. I am not unmindful of two other prime factors, namely, the virulence of the infection and the sort of patient with whom the disease has to deal.

It is not my purpose to dissertate on the diagnosis and treatment of pneumonia in a general way, for such material may be found in text books, but I wish to speak of certain facts relating thereto that are not generally taken into account and of some methods that are not universally practiced.

In the first place, I think that a patient in whom a diagnosis of pneumonia seems in any way probable should be visited and carefully examined at least two or three times a day, especially when the constitutional symptoms outweigh the physical findings. The fact that in many cases the symptoms of lung consolidation, as determined by percussion and auscultation, are very late in appearing, and occasionally do not manifest themselves at all, should always be kept in mind. It is best to be guided by the temperature, pulse, respiration, history of chill, cough, pain, and expectoration, and when a sufficient number of these symptoms present themselves pneumonia should at least be suspected. This suspicion should be the signal for prompt action, and the first step in the treatment of pneumonia is to control the heart action by the administration of adequate and effectual doses of digitalis tincture (fat free), and this should be done early and irrespective of the type of pneumonia in hand.

In cases of influenza pneumonia the pulse is often relatively slow, many times under a hundred, even though the temperature is abnormally high, and this is, in all probability, due to either an increase in the cerebrospinal fluid, with consequent increase of intracranial pressure, or a toxic irritation of the vagus nerve. This gives a sense of false security as to the strength of the heart, which should be guarded against; but it does not in any way contraindicate the administration of digitalis; and furthermore, heart lesions are no contraindication. The most approved method of administering digitalis tincture is that devised by Eggleston, and it has been rather universally used in the army camps during the past few months. The method, briefly outlined, is as follows: Multiply number of pounds in the patient's body weight by two, and give that number of drops of digitalis tincture within twelve hours. The amount should be divided into three doses, the first dose representing half the total quantity, the second dose half the first, given at the end of six hours, and the remainder six hours later. The remedy may then be discontinued for 48 or 72 hours and repeated or resumed in smaller doses according to the conditions present and the judgment of the physician. The stomach is not more frequently disturbed than with smaller doses, and when it is it readjusts itself quite promptly. By this method the heart is rapidly gotten into

condition to withstand the probable impending strain.

Simultaneously with the administration of digitalis a partial blood examination should be made; that is to say, a total and differential estimation of the white cells. In the presence of the influenza epidemic this procedure should at least help to differentiate between a post-influenzal type of pneumonia and a lobar pneumonia, and considering the fact that these two types must be dealt with separately, so far as treatment is concerned, this distinction is quite important. Practically all scientific workers depend largely upon this blood examination to distinguish these two types of pneumonia. The total white cell count runs abnormally low in post-influenzal pneumonia and correspondingly high in lobar pneumonia. I have seen the number of white cells drop to 2,000 and under per c.mg. in influenzal pneumonia, while 20,000 to 50,000 is common in lobar pneumonia. Differentially, the polynuclears are much increased in lobar pneumonia, while in post-influenzal pneumonia they are only moderately increased, and in some cases diminished. If the white cell count is abnormally high (normal 8,000 or 9,000), and the history and clinical findings seem to suggest the presence of lobar pneumonia, the sputum, if there is any to be had, should be sent to a laboratory for the purpose of determining the type of pneumonia with which one has to deal. Pneumonias, as we know, are classified by types, which are designated as Type I, II, III, and IV, and it is of some prognostic and therapeutic advantage to place each case in its proper class. On the other hand, if the white cell count is considerably lower than almost any acute infection would warrant, and especially if it be below the physiological normal, typing seems unnecessary, for one is dealing then with an influenza plus a mixed infection and possibly an unknown type of pneumonia.

Then, again, a total and differential white cell count is of some prognostic value, as pointed out some years ago by Sondern. A high total means good resistance on the part of the patient and a high polynuclear content indicates severe infection. Conversely, low counts mean the reverse.

In the light of present knowledge on the subject it would seem that every case of lobar pneumonia should, in addition to the generally practised methods, be treated with antipneumococcus serum. The literature for the past year or more has been replete with reports from most reliable sources, and they should receive our earnest consideration.

The most interesting article which I have seen is that of Lt. Col. Camac of New York, and his associates, coming from observation at General Hospital No. 6, Fort McPherson, Georgia, which was published in the December number of the *American Journal of the Medical Sciences*. They treated 81 cases of uncomp'icated pneumonia, 26 type I, 18 type II, 10 type III, and 27 type IV, with only two deaths. The two fatal cases were complicated with nephritis, one chronic the other acute; both colored men, and stevedores. Mulford's polyvalent stock serum was used in most cases, but in some the type I serum was used when typing was done promptly. As this polyvalent serum is made in such manner that the type I element is not neutralized, it is quite unnecessary to have the typing done. This leaves the way clear for the immediate administration of polyvalent antipneumococcus serum, after the patient has been desensitized by the subcutaneous injection of 2 c.c. of serum. The article goes into full detail regarding the use of the polyvalent serum and the results obtained, and I would urge every physician to become familiar with it. Camac makes the rather significant, if not surprising, statement that "uncomplicated pneumococcus infection is a comparatively harmless and rarely a fatal condition."

In the *Journal of Medical Research* of July, 1918, Kyes reports 115 cases of acute lobar pneumonia in which the patients were treated with an antipneumococcus serum, and compares the mortality among these cases with the mortality in 538 similar cases of pneumonia occurring in the same institution during the same period, but not so treated. The antipneumococcus serum was produced by injecting massive doses of virulent pneumococci into the domestic fowl. Of the 538 patients not treated with the antipneumococcus serum, 244 died—the death rate being 45.3 per cent. Of the 115 similar patients treated with serum, 24 patients died, the death rate being 20.8 per cent. In the ward in which the serum was employed the death rate during the weeks prior to the introduction of the serum treatment was 55 per cent. These statistics show that among those cases treated with the antipneumococcus serum the death rate was less than one-half the rate obtaining among the similar cases not so treated, whether they were cases occurring in other wards during the same period, or in the same ward at other periods of the same year. This is essential proof which Kyes has to offer that the antipneumococcus serum in question is of distinct value in the treatment of acute lobar pneumonia in man.

In the treatment of post-influenzal pneumonia quite a little has been done with convalescent serum; that is, the intravenous injection of the serum from the blood of patients convalescing from influenza pneumonia. Lieutenant Kahn of New York treated 25 patients with convalescent serum at Camp Zachary Taylor, Louisville, Ky. These patients were all in bad shape with extreme toxemia, dyspnea cyanosis, and extensive lung involvement, the mortality being 48 per cent. as against 66.6 per cent. in control cases. O'Malley and Hartman of Washington treated 46 cases with a mortality of 6.5 per cent. while of 111 cases untreated 25.2 per cent. died McGuire and Redden of Chelsea, Mass., Base Hospital, treated 37 cases with one death, and so on Theoretically, at least, this seems to be the idea treatment for pneumonia complicating influenza. I promises much in the future. Maclachlan and Fetter of Pittsburgh have used citrated blood instead of serum, which method has some advantages, but the results do not seem to be so good.

Quinine has its many advocates in the treatmen of pneumonia, and it certainly would seem to have more than ordinary virtue as a pneumococcus destroyer. It has been my practice during this season to give fairly large doses of quinine sulphate by the mouth in the few cases of lobar pneumonia and the many cases of influenzal pneumonia that have treated, but I am not prepared to say with what results. Waters and Elliott Burrows of New

York have treated several cases of influenzal pneumonia by the intravenous injection of quinine dihydrochloride, with very satisfactory results. As a prophylactic against pneumonia and also influenza I think its value cannot be questioned.

Vaccines have been used for some time in the treatment of pneumonia, but there seems to be some opposition, or at least skepticism, on the part of teachers of authority regarding their value except, perhaps, the autogenous vaccines which are given more credence. My personal experience with mixed vaccines in the treatment of influenza pneumonia has been rather gratifying, but I am not at present prepared to make any statement that would appeal to the scientific mind. At Fort Oglethorpe, Smith, Dare, and Bergey have treated over 100 cases of pneumonia with mixed vaccines with a mortality of less than six per cent. Not only was the mortality lessened but the duration of the disease was shortened, the patient's comfort promoted, and the incidence of suppurative complications decreased almost to a negligible point.

Complaint may be made that all these methods are beyond the reach of the general practitioner, but such is not the case. Any doctor or nurse not familiar with the procedure can learn to count blood cells in a very short time, and the necessary implements are inexpensive. The technique of intravenous medication is nearly as simple as the hypodermic method and we should all be familiar with it.

The preparation and administration of convalescent serum and citrated blood is another matter, however, and requires adequate laboratory facilities and the cooperation of an experienced pathologist.

With these measures reasonably available in country and city, I think that we should all feel encouraged in our attempts to fight pneumonia. At the present time these methods are the best that we know anything about and our patients are certainly entitled to the benefit of any doubt in the matter. The administration of serums and vaccines is along scientific lines and will certainly lead the way to the best results.

I shall hope that these remarks may serve to turn my readers from the old routine in the treatment of pneumonia. In my opinion the most serious error is procrastination—in this connection the thief of life as well as the thief of time. The administration of expectorants and cough mixtures is fast going out of style and codeine, heroin, or morphine is depended upon to give the patient needed rest. Strychnine is no longer a favorite as a heart tonic or stimulant and most of have learned that nitroglycerin is a vasodilator and not much more. In pneumonia it would be contraindicated.

Adrenalin, camphor, ammonia, and alcohol are indispendables and should be used on occasion.

Summary.—1. Attack pneumonia with the idea that it can be successfully treated.

2. Make early diagnoses, giving the patient the benefit of any doubt by instituting early treatment.

3. Digitalize the patient by the Eggleston method at once.

4. When the leucocyte count is high and lobar pneumonia is determined, give polyvalent serum according to the teaching of Camac and others. Do not wait for typing.

5. When the leucocyte count is below 7500 and the clinical evidence supports a diagnosis of post-influenzal pneumonia, give convalescent serum if possible. Give the mixed vaccines and quinine due consideration.

6. Fight the disease to the last ditch.

881 Lafayette Street.

RADIOTHERAPY IN CANCER: SUMMARY OF SIX YEARS EXPERIENCE IN THE TREATMENT OF MALIGNANT DISEASES.

By MAURICE J. SITTENFIELD, M.D.,

NEW YORK.

It would be profitable perhaps after six years experience in Radiotherapy to take stock, so to speak, sum up our results, check up our errors, and correlate our experiences with those of other coworkers and writers. An analysis of these will make for a better understanding of our shortcomings, and may lead to a possible stimulation to get together and standardize our technique. Among the many thousands of cases reported in the last six or seven years, many brilliant results have been obtained. Unfortunately, however, no standard regarding technique or scale of dosage has so far been established and every worker is using his own technique in as far as the administration of the dosage—the filtration, the focal distance, the penetration, and other important factors is concerned. Hence the quality and quantity of irradiation administered by the different therapists is not a uniform one. Aside from this, not sufficient importance has been accorded the selectivity of the cancer cases, the local and general dissemination, the length of duration of the tumor, and its biological behavior. There is a remarkable difference in the opinions and reports concerning the amount of dosage used by different workers, and a lamentable absence of description of the dosage, especially by our American coworkers. I appreciate the fact that everyone has to work out his own technique with his own apparatus and the dosage required in a given case, but after numerous experiments and a number of years experience, a certain standard, within a certain range, can be set up, and no one so far has attempted to put into effect such a scale of measurement. A great many writers describe brilliant results with very large and intensively massive doses, others obtain equally fortunate results with very small doses, but so far the exact quantity and quality of the radiation has been mentioned, with few exceptions, only by foreign writers. In the radiotherapy of cancer my own experience teaches me that only massive doses with our present apparatus can be considered. Here I do not wish to enter into a discussion of the advantages of the γ-rays of radium and the hard and penetrating rays emitted by the Coolidge tube. Kelly, Burnham, and others claim the superiority of γ-rays

qualitatively, while Döderlein, Bumm, Warnekros, Dessauer, and a host of others have proved experimentally by the present means of measurement that *x*-rays have 5,000 times and more the quantity of radium and mesothorium rays. For instance, it required 11 hours for 200 mg. of mesothorium to equal the dosage of 10 minutes radiation from the *x*-ray tube. Case, Pfahler, and a number of others are agreed that qualitatively radium has no advantage, and perhaps the very best results are obtainable by using the combined method of radium and *x*-ray.

It is pretty well accepted, however, that in small, superficial, local lesions radioactive substances can be used to good advantage, while in deeper located cancer and that involving larger areas, the Roentgen ray through a high vacuum tube, as the Coolidge, is to be preferred. It would be of immense value and interest aside from other considerations, if a recognized standard of measurement of the absorption of radiation by a given tissue could be determined. The value of the different instruments over one another is negligible and so far no uniform index as to measurement and dosage is available.

At present we use an arbitrary unit of radiation, i. e., the quantity necessary to cause an erythema of the skin. This unit is determined by some by the Holzknecht Quantimeter, others use the Kienbock photochemical strips, still others the Sabouraud-Noiré pastilles, and so on. Attempts to simplify the measurement of the dosage have been made by means of the electroscope, but this seems so complex a method that only physicists are able to manipulate it. Other efforts have introduced the Iontoquantimeter, which depends upon the ionization of the air. This also is rather complicated, and therefore not a popular instrument. Next we have the Furstenau Intensimeter; this records the dose through the deflection of a selenium needle. Perhaps up to the present this is the least objectionable and most acceptable of any. Besides there is the Christen instrument, and a host of others depending upon photochemical and biophysical measurements. Duane of Boston has devised an ingenious instrument which is not perfected enough to make it accessible for the ordinary radiotherapist. Therefore it is of greatest importance that some indicator be constructed and adapted which will measure the dose during the radiation, instead of determining the dose after the radiation by photochemical or any other of the above methods.

Filtration.—In the matter of filtration we are again at sea, though not quite as helpless. Almost everyone uses at least 3 mm. of aluminum. Some claim that 3 mm. are not sufficient and use from 4 mm. up to 7 mm. Another set of workers uses 0.5 mm. of zinc, others use brass, and so on. It can be stated from personal experience that 3 mm. sometimes, but better 4 mm., of aluminum plus 2 mm. of leather gives ample filtration. Here, however, I wish to differ with some writers who claim by use of the filter never to have seen burns even of the first degree. In my own work and that of others who are equally careful, once in a great while a burn of the first and even of the second degree does occur. In fact in reviewing the literature I have come across the very best *x*-ray workers admitting that in some cases burns are absolutely unavoidable, in spite of the most careful filtration. Yet I would urge the greatest care, and I trust that with more and more experience this unfortunate occurrence will be entirely eliminated.

Focal Distance.—Not enough attention is given to this phase; rarely is it mentioned by our coworkers here, though the foreign writers give it more than a passing thought. A great many experimental efforts have been described. Case, among others, has shown that a focal distance of 7 inches produced an erythema dose in 18 milliampere minutes, and that with a focal distance of 10 inches it required 37 milliampere minutes; with 14 inches, 72 milliampere minutes. It is obvious therefore that the ideal method is the one that effects the largest dose in the shortest time. My own technique is to administer the treatment within a focal distance of about 6 inches wherever it is possible.

Penetration.—Here perhaps lies the most important factor in Radiotherapy. Every apparatus and every tube should be devised so as to furnish the maximum of radiation and to do this in the most constant, reliable and dependable manner. Fortunately the improvement in our tubes in the past four or five years has made possible a vast progress in Radiotherapy, and by means of the Coolidge tube a constant high penetration can be demanded for an unlimited time. Unquestionably this tube will be so improved that a still higher penetration can be obtained. After all this is the factor which will give us better results. If we can reach a point say 5, 7 or 8 inches beneath the surface of the skin by means of our irradation in sufficient quantities to influence the tissues, then we can equal the effects we now obtain in the more superficially situated cancers. Our handicap at present lies in the limited amount of radiation that is left to be absorbed by the deeper tissues. It is well known to everyone that only about 1/7th of the surface-dose affects the tissues 10 cm. in depth.

The previous remarks indicate the difficulties we are laboring under at present to arrive at a clear-cut method of administering radioactive substances. Yet everyone must be impressed with the progress in this field of therapy notwithstanding our lack of uniform technique. In this series of 94 carcinomata which I wish to report here, there were 15 of the face, mouth and throat; among these were 7 cases of basal cell epitheliomata of nose, ear, lip, cheek, et cetera, everyone of which yielded to the treatment, and has been free from recurrence one to six years. The three squamous cell epitheliomata of the antrum complicated with ethmoidal and sphenoidal sinus involvement, the two of the tongue and the three of the tonsil involving the pharynx and larynx were not as satisfactorily influenced. Out of these eight, hopelessly inoperable, two are still alive, one has been clinically cured for the past four years, and the other is very much improved, but of too recent date to report definitely. One man, 82 years of age, with a spindle cell sarcoma of tonsil, pharynx and larynx, lived for two and a

half years and died of metastases in distant organs. Eight cases of carcinoma of the breast with no glandular involvement which was radically removed, were treated prophylactically immediately after discharge by the surgeon, and are clinically cured for a period ranging from one to six years. Of fourteen treated for later recurrences in the scar, axillary or superclavicular glands, all but three (one is still alive after four and a half years) succumbed. Two of these cases showed pulmonary involvement and were relieved for a short time. The effect of the ray was at best only palliative in sixteen inoperable cases of carcinoma of the viscera—stomach, liver, pancreas, kidney, and so on. During the treatment their distress, dyspnea, and pain were considerably relieved, and a marked improvement seemed evident psychically. Almost everyone remarked that he experienced relief from his pain, became more cheerful, and exhibited a feeling of hopefulness which was shared by his family. Ten cases of uterine cancer were treated after discharge from the hospital, and five, or one-half, are free from recurrences over a period of one to five years. Eleven other patients with recurrent uterine carcinomata were rayed—of these three are still alive. One case is of too recent date to report, though her condition is so much improved that we may look forward to a good result. Out of six cases of inoperable carcinoma of the prostate one is alive after three years. All were in rather bad shape and the treatment brought great relief. Five, however, finally succumbed to metastatic involvement elsewhere. The response in four carcinomata of the bladder was not entirely satisfactory; for a short time there was a slight improvement in two, one is still alive, and the other lived for two and a half years in comparative comfort until metastases in the abdominal viscera and ascites developed. Two cases of sarcoma of the testes, one of them postoperative, reacted well; one man is alive after four years, and the other when last heard from was clinically cured. One patient of three with postoperative recurrent sarcoma of the bone is clinically free from malignancy. Of five cases of lymphosarcoma, three are clinically cured, one among the earliest cases has remained free from recurrence for nearly six years, one is a patient with cylindroma of the submaxillary gland which had been removed surgically, and the other is a case of two years duration and is still under observation. Aside from this series of ninety-four, five cases of Hodgkin's disease were given the benefit of radiation but did not yield satisfactory results. One woman lived five years, another three years. The latter patient died of a *streptococcus hemolyticus* pneumonic infection.

Analyzing our results we can not point to our success with any special pride. Some of our failures, however, were due perhaps to early inexperience with our apparatus and inadequate tubes. With the advent of the Coolidge tube and greater experience in Radiotherapy our percentage of successes has been increased. I am learning, as I go along, to administer larger doses and not to be so apprehensive about skin lesions. Seventy to one hundred Kienbock units are frequently applied over a skin area in one series, and during the month one hundred and fifty to two hundred Kienbock units are tolerated fairly well. With an increased knowledge of technique better results are to be looked for. Since the fact has been established that cancer cells can be rendered harmless and their clinical malignancy destroyed by irradiation. Their reproductive mechanism is interfered with as our histological studies prove that radiated tissue has lost its malignant nature. Our efforts therefore should be directed to the finding of possible ways and means of affecting all the cancer cells in the body. After all, the final test of the cure of cancer is not alone whether we can destroy cancer cells but whether we can rid the body of them.

There are, however, other factors which have a definite bearing on many of our failures, namely, the biological behavior of the tumor, whether it is richly cellular, vascular, young and rapidly growing, or fibrous. Studies by Ewing point out that cellular and rapidly growing tumors are most favorably acted upon, and that those which are made up of old fibrous tissue as, for instance, tumors of old Hodgkin's disease or granuloma malignum are not very responsive. Tumors of long standing and wide dissemination are most difficult to influence. Biologically no two tumors behave alike clinically, though to all intents and purposes they may be of the same age, size, and affecting the same locality in the same organ. The ability of the tissues around the tumor to produce a cellular, inflammatory exudate of leucocytes, lymphocytes, plasma, and wandering cells aside from the constitutional resistance of the host and his ability to throw off and absorb the radio-acted upon substances, must be taken into account.

For the constitutional resistance of the patient unfortunately we have no dependable index, as none of our experimental hypotheses are clinically borne out. We know at present of no specific agent which has anything to do with immunity, natural or acquired, in cancer. Ehrlich's theory of athrepsia is pretty well exploded, and there is no definite relationship established between panimmunity and cancer. The hypothesis of Murphy that the number of small mononuclear lymphocytes in the blood is the factor which determines the behavior of experimental cancer, i. e., a high percentage of lymphocytes is indicative of a high state of resistance, does not hold true in the study of clinical cancer. Personal observations on the lymphocyte count in cancer patients corroborate my experimental work in white rats. In nearly all of my cases the lymphocyte count ranged from 25 to 45 per cent., and even in the most severe cachexias, a lymphoid count of 33 per cent. was encountered a week before death. These findings are in accord with the studies of Millet and Mueller, who also claim that the percentage of lymphocytes in the blood is not a guide to the state of resistance of the patient.

Another very important factor which bears upon the ultimate results of our radiotherapy is the stage at which the treatment is administered, whether the prophylactic, the recurrent, or the cachectic stage. By the prophylactic stage I re-

fer to that period at which the surgeon co-operates with the radiotherapist as soon as the patient recovers from the primary operation. Radiotherapy then offers the most hopeful results. Of course even at this early period we encounter at times failures, but these are due not to the non-effect of the radioactive substance, perhaps, but to the conditions mentioned above. My own results correspond with those of Loose, who reported 55 cases of carcinoma of the breast with no glandular involvement which were rayed immediately after the operation with not a single recurrence over a period of three and a half years. When the lymphatic glands were involved, however, the results were not as satisfactory. Bumm and Warnekros report a series of 174 cases of carcinoma of the uterus operated upon in their clinic during 1911 to 1914. Of these 119 were not treated with radiotherapy after the operation, and 66 died of recurrence. Fifty-five women were systematically rayed after the operation; of these 11 died of recurrences, i. e., those without radiation after the radical operation showed a mortality of 55 per cent. against 18 per cent. of those receiving the benefit of radiation. Seitz and Wintz, a few months ago, wrote of a series of 52 carcinoma of the uterus since 1915. Twenty-eight of these were favorable for operation and 43 per cent. are alive after 3 years. The other 24 cases were inoperable and therefore subjected to radium and *x*-ray only; 46 per cent. are clinically cured. Eleven out of the latter series were considered absolutely hopeless and 1, or 9 per cent., is still alive.

A study of these results must make it appear that radiotherapy is an important step forward in our attack against the inoperable cases of carcinoma of the uterus, breast, and so on. If we compare the end results of such cases treated by any other method with those treated by radiotherapy, we must conclude that irradiation is an advance in our battle against cancer. Even in the most hopeless cases, it at times surprises the radiotherapist, inasmuch as a most desperate case may become not only operable but clinically cured. In almost all inoperable malignant conditions the patient after radiation enjoys a sense of improvement, his intense pain is diminished, it becomes more tolerable, he is able to sleep, begins to feel hopeful, and his burden and that of his family is lessened.

I fully agree with T. C. Kennedy, who says: "The great value of radiation can be judged only by keeping constantly in mind the fact that only the hopelessly incurable or patients with marked postoperative recurrences are sent for radiotherapy. If we relieve a small percentage and occasionally cure a patient who has been operated upon or refused operation on account of the seriousness of his condition, we have done much for suffering humanity."

In conclusion, among the points which stand out most prominently in my experience is the lack of early cooperation of the surgeon with the radiotherapist. The carcinomata of the breast and uterus which were rayed immediately after discharge from the primary operation showed a most astonishing percentage of clinical recoveries, in my own cases as well as those reported by Loose, Bumm and Warnekros, and a number of others.

In striking contrast to the results formerly obtained in the inoperable cases, we can point now to our results, which are not quite as satisfactory as those of Seitz and Wintz, who claim nearly 50 per cent cures. Duane and Greenough report a series of 1,089 cases treated at the Huntington Memorial Hospital, 55 per cent. of which were definitely benefited. A certain proportion can be made operable, or may be clinically cured. Some clinical cures date back six years, the length of time that these cases have been treated with intensive radiotherapy. With every subsequent recurrence, however, the resistance to radiotherapy grows greater.

Unfortunately a great deal is expected in the cachetic cancer patients, and perhaps this is the cause of the apprehensions with which many view the apparent failure of radioactive substances. Yet every once in a while the most hopeless and desperate case may repay us for our painstaking effort, aside from the psychological benefit which is derived by many. Careful blood examinations must be made during the treatment, in order to avoid injuring the blood elements beyond reparation.

In the selectivity of the cases for radiotherapy, in addition to those just mentioned, the superficial basal membrane epitheliomata are best adapted, for in them in almost every case a favorable outcome can be expected. The squamous cell epitheliomata are not as amenable. Localized round cell sarcomata react more readily than do carcinomata.

The biological behavior of the tumor must not be lost sight of. This constitutes perhaps the most important factor in the response to our treatment, namely, whether the tumor is made up of richly cellular tissue or of old fibrous tissue, the latter being the most hopeless of any.

Furthermore it would be of greatest advantage when making casuistic reports to dwell upon the exact measurement of dosage, penetration, focal distance, filtration, et cetera, in order to arrive at some elastic standard of dosage.

73 East Ninetieth Street.

MYRISTICA (NUTMEG) IN THE TREATMENT OF AMEBIC DYSENTERY.

By Joseph Leidy,
Philadelphia.
Captain M. C., United States Army.

Avicenna[1] recommended myristica for the cure of chronic fluxes dependent upon ulceration of the bowels. Hildanus[2] adopted these views, and assigned nutmeg a high place among the simples (herbs) by which the bowels may be restrained in dysentery. Penrose,[3] during the War of the Rebellion, stated the remedy which had been most positive in their results, after opium, had been nutmeg with oxide of zinc. Woodward,[4] in his classical treatise on "Dysentery and Its Treatment," refers at length to nutmeg, and is in accord with the views of other writers that it eases pain, but is not disposed to credit it with having advantages over other remedies.

Oxide of zinc, with which it was combined by Penrose, was later abandoned on account of the increased nausea and diarrhea which were produced; carried to the bowels without any action in the stomach, it was considered sedative. Nutmeg, on the other hand, unites with the medicinal properties of the ordinary aromatics considerable narcotic power.

During the past year the writer has had an opportunity to follow the course of a case of amebic dysentery, contracted by an officer in one of our Southern camps, which has resisted treatment with emetine. To emetine he evinced a marked idiosyncrasy, which was attended with great prostration and increased diarrhea.

Until recent years the treatment of dysentery was largely empirical, which doubtless explains the successes and failures obtained by our army surgeons during the Civil War with ipecac. It doubtless explains why emetine fell into disrepute both by mouth and rectal injection. Prof. A. E. Shipley of the British Educational Commission, on a recent visit to this country informed the writer that even in amebic dysentery it had not come up to expectation in the Salonica campaign. It is of interest to note that Woodward states emetine is contraindicated in asthenic cases or when diarrhea is increased. It was under this type the patient was classified. The stools contained both the free motile and cystic forms of *Endamœba histolytica;* the patient was resistent to treatment, there being frequent exacerbations, with prostration and loss of weight; during the intervals of the acute attacks the patient would improve, but the stools showed the persistence of the cystic forms, with extensive trichomonas infection. There were, in addition, the accompanying symptoms of colitis.

In view of the success obtained by Penrose in the group of cases which he reported it occurred to the writer that possibly the essential oil of myristica may have acted as an amebacide, which would account for the success which he claimed for the treatment. The patient was placed upon 30 grains of selected grated nutmeg three times a day, care being taken to obtain a pure product. The effect of treatment upon the subjective symptoms was decided and prompt; the frequent spasmodic (colitic) pain disappeared; three days later, examination of stools showed fewer cysts, with abatement of the *Trichomonas intestinalis* infection. At the expiration of seven days very few cysts were found; the patient has shown steady improvement in his physical condition. Three weeks after treatment no cysts were found. Regular examination of the stools for the past four months, by the ether centrifuge method, has been negative, as to both the vegetative and the cystic forms.

The question naturally arises, have we in the essential oil of nutmeg an amebacide? Or are the gastrointestinal secretions so influenced as to preclude the harboring of the parasite? The action of many essential oils is well known. The use of highly seasoned condiments in the tropics is well known. Have we in these preparations substances which protect individuals from parasitic infection? The subject is well worthy of further investigation.

Medicinal Properties.—Nutmeg has long been used as a carminative, anodyne, and astringent. It is a narcotic, and has been used as a soporific. In England and India it has been resorted to as an emmenagogue and abortifacient. According to Cushny,[5] until this year (1908) no textbook referred to oil of nutmeg poisoning. Medical literature, however, contains a number of references, Lobelius[6] (1756) and Paullinus[7] (1704) refer to its poisonous action.

In recent years, Wallace[8] (1903) collected 25 cases with one death; the quantity ingested approximated from 1 to 1½ grated nutmegs. One case of poisoning is reported after the ingestion of 1 drachm of mace. The symptoms developed in from 1 to 6 hours. There is drowsiness passing into stupor, from which the patient can be roused with difficulty; he is unable to recognize his surroundings. Diplopia has been observed, with evidence of mental depression; at times there is marked excitement and delirium before the stupor suggestive of cannabis indica poisoning. Sometimes the first symptom is abdominal pain attended with precordial distress and giddiness; in two cases alarming collapse occurred. The stupor lasts from 4 to 6 hours, passes off, and the patient recovers. The only death recorded is in a boy of eight, who swallowed two nutmegs and became comatose, from which condition he could not be aroused, and died in 20 hours.

Nutmeg contains 3 to 8 per cent. volatile oil; when this is extracted the residue produces no effect whatever in animals. The oil contains several terpenes, pentene, and dipentene. The pentenes are devoid of action except in large quantities. The constituents of the fractional distillation have been isolated as myristicol and myristicin.

According to Wallace, experiments upon rabbits and frogs were followed by depression, paralysis, and loss of reflexes. The cause of death is failure of respiration; the heart continues to beat for some time afterward. The cat is more susceptible; there may be vomiting and purging, the wall of the stomach is red and injected, the urine contains albumin. When large amounts of the oil have been given the urine contains a substance, not sugar, which reduces Fehling's solution, turns the plane of polarized light to the left; this is probably glycuronic acid (Wallace).

Dale[9] observed fatty degeneration of the liver, which developed several days after apparent recovery in animals, being preceded by jaundice.

Two nutmegs weighing approximately 10 grm., containing 1 gm. of the essential oil, caused poisoning in animals.

Dosage.—A dose of 25-30 grains of powdered nutmeg was administered three times a day after meals for one week, the second week twice daily, the third week once daily combined with a simple digestive powder. The oil of nutmeg was not used owing to its irritant properties. The dose as recommended in the U. S. Dispensatory is 2 to 5 drops, 0.10 to 0.25 c.c. The pure grated nutmeg is preferred.

Conclusions.—With the demobilization of our army, from what the writer observed in a number of our army camps, he is of the opinion that amebic dysentery will become more common in the United States than formerly.

In view of observations made by others, and those

of the writer in the treatment of dysentery of the parasitic variety, due to the *Endamœba histolytica*, the use of nutmeg should be given a fair trial, particularly in the case of carriers.

Diagnostic Precautions.—Care should be exercised in collecting stools for examination. We found that active motile forms of endameba frequently became immobile within one-half hour after passage unless preserved in an incubator. For doubtful cases, bedside examinations should be made, and in addition the ether centrifuge method, adopted by the U. S. Army, should be resorted to for detection of cysts and checking of carriers.

Technique.—The following method of examination in use at U. S. Army Medical Laboratory School, New Haven, Conn., for ameba cysts is recommended to replace direct smear examinations and the centrifuge method for the detection of protozoan cysts. It is a modification of the methods of Cropper and Row (*Lancet*, v. 192, p. 179) and of Carter and Matthew (*Am. Jr. Trop. Med. and Paras.* v. 11, p. 195) used in the State Board of Health (see Boeckm Univ. of Cal. Pub. Zool., v. 18, p. 145). Its value lies in the concentration of cysts from a large sample and the differential staining of the centrifuged cysts and sediment. Concentration is secured as follows: One grain of stool is mixed in an electric soda mixer, in a tumbler with 30 c.c. of normal saline solution, for ten minutes, until a complete suspension is obtained. While still stirring, add 5 c.c. of ether. The ether settles the foam at first, but the suspension soon begins again, usually in two or three minutes. Stirring should cease the moment the foam begins to rise. The fluid is poured at once into a separatory funnel and allowed to stand from five to seven minutes, during which cysts and heavier débris sink. Draw off 15 c.c. and centrifuge for three minutes at 1600 revolutions per minute; examine the sediment for cysts.

Differential staining is secured by adding 5 c.c. of N10.000 solution of neutral red at the end of eight minutes, stirring with the soda mixer. Lightly stained or unstained cysts stand out amidst the more deeply stained débris, and are easily distinguished from the more deeply stained intestinal yeasts. Nuclei, axostyle, and intracycloplasmic flagella of cysts of Giardia are lightly stained. Instead of using neutral red in the mixer, a drop of the solution may be added to the sediment on the slide. Gram's iodine solution may be added to the sediment to differentiate the nuclei of endameba (see Stitt, Pract. Bact., p. 265). By direction of the Surgeon General, War Department, August, 1918.

Note.—In the preparation of Gram's iodine solution the writer has found that any soluble iodide of metal (sodium, magnesium, aluminum, arsenic ferrous, ferric iodide) may be substituted for iodide of potassium in the preparation of Gram's iodine solution in similar proportion; this will give equally satisfactory results as a substitute for staining positive bacteria as well. In war time the cheapness of the iodides of arsenic and iron makes them desirable substitutes.

The writer wishes to express his appreciation to Col. C. F. Craig, M. C., commanding officer in charge of Yale Army Laboratory School, for his assistance in checking the pathogenic form of the endameba in this case.

BIBLIOGRAPHY.

1. Avicenna: Lib. III, Fen. 16, Tract 2, cap. 3, p. 821 (see Woodward).
2. Hildanus: Cap. X, pp. 644, 686 (Woodward).
3. Penrose, R. A. F.: Med. and Surg. History War Rebellion, 1861-65. Med. Volume, Part II, Satterlee Hospital Report, p. 45.
4. Woodward, J. J.: Mem. on Acute and Chronic Dysentery, Med. and Surg. History War of the Rebellion, 1861-65; Med. Volume, Part II.
5. Cushny, A. R.: Proc. Royal Med. Soc., London, Jan., 1908.
6. Lobelius: Stirpium Historia Observations, 1576, p. 570.
7. Paullinus: Nucis Maschatæ Curiosa Descriptio, Leipsig, 1704, quoted by Lewin, Nebenwirkungen der Arzneimittel, 1893, p. 728 (Wallace).
8. Wallace, G. B.: Contrib. to Med. Research, Vaughan, Ann Arbor, 1905, extensive Bibliography.
9. Dale, H. H.: Proc. Royal Med. Soc., London, Jan., 1909.

Brady Laboratory, New Haven, Conn.

USE OF MUSK IN PNEUMONIA; NOT A SCIENTIFIC DRUG, AND SUBJECT TO GROSS SUBSTITUTION.

By WALTER C. ALLEN, M.D.,

CHICAGO.

DURING the epidemic of so-called influenza which we have just passed through, musk seems to have enjoyed a recrudescence, merited or unmerited, in the therapeusis of the associated pneumonias; at least that is the inference drawn from the statements of two of the best known internists of Chicago. Each of these men, whose writings have appeared in recognized American medical journals for years, has stressed the use of a drug almost forgotten. One of these internists described his use of the drug before the North Shore Branch of the Chicago Medical Society. The other mentioned it during his regular Saturday afternoon clinic.

Musk is the dried secretion of the preputial follicles of the male *Moschus moschiferus*, or musk deer.[5] The habitat of this deer is, for the most part, in China, Thibet, and the Himalaya Mountains. The best-known varieties of musk come from China and Siberia, and the better of these is that from China, known as Tonquin musk.

Tonquin musk is very expensive. Before the great war of 1914-1919 only 300 caddies of it were imported yearly from Shanghai to New York. Thirty ounces of musk granules are obtained from the contents of a caddie. These caddies are containers similar to but very much smaller than tea chests. It is impossible to obtain from a pharmacist musk for less than twenty-five cents a grain, and of course, musk offered for less than that may be looked upon with suspicion. As a matter of fact, the chances are that prices quoted would be very much higher on account of the present difficulties of importation. If a dose of fifteen grains were to be given, it would easily cost about $4; and then if the dose were to be repeated three times daily, one can easily see that only "malefactors of great wealth" could command its use.

In using musk, one must be sure that the pharmacist has furnished real musk. The physician will have to depend upon a high-class pharmaceutical house. No reflection upon dispensing druggists or pharmacists is to be inferred from this

statement, but there has been so much hokus-pokus and chicanery associated with the production of musk that even the pharmacists are imposed upon, and think, in good faith, that they are dispensing a reliable drug, when in reality some worthless substitute has been foisted on them.

The root of the evil seems to center about the fact that there is only a limited supply of musk, that this supply is decreasing, and that musk has a characteristic odor which has created a demand for it in the preparation of perfumes.

The fancy prices which the Chinese, Siberians, and Indians of the Himalaya districts have been able to command for musk have tempted them to trick dealers. After extracting all or most of the musk granules from the sacs of the male musk deer they have habitually made gross substitutions with such material as dried blood, resin, hair, bird dung, wax, storax, benzoin, and asphaltum, materials absolutely inert. They then carefully sew up the sacs and sell them as though they were the original musk sacs.

The U. S. Formulary, and other texts of a similar nature, however, give adequate detailed descriptions of tests which, if the pharmaceutical houses will but use, protect them against such substitution. An acceptable test is that described by Bernatzik and given in the German pharmacopeia, viz., the examination of the material spread out in a thin layer under turpentine, and examined by microscope, when the musk appears as diaphanous brown amorphous splinters.

Fresh musk has an intense, offensive, penetrating, peculiar, and persistent odor. Much of this odor is lost on drying, but so much remains that it has been used for ages in making perfumes. The demand for musk for perfumes has been met by A. Baum,[5] who was successful in isolating the active constituent upon which the odor depends, a ketone, which he named muskone. He then built up the corresponding synthetic chemical, tritertiary-butyltoluene, $C_6HCH_3(NO_2)_3C(CH)_2$, commonly known as artificial musk.[13] As this compares favorably with natural musk, it has supplanted natural musk in the perfume industry. It should be remembered, however, that this artificial musk has none of the medicinal properties of natural musk, unless one is to consider the possible psychic effect of the odor of the product as such.

The fluidextract of musk root, sumbul radix, has been palmed off as musk, and is said to have been used as a substitute for musk by the Russians as early as 1835. In spite of extravagant claims, it has nothing in common with musk, except odor.

The dried secretion of a sac of the American muskrat has also been used as a substitute, but this, too, has nothing in common except odor.

Some droll stories cluster about musk. The memoirs of Nicholas of Russia record that the last dose he swallowed before death (1855) was a potion of musk. The tale goes that Empress Josephine, much to the annoyance of Napoleon, who hated the stuff, used musk profusely about her boudoir, and that the odor persisted for forty years after! Musk is still held in high repute among Eastern nations. Even Shakespeare, in "Merry Wives of Windsor" dropped a line, "So sweetly, all musk," about this penetrating drug.

Hager[7] names the constituents of musk as follows: fats, cholesterin, wax, biliary matter, mucus, albumin, traces of lactic, butyric, phosphatic, and sulphuric acids, traces of ammonia, and a volatile oil.

An analysis of musk by Geiger and Reiman, quoted by Gmellin,[6] shows that it contains cholesterol, 0.5-2.07 per cent. of a volatile oil, fatty, waxy, and albuminous substances, and the ketone, muskone.

A convenient vehicle for musk is the tincture[11] prepared as follows:

Musk	5 gm.
Alcohol	45 c.c.
Water	45 c.c.
Dilute alcohol q. s. ad	100 c.c.

Triturate the musk with water a little at a time until a smooth mixture is obtained. Transfer the mixture to a bottle and let it stand twenty-four hours. Add alcohol. Macerate mixture for six days, occasionally shaking. Filter. Pass dilute alcohol through filter to make up to 100 c.c. of solution. Dose, dram 1 or 4 c.c.

The literature[1,2,3,12,15,16,17,19,20] gives the following actions of musk, without, however, experimental data as control of observations: deodorant, antispasmodic, diffusible stimulant, sedative, aphrodisiac.

Diseases or conditions in which musk is said to have been effective are as follows: bronchiectasis, convulsions, hiccough, hysteria, epilepsy, flatulence, pneumonia, singultus, subsultus tendinum, laryngismus stridulus.

Musk has had an illustrious past, and at one time a tremendous vogue. The great and conservative French physician, Trousseau, commended it in the treatment of pneumonia, especially that of drunkards with cerebral symptoms.

Musk as a stimulant is discussed by Allbutt and Rolleston[1] as follows: "In former days musk enjoyed a high reputation as a diffusible stimulant and antispasmodic in the low muttering delirium and nervous prostration of the ataxic state. In Ireland, however, of late years, this remedy has fallen into unmerited disuse, partly because of the great cost of the drug, and partly, it is to be feared, because its exhibition was postponed until too late to prove of much value. In an epidemic of typhus, in 1866, Dr. Clifford Allbutt found musk most valuable when given in five-grain doses in low delirium. It may be prescribed in bolus or emulsion. Camphor may be substituted for musk in hospital practice, or these powerful diffusible stimulants may be given in combination."

No less brilliant an internist than the late Dr. Henry L. Elsner of Syracuse, writer of the section on the treatment of lobar pneumonia in Forchheimer's Therapeusis of Internal Diseases,[4] discussing hiccough, notes: "In many cases there is prompt recurrence of hiccough, with great prostration. Under these desperate circumstances, when patient and physician were discouraged, musk 0.06 gram (1 gr.) in capsule, every two to three hours, and an occasional morphine injection, have helped. With sustained improvement the hypodermics may be discontinued, but the musk should be continued for several days."

Musser and Kelly[10] add to the sum total of our

knowledge of musk as follows: "In bronchiectasis, when the sputum comes up in very large quantities and has a most disagreeable odor, musk covers the smell and helps the patient. Musk is, indeed, a useful respiratory stimulant, and in cases of pneumonia, when the respiration appears to be failing, the tincture of musk—although the remedy is now looked upon as almost obsolete—is, I believe, really very useful, in doses of 1 dram every two hours." Striking testimony that this drug is, indeed, considered almost obsolete was given in 1914, when it was deleted from the British pharmacopeia.

Hatcher and Wilbur[8] note that a century ago musk was considered a powerful circulatory stimulant, and that in our times Solomon Solis Cohen has recommended it as an efficient and dependable remedy when it can be obtained in pure form and of good quality; but that, as noted elsewhere, it is extremely expensive and subject to gross adulteration.

Continuing, Hatcher and Wilbur state: "Musk probably resembles camphor in action on the centers, and has the advantage of greater solubility in proportion to the amount required. Castor fiber and sumbul root, which have been recommended as substitutes, are entirely devoid of any such action as that claimed for musk. Musk may be given in capsules or tincture."

Finally, it remains to emphasize the fact that the use of musk is purely empirical, that its active principle has never been isolated, and that, in consequence, statements as to the action of the drug have not been backed up by experimental data.

Dr. Hans H. Meyer of Vienna and Dr. R. Gottlieb of Heidelberg,[9] who had occasion to review the literature on musk, say: "Musk was formerly much used for the same indications as camphor, but to-day it is used but seldom, and is no longer official. There are no experimental investigations which would justify its use clinically."

REFERENCES.

1. Allbutt and Rolleston: "System of Medicine," Vol. II, page 567.
1a. Arkhangelski, K. F.: "Can Musk Act as an Excitomotor Stimulant?" *Vrach*, St. Petersburg, 1896, XVII, 1235, 1305.
2. Baum, A.: Compt. rend. de l'Académie de Science, Paris, Vol. III, 238-240.
3. Crookshank, F. G.: "A Note on the Therapeutic Value of Musk," *West London Medical Journal*, London, 1904, IX, 20-23.
4. Forchheimer: Therapeusis of Internal Diseases," 1914, Vol. II, page 260.
5. Garrod: "Collected Scientific Papers," London, 1881, pages 410-415.
6. Gmellin: "Handb. Chem.," II, 1,449.
7. Hager. "Pharmaceutische Praxis."
8. Hatcher and Wilbur: "Pharmacopœia and the Physician," Second Edition, 1908.
9. Meyer and Gottlieb: "Pharmacology, Clinical and Experimental," 1914, page 257.
10. Musser and Kelly: "Practical Treatment," 1911, page 205.
11. National Formulary, U. S.
12. *New York Medical Journal*, September, 1868, page 545.
13. Parry: "Chemistry of Essential Oils."
14. Piesse: "Art of Perfumery," page 256.
15. Pereira: "Materia Medica," (III), 2, 2,251.
16. Raimonde: "Il Castoreo et Il Muschio nella Medicina Antica e Moderna," *Progresso Med.*, Torino, 1905, IV, 43-48.
17. "Reference Handbook of the Medical Sciences."
18. Remington: "Practice of Pharmacy."
19. Tichomirow, W. A.: Sur le Mode d'Investigation du Musc en Chine et sur le Musc de la Siberie, Cong. Internat. de Med., Paris, 1900, Sect. de Thérap., 257-259.
20. Wall, J.: "Of the Extraordinary Effects of Musk in Convulsive Disorders," Phil. Tr., London, 1743-1750, XI, 1,044-1,050.

4141 Clarendon Avenue.

PECULIARITIES IN THE SYMPTOMATOLOGY OF EXOPHTHALMIC GOITER.

By ISRAEL BRAM, M.D.,
PHILADELPHIA.
INSTRUCTOR IN CLINICAL MEDICINE, JEFFERSON MEDICAL COLLEGE.

The increased attention given by the medical profession to the subject of endocrinology, especially to the study of the thyroid gland, is not without cause. And though on the one hand we have not made much advance in concrete or specific information concerning the etiology and pathology of diseases of the thyroid gland, especially of Graves' disease, we may on the other hand look back with pride upon the last decade and its vast quantity of suggestive material which is in store for the investigator.

Various factors are responsible for the undoubted increase in the number of cases of Graves' disease during the past generation. The increased strenuosity of modern life, productive as it is of great numbers of hysterical individuals, neurasthenics, nervous dyspeptics, and the like, is also by its profound effect upon the circulatory and nervous systems and especially upon the emotional balance, a potent factor in the etiology of hyperthyroidism.

Again, the recent world conflict has brought to the attention of the medical profession the revelation of that which was vaguely suspected for a long time, that a sudden change from one's accustomed environments into an atmosphere of complete subordination and servility in the presence of the most intense apprehension and danger to life and limb, as experienced by the raw recruit in the trenches, is not only capable of increasing the activity of the thyroid gland, but has brought into existence thousands of instances of Graves' disease in varying degree in men who probably would have been normal at least so far as the thyroid gland is concerned; and it is this picture of tachycardia, palpitation, tremor, throbbing thyroid, slight exophthalmos, extreme emotionalism, marked prostration, and other typical manifestations, which is frequently erroneously termed shell shock. Yet a third factor may explain the increased number of cases of hyperthyroidism in recent years, and that is the tendency of the profession to change from a state of homogeneity, as represented by the general practitioner, to that of heterogeneity, as represented by the specialist. In other words, as the various branches of medicine become more clearly defined into the various specialties, refinements in diagnostic methods are more apparent, and diseases which have heretofore been erroneously diagnosed are now recognized as indisputable entities.

In passing it may be remarked that since endocrinology is such a broad field of endeavor, and since there are thousands of cases of Graves'

disease still erroneously diagnosed because of the elusiveness or vagueness of the clinical picture, and finally (and this is perhaps the most important reason) since the surgeons and internists are still at odds with respect to whether surgical or non-surgical treatment should be given the preference in the management of hyperthyroidism, the study of the diseases of the thyroid gland and the looming forth into the arena of the thyroid specialist should be encouraged and supported by the profession now more than ever before.

In the presence of the four cardinal symptoms, viz., enlarged thyroid, tachycardia, exophthalmos, and tremor, the diagnosis of Graves' disease offers no difficulty. It must be said, however, that such cases are the exception rather than the rule, at least so far as early instances are concerned. In other words, when the four cardinal symptoms manifest themselves very frankly in a patient, it is a late case, and the prognosis is guarded, to say the least. "The consummation devoutly to be wished" is an early diagnosis, the recognition of the disease in its very incipiency, and this is the greatest argument for the existence of a class of men who should devote most of their time to the study of the thyroad gland in health and disease—the thyroid specialists.

The early recognition of a hyperfunctionating thyroid is one of the most difficult problems in medicine. (The thyroid is not always enlarged, and in women, especially during menstruation or pregnancy, the difficulty is increased by the question as to whether or not a moderate enlargement of the thyroid is physiological only. It is a well-known fact that a state of hyperactivity of the thyroid gland may exist with no apparent increase in its substance. Moreover, exophthalmos usually occurs late in the disease and may for a long time be too slight to attract attention, or it may be unilateral and hence be attributed to another cause. Meanwhile the excess of thyroid secretion in the blood is wreaking havoc with the circulatory and nervous systems. Tachycardia, though quite constant, is often misinterpreted as indicative of "nervousness," hysteria, neurasthenia, "palpitation," nervous dyspepsia, and the like. Not infrequently this symptom and the tremor are also attributed to an excess of tea, coffee, alcohol, tobacco, and occasionally to heredity.

As implied, the thyroid gland may be enlarged or there may be no perceptible enlargement, and there may be varying degrees of goiter. What are the more uncommon local manifestations of thyroid enlargement?

1. Cyanosis, headache, vertigo, and epistaxis may occur from pressure upon the carotid sheath (containing the carotid artery, internal jugular vein, and the pneumogastric nerve). Marked pressure upon the vagus may give rise to phenomena varying with the degree and constancy of irritation.

2. Dyspnea occurs with varying frequency in statistical records, in consequence of the resistance of the underlying muscles and the pretracheal cervical fascia to the gland. This symptom is most marked in instances where the isthmus is greatly involved, or where the latter lies between the trachea and the sternum. Occasionally a unilateral enlargement of the thyroid gland may give rise to dyspnea by the displacement of the trachea to one side.

3. Dysphagia may result from pressure upon the pharynx or the esophagus, and is more common in left-sided goiters for anatomical reasons.

4. Dysphonia with hoarseness, and rarely aphonia, may result from pressure upon the recurrent laryngeal nerve. In my experience, it has often been difficult to distinguish between the dysphonia of nerve pressure and that occasioned by the congestion of the mucous membranes due to pressure upon the trachea.

5. Pulsation and bruit may occur in varying degree, depending upon (*a*) the degree of pressure exerted by the enlarged thyroid upon the carotid artery; (*b*) the extent of the increase in the vascularity of the organ (increase in caliber and number of blood vessels), or both.

A note of caution should be sounded with respect to local manifestations. If the patient is not young and there be pain and tenderness referable to the thyroid substance and the gland is found to be somewhat cyanotic in places, nodular, and the skin closely adherent to the underlying structures, look out for malignant changes!

Occasionally the enlargement of the thyroid is manifested by a mere thickening along the anterior border of the sternocleidomastoid muscle of the right side and is therefore not recognizable, at least in the early stage. This picture is due to the fact that the right lobe of the thyroid is normally larger than the left and is therefore more prone to hypertrophy.

The apparent absence of thyroid enlargement, though there be the other symptoms of Graves' disease to a greater or lesser extent, may be explained by (*a*) the increased functionating of the thyroid without perceptible increase in size; (*b*) pressure, not necessarily by the thyroid, against the cervical sympathetic ganglion, irritation of which gives rise to symptoms closely resembling Graves' disease syndrome; (*c*) an actual enlargement of the thyroid, but of its *inner* surface only and therefore not visible or palpable outwardly (the so-called inward goiters); (*d*) the possible existence of an accessory thyroid, *i.e.* a mass of thyroid substance sometimes occurring in the neighborhood of the tongue, in the larynx, trachea, mediastinal regions, or elsewhere, which has undergone hypertrophy with increased function and is surcharging the blood with thyroid substance.

We have already implied that the tachycardia and the tremor are frequently interpreted as manifestations of hysteria, neurasthenia, chemical toxemias, and inherited tendencies. Occasionally a patient, though not presenting typical manifestations of hyperthyroidism, will begin to behave peculiarly, appear to be markedly changed in disposition within a brief month, and will suffer with melancholia, hysterical outbreaks, or emotionalism, with frequent moments of lacrymation, or, in rare instances, there are outbursts of violent temper with suicidal or homicidal tendencies; a patient of this sort may hastily be classified as a subject of one of the insanities, and a diagnosis of a rare form of the Graves' disease syndrome will not be made until it is too late.

The diagnosis of diabetes mellitus is not infre-

quently made in view of the presence of sugar in the urine in many cases of hyperthyroidism and also in view of the frequent micturition, polyuria, and marked rapid loss in weight and strength. Though diabetes mellitus may sometimes coexist with Graves' disease, this coincidence is rare. The glycosuria of hyperthyroidism is usually not accompanied by acetone; the polyuria is not quite as marked as in diabetes; there is, as a rule, an absence of increased hunger and thirst; the condition here is more acute; there is an absence of the peculiar dryness of the skin and the various skin eruptions characteristic of diabetes; and there is no tendency to visual defects, neuritis, and the various other symptoms typical of the latter disease. On the other hand, the presence of one or more of the cardinal symptoms of hyperthyroidism, discovered on close examination, and the rapid disappearance of the glycosuria on the institution of antidiabetic treatment, serve to make the diagnosis clear.

Many cases of Graves' disease in which marked wasting of the body is the dominant symptom are erroneously classified as instances of incipient pulmonary tuberculosis. This erroneous conclusion is further encouraged by the diminished respiratory expansion, the frequent drenching sweats which may be nocturnal, and the slight rise in afternoon temperature, all of which are commonly seen in exophthalmic goiter. Though here again a tuberculous focus may coexist, where this cannot be demonstrated distinctly by our various diagnostic methods, including examination of the blood, the sputum, and an *x*-ray examination of the chest, tuberculosis may be ruled out. The diagnosis of exophthalmic goiter may be further confirmed by a history of nervous shock or neuropathic tendency, the presence of one or more of the cardinal symptoms of this disease, and the possible existence of an enlarged thymus revealed by *x*-ray examination.

Finally, where the chief symptom in Graves' disease is the tachycardia, it is necessary to differentiate it from the paroxysmal tachycardia which probably has nothing to do with the thyroid gland. Paroxysmal tachycardia occurs at intervals, the pulse is usually more rapid than in Graves' disease (usually about 200 or more per minute), there is usually a sense of great cardiac discomfort and of impending danger, the heart rate becomes suddenly normal within from a few hours to several days, and there is the absence of the typical symptoms of hyperthyroidism.

In conclusion I would say that in view of the fact that the early stages of hyperthyroidism are not typical pictures of Graves' disease, and also because even advanced cases of this disease simulate very closely so many other conditions commonly seen in the practice of medicine that the diagnosis of exophthalmic goiter is difficult and fraught with pitfalls in many instances, it is meet that the diagnostician, when confronted with a patient presenting symptoms which seem to lead to divergent conclusions, carefully and with an unprejudiced mind exclude, if possible, the existence of a hyperfunctionating thyroid before attempting a final diagnosis of the case.

1714 North Seventh Street.

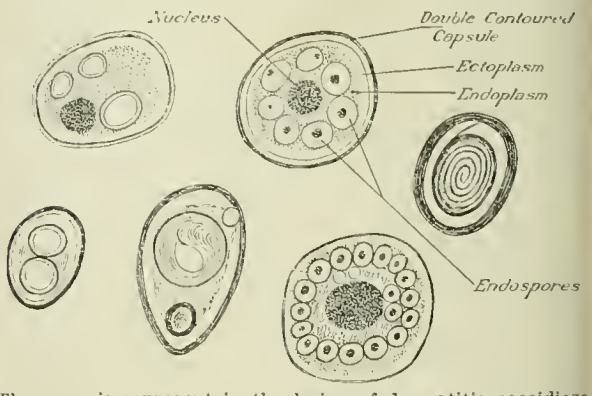
REPORT OF A CASE OF DERMATITIS COCCIDIOSA.

By J. Seilin, M.D.,

Chicago, Ill.

Pathologist, Lake View Hospital.

J. L., male, age 32, cigarmaker, with negative family history, and a personal history of various neurasthenic complaints, married, father of five healthy children, presented himself Nov. 15, 1918, with a lesion of the right palm, about which he related the following details: About nine years previous he first noticed small hard papules on the right palm near the base of the thumb. These would itch intensely at times and would be quiescent at times for varying periods so far as subjective symptoms were concerned. Gradually the papules became larger and fissures and painful ulcerations appeared, involving the proximal one-half of the palm. Deep-seated vesicles that had developed, ruptured, and yellowish pus came out which crusted and later came off, leaving a moist scaling, raw, painful surface with deep cracks and thick hypertrophied edges. Some papules and deep-seated vesicles also remained. Under various skin remedies the condition improved but never healed completely under any treatment, although the patient stated that he had had many different kinds of salves and internal remedies, including hypodermic, intramuscular, and intravenous treatment of the exact nature of which he was ignorant. The disease had been present all the time during the last nine years, with



The organism present in the lesion of dermatitis coccidiosa.

periods of spontaneous improvement and periods of improvement following various lines of treatment, but without permanent result.

The physical examination showed a thin individual, rather under-nourished, a well-marked gastro-enteroptosis, slight hemoglobinemia (80 per cent.), and an eosinophilia of 7 per cent. Otherwise the findings were entirely negative, including the usual laboratory tests of urine and blood, including the Wassermann test. The right palm showed an area about two and a half inches square, near the base of the thumb, presenting a dry scaly condition of the skin, several deep, painful and tender linear cracks, with thick, hypertrophied edges. Beneath the thickened epithelium there shone through about a dozen deep-seated vesicles. Scattered about the lesion were also some superficial abscesses of very small size, and filled with greenish pus. Puncture of these abscesses proved them to be, microscopically, infections with the staphylococcus. The entire lesion was then cleaned with alcohol, and with a sterile safety-razor blade the thick tops of several of the deep-seated vesicles were shaved off. This allowed a clear straw-colored fluid to escape. This fluid, on being spread on a slide and stained with alkaline methylene-blue, revealed a few leucocytes and hundreds of organisms resembling the descriptions of human coccidiosis. They are illustrated in the accompanying drawing. The bodies varied in size from 5 to 25 microns in diameter, and showed a thick, doubly-contoured peripheral membrane. Within was a clear ectoplasm enclosing a granular endoplasm containing from two to ten or more small round bodies resembling spores of a sporozoite,

each containing a deeply-stained, pin-point nucleolus. In the center of the ring of endospores there was a deeply-staining granular nucleus. Some of the bodies contained only one large nucleus, others one large and one small, and others the ring of many described above.

A diagnosis of Dermatitis Coccidiosa was made, and a salve of 1 per cent. copper sulphate in lanolin and petrolatum was prescribed for local application. Internally potassium iodide in ascending doses was also given and hypodermic administration of emetine hydrochloride ½ grain every other day started. The therapeutic results were remarkable. In twenty-four hours the change was like magic and in five days the lesion was healed completely. It should be mentioned that each deep-seated vesicle was carefully laid open by shaving off the top with a sterile safety-razor blade before the patient was sent out of the office. He was again seen six weeks later and no recurrence had taken place and the lesion had entirely disappeared, the palm appearing perfectly normal like the other. He took altogether 3 injections of emetine, ½ grain each, and potassium iodide for about two weeks, attaining a dose of 23 drops t.i.d. at the time of suspending medication.

Comment.—The diagnosis was based on the finding of the protozoanlike organism in the clear fluid from the deep-seated vesicles. In the differential diagnosis other parasitic skin diseases were ruled out by the absence of different organisms. Syphilis was ruled out by the negative Wassermann test, absence of any signs of syphilis elsewhere, and failure of cure by antisyphilitic treatment which he had undoubtedly had, according to his story. None of the organisms showed the phenomenon of budding, so that it could not be classed with the blastomyces, while the clinical picture did not fit in with Darier's disease, Lupus vulgaris, palmar psoriasis, or chronic eczema.

In 1891, Wernicke reported a case with cutaneous lesions containing a large number of sporozoites, and up to 1896 it was the only case of protozoan-dermatitis reported, when Gilchrist reported two more cases observed at Johns Hopkins Hospital. These were fatal cases of generalized coccidiosis, including skin lesions, and the gross and microscopical pathology is beautifully described and illustrated. In 1904, Ophüls and Wolbach showed that the organism was not a protozoan sporozoite, but a yeast organism closely related to the blastomyces. The life cycle of the parasite was described by the latter in the same year. Lipsitz, in 1916, reported a case of fatal bronchopneumonia caused by the organism, and he agrees with Ophüls as to the probable classification of it with the blastomyces. A nodule from his case was cultured by Klenk on glycerin and plain agar, and in the older cultures aerial hyphae developed at the edges. The growth consisted of mycelial threads with club-shaped endings. Injection of material from these cultures into a guineapig produced subcutaneous nodules, and later abscesses containing many doubly-contoured bodies similar to those of the culture and those found in the patient's lesions. Lipsitz mentions that his patient was a heavy smoker. My patient was a cigarmaker, and rolled the tobacco with the palm of the hand involved.

Summary.—1. This case was one of a purely localized dermatitis for nine years, with periods of spontaneous improvement and exacerbations, and caused by a parasite resembling a protozoan sporozoite, in that it reproduces by endospore formation, but probably belongs to the hyphaemycetes, because it produces aerial hyphae in cultures.

2. It responded promptly and completely to local applications of 1 per cent. copper sulphate ointment and internal administration of potassium iodide with hypodermics of emetine hydrochloride.

REFERENCES.

Lipsitz: *Jour. A. M. A.*, April 29, 1916, p. 1365.
Wenyon: *Lancet*, Dec. 25, 1915.
Wenyon: *Lancet*, Dec. 11, 1915.
Dickson: *Arch. Int. Med.*, December, 1915, p. 1028.
Wernicke, J. D.: Microg, 1891, xv, 14. Centr. f. Bakt., 1892, xii, 861.
Posadas: *Rev. d. Chir.*, 1900, xxi, 277.
Ophüls: *Jour. Exp. Med.*, 1904, vi, 443.
Wolbach, J.: *Med Rec.*, December, 1904, p. 53.
Gilchrist: J. Hop. Hosp. Rep., 1896, p. 209.

4420 Clarendon Avenue.

FIVE RECENT BRONCHOSCOPIC AND ESOPHAGEAL CASES.

By JOSEPH EASTMAN SHEEHAN, M.D.,
NEW YORK.
INSTRUCTOR IN DISEASES OF NOSE AND THROAT IN THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL; ATTENDING EAR SURGEON TO ST. MARY'S HOSPITAL AND PORT JERVIS HOSPITAL, PORT JERVIS, N. Y.

QUITE twenty years have gone by since Killian of Germany demonstrated to the world the feasibility of removing a foreign body from a bronchus or the esophagus. Since that time it is very interesting to trace the growth of esophagobronchoscopy, particularly during the past eight years. Previous to this time the profession was reluctant to admit that the respiratory tube and the esophagus could be readily and safely examined. Before the introduction of esophagobronchoscopy the mortality of inhaled and swallowed foreign bodies was extremely high. A review of the literature amazes one, indeed, at the high mortality previous to the introduction of this new branch of surgery. Killian's demonstration was one of the great events in surgery. It has been the means of saving many lives.

Esophagobronchoscopy is not a dangerous procedure if performed by one who has an intimate knowledge of the throat, esophagus, and lungs, and is skilled in handling the instruments. Great gentleness is the watchword, along with untiring patience and manual dexterity. So many laryngologists have now acquired the art of bronchoscopy that accidents which formerly happened are indeed few. The accidents which now may occur are not usually due to any improper manipulation of the instruments, but depend more upon the nature, position, size, and length of time which the foreign body has been swallowed or inhaled. For example, the removal of a foreign body with a rounded surface, like a coin, from the esophagus, would be very much less dangerous than that of an open safety pin with the point upward. The removal of a pin deep down in one of the bronchi would be more dangerous than removing one higher up.

Nothing can be gained by hurrying in one's work. It must always be borne in mind that the patient is much safer with a foreign body in the esophagus or air passages than he would be if it were ruthlessly torn out. The great temptation after locating a foreign body is to grasp it immediately and remove it at all hazards. Rarely is it necessary to remove a foreign body immediately. It is always better to desist from any procedure

until the case has been thoroughly studied from all angles.

If performing bronchoscopy for diagnostic or therapeutic purposes in adults, the application of 10 per cent. solution of cocaine to the pharynx, base of the tongue, and larynx renders the patient quite tolerant of the instrumentation. This is also true of the removal of foreign bodies. It is well to give 0.016 of morphine sulphate hypodermically twenty minutes before the manipulation. This renders the patient less intolerable of cocaine and reduces its toxicity.

It is always desirable to use no anesthetic in children when removing foreign bodies from the esophagus or air passages, up to the eighth year. The determining factors whether ether is to be used will be the position, place, size, and nature of the foreign body.

Case I.—Catherine G., 7 years, Bayonne, N. J., was admitted to the Babies Ward of the Post-Graduate Hospital August 29, 1918, with a history of having swallowed a safety pin seven days previous. This was followed by sternal pain and fever. The pain continued for two days. There was no difficulty in swallowing fluids, but the intake of solid food would produce sternal pain. A roentgenogram taken by Dr. Meyer of the Post-Graduate Hospital, located the safety pin of medium size in the esophagus about the level of the bifurcation of the trachea, with its point perforating

1. 2. 3. 4.

Foreign bodies extracted from the esophagus and air passages.

the esophageal wall and directed downward, forward, and to the right. (See illustration, 1.)

August 31, 1918, under a very light ether anesthesia, an esophagoscopy was performed by me. I immediately came down on the foreign body, the location of which verified the roentgenogram. It had perforated the esophageal wall. The point of perforation looked angry and black and there was thrown around it an elevated mass of fibrin, nature's way of closing it. I manipulated the esophagoscope in such a way that the ring of the safety pin entered the tube. I then introduced a pair of Pfau forceps and it was an easy matter to extract it. A 10 per cent. solution of argyrol freshly prepared was painted over the site of the perforation. The child left the hospital within four days entirely well.

Case II.—Philip B., age 4 years, was admitted to the orthopedic ward of the Post-Graduate Hospital, July 16, 1918, with the following history. While playing on the floor the mother noticed the child put a pin in its mouth. This was immediately followed by violent coughing and gagging. The family physician was called and after examining the child saw the pin in the lower part of the throat. After several unsuccessful attempts at removal, he lost sight of the pin and sent the child to the hospital. A roentgenogram was made by Dr. Meyer of the Post-Graduate Hospital and located the pin, point upward, partly in the larynx and partly in the trachea. (See illustration, 2.) The afternoon of the same day I attempted to remove it by bronchoscopy, without an anesthetic. After passing the bronchoscope excessive secretions from the lungs filled the tube of the instrument to such a degree that its removal was necessary. This happened twice again. The child became so cyanosed, I desisted from any further manipulation that day.

The following day, under a very light ether anesthesia, I again bronchoscoped the little patient. After passing between the vocal cords and examining the upper part of the trachea, I was unsuccessful in locating the pin. I now performed a lower bronchoscopy and was immediately rewarded. The pin had travelled down to the bifurcation of the trachea, lying crosswise to the tube over the bridge. After cleaning out the tube very carefully and mopping all secretions from the area surrounding the pin, I grasped the head of it with a pair of Jackson forceps and removed the pin with ease.

Case III.—James L., South Orange, N. J., consulted me July 10, 1918, giving the following history. Two days previously, while hanging curtains, having in his mouth several eyescrews, he suddenly slipped and fell from a ladder about three feet high. He knew he had swallowed one of the screws, as he complained of difficulty in breathing, sternal pain, and a persistent cough, which kept him awake at night. These symptoms immediately followed the fall.

I anesthetized his pharynx, base of the tongue, and larynx with a 10 per cent. solution of cocaine. Twenty minutes before the bronchoscopy, morphine sulphate 0.016 was given hypodermatically. Upper bronchoscopy revealed nothing. After a lower exploration, the screw eye could be seen almost choking the entrance of the right bronchus. I grasped it with a long pair of Jackson forceps and removed tube, forceps, and screw together. (See illustration, 3.)

Case IV.—Mary L., eight years of age, was referred to me September 10, 1918, having swallowed a safety pin. The child insisted that the pin was sticking into her throat. Without an anesthetic she was placed in Jackson's "low head" position and a medium size laryngoscope was inserted. The safety pin which was of a large size could be seen with its point entering the esophagus. (See illustration, 4.) With a pair of straight throat forceps it was easily removed.

Case V.—Ida B., age 28, an idiot, was admitted to the ward of the Post-Graduate Hospital with the statement that she had swallowed a fish bone four days previous. She was emaciated and in great pain as she could swallow neither food nor fluids. She was taken to the operating room the following day and esophagoscoped by me. She was placed in the Killian supine position and Brünning tubes were used.

After examining the upper esophagus very carefully, as I pushed the tube toward the stomach, with great satisfaction located the bone well down the esophagus, a little above the hiatus. The esophageal wall was somewhat lacerated in this area and looked ugly. After passing my grasping forceps through the tube, I lost sight of the bone. Repeated attempts by myself and others resulted in failure. The lacerated wall was then painted with a freshly prepared 10 per cent. argyrol solution.

The next day the patient was greatly improved and although she was able to swallow light food and fluids, I again esophagoscoped her. Again I failed to locate the foreign body. Undoubtedly in our first manipulation we pushed it along into the stomach. The walls were again painted with a 10 per cent. solution of argyrol.

For four days after she was given 0.26 crystals of argyrol in water three times daily. She left the hospital entirely well after the fifth day.

24 East Forty-eighth Street.

Unilateral Gynecomasty after Injury to the Testicle.—Anert and Declety relate the following curiosity of medicine: A soldier, aged 25, was wounded in the scrotum in October, 1917. In the following March he was found to have a right breast agreeing in all respects with that of a young girl at the beginning of puberty. Investigation showed that the right testicle had been involved in the injury. Such behavior has been known to follow only mild lesions of the testis—never severe traumatism or total destruction or castration. The precise mechanism cannot be comprehended but both the nervous and endocrinic systems must be involved.—*La Presse Médicale.*

Medicolegal Notes.

Vaccination of School Children.—Certain infant complainants brought suit to enjoin the authorities, including the local board of health of Granite City, Ill., from preventing the complainants from attending the public schools unless they were first vaccinated, according to a resolution adopted by the board of health. When the resolution was passed and enforced smallpox was epidemic in Granite City.

The question of the right to require school children to be vaccinated as a prerequisite to their admission to the public schools has met with frequent discussion in the various jurisdictions of this country. There is a manifest lack of uniformity in the decisions of the courts. In Illinois the rule is firmly established that school directors and boards of education have no authority to exclude children from the public schools on the ground simply that they refuse to be vaccinated, unless in cases of emergency, in the exercise of the police power, it is necessary or reasonably appears to be necessary to prevent the contagion of smallpox.

But in cases where there is an epidemic of smallpox the exact question here raised seems never to have been passed on directly by the Illinois Supreme Court. It is not a new one, however, in other jurisdictions having similar health laws. The courts are practically a unit in holding that in the event of a present or threatened epidemic such rules and regulations as are now under consideration are reasonable and should be upheld; and such has been the rule in states where there has been no express authority requiring vaccination. Where smallpox is epidemic, it is not a necessary prerequisite to requiring vaccination that pupils have been personally exposed. It has been held in some jurisdictions (including Kentucky, Minnesota and Utah), that even without specific authority from the Legislature or city council, local boards having control of schools or of the general care of the public health are justified by the existence of the emergency in making vaccination a condition for admission to the public schools. The Illinois Supreme Court, in Potts v. Breen, 167 Ill. 67, 47 N. E. 81, 39 L. N. A. 152, 59 Am. St. Rep. 262, while making no direct decision upon the point, recognized the rule that in cases of emergency, when necessary or apparently necessary to prevent the spread of smallpox and preserve the public health, pupils may be temporarily excluded from the public schools unless they are properly vaccinated or have had smallpox.

The resolution of the board of health was held reasonable in view of the fact that smallpox was epidemic. The board had ample statutory authority to pass the resolution. It was not a permanent rule or law, but a mere temporary order set in force for a limited time (two weeks), as a means of stamping out the disease and preventing its spread. No one was compelled to be vaccinated. The simple effect of the order was that no child could enter the school unless vaccinated while the rule was in force. As it was the duty of the board of health to enforce such reasonable rules and regulations as would stamp out the epidemic and promote the public health and the resolution seemed well calculated to accomplish that purpose, and as a public necessity existed for such action, the board of health must be held to have acted legally in passing the resolution and the school board in enforcing it and requiring vaccination as a condition to pupils entering the schools. The exercise of such authority by the board of health and the school board finds ample authority in the police power of the state when such a necessity arises, as is shown in this case, and no constitutional rights of the children were violated. No child has a constitutional right to carry to others in school the loathsome disease of smallpox. Vaccination is now recognized as the only safe prevention of its spread. It is approved by medical science generally, and by governmental authorities throughout the civilized world. In many countries compulsory vaccination has become the settled policy of the state, and our own country has adopted it as one of the preliminary requisites to military service. A child infected with smallpox may communicate the disease to hundreds of others, and the disastrous results therefrom are incalculable. Where smallpox is epidemic, and a large number of cases are actually existing in a city, or community, no one can tell at what moment some person may become exposed and break out with the disease. By the teaching of the best medical authorities, a person who has been thoroughly and successfully vaccinated will be entirely immune from the disease, or put in such condition that if he should contract the disease it would only be in the very mild form commonly known as varioloid, which rarely causes scarring or fatal results. In other words, the result of vaccination, according to such authorities, is not only the arrest of the spreading of the disease, but the prevention of fatalities among those who are actually exposed to the disease, and who contract it in its mildest form. While, on the other hand, it is true that occasionally very disastrous results happen from the use of impure vaccine, and there are many people, for that or other reasons, who resist, and (the court holds) have the right to resist, compulsory vaccination of their children except in cases of necessity, yet they have no right to insist on their children continuing in school and mixing in large congregations without obeying such requirements when smallpox is epidemic in the community, and such children, perhaps, have been exposed to it. The right to enjoy school and other privileges, recognized by our law, must be so used and enjoyed as not to expose other people unnecessarily to dangerous diseases or contagions. The police power is broad enough to protect all citizens against such exposure, and it is not an unreasonable requirement to prevent children from having the benefits of school unless vaccinated, etc., under such conditions as existed in Granite City, when the resolution of the board of health was passed, and particularly when such exclusion was only for two weeks, and with the privilege to the children to remain unvaccinated by remaining out of school for such time.—Hagler v. Larner, Illinois Supreme Court, 120 N. E., 575.

Expert Evidence—Smoking Opium.—In a prosecution for illegally manufacturing smoking opium an expert chemist and analyst employed by the Commissioner of Inland Revenue was permitted to testify as to the manner by which Chinese smoking opium could be distinguished from domestic opium, as to the average morphine content of imported smoking opium, and as to the average morphine content of domestic smoking opium; that where gum opium is manufactured into smoking opium the morphine content is increased from 50 to 100 per cent. and that the smoking opium analysis made by the witness was made of domestic gum opium, and not of opium made in a foreign country.—Lee Mow Lin v. United States, C. C. A., 250 Fed. 694.

Insanity as a Defense in Criminal Cases.—One charged with homicide testified that he had been drugged and robbed by the deceased a few days before the allege homicide, and that he was unconscious of any act that he did from the time he was so drugged and robbed until after the homicide, when he found himself in jail. The West Virginia Supreme Court of Appeals held that there was evidence tending to support the defense of insanity at the time of the commission of the homicide, and an instruction presenting this evidence to the jury should have been given. The court said that it might be that the defendant's conduct was entirely inconsistent with his contention; but since a party accused of crime is permitted to testify in his own behalf, the jury alone must say what faith should be given to his statements. The court followed what is known as the right and wrong test, or the ability to distinguish between right and wrong. This rule is very satisfactorily stated in the leading English case known as McNaghten's Case, where it was said, in regard to the effect of insanity as affecting responsibility in criminal matters, that the jurors ought to be told in all cases that every man is presumed to be sane, and to possess a sufficient degree of reason to be responsible for his crimes, until the contrary be proved to their satisfaction. To establish a defense on the ground of insanity, it must be clearly proved that, at the time of committing the act, the party accused was laboring under such a defect of reason, from disease of the mind, as not to know the nature and quality of the act he was doing; or, if he did know, that he did not know he was doing what was wrong. Failure to give the instruction was held reversible error.—State v. Alie, 96 S. E. 1011.

Military Medicine.

AVITAMINOSES IN THE ARMY.

Bruntz and Spillman, writing in *Le Progrès Médical* for January 11, consider this subject very exhaustively. By controlling clinical experience with feeding experiments on animals important discoveries seem to be in the making. Thus it may be possible to bring trench foot under the rubric of a deficiency disease. The subject matter is considered under eight heads. The first section deals with generalities in connection with vitamines, and contains nothing new. The quantity necessary for life may be infinitesimal, but since a certain amount of sterilization will destroy them the most abundant and best balanced ration could be denatured by excessive cooking and preserving processes. Artificially prepared vitaminiferous substances quickly suffice to remedy the deficiency diseases, and are therefore of diagnostic value. The authors mention but two types of deficiency disease, viz., scurvy and beriberi. Such simple and available remedies as beer yeast and lemon juice suffice to make good the severest types of deficiency.

The second section is devoted to the richness of the soldiers' rations in vitamines. These comprise fresh, frozen, tinned, and preserved meats and fish, bread, vegetables, fats, coffee, wine, etc. Which of these foods are vitaminiferous? Meats, both fresh and frozen, breads not made of white flour, potatoes, lentils and lima beans, and new wine. Which are free from vitamines? All tinned, smoked, and salted provisions, sterile milk, and decorticated grains of any kind. The effects of heat must now be added. Foods apt to be damaged by overcooking are roasted and boiled meats and beans, etc. Anything cooked to a crust, whether meat, bread, or vegetable, is damaged as to its vitamine content. Since it is extremely difficult to draw a line here, underdone food, when digestible, must have precedence. The men who have been fed for days on preserved foods rush with avidity upon raw carrots and turnips and unripe fruit when nothing else avails. No scruples stop them in this quest. There is also an instinctive repugnance to foods which contain no vitamines, such as decorticated rice. This is so common as to suggest a physiological defense reaction.

The third subject for consideration is clinical avitaminosis, but this is quickly dismissed because all are familiar with the phenomena of scurvy, Barlow's disease, beriberi, and pellagra. Next to be considered is experimental avitaminosis. No original work is mentioned, but there is a résumé of the recent finds of Weill and Mouriquand. It is demonstrable that two types of deficiency disease can be genorated in the same animal at the same time, and this has also been confirmed in human pathology, as cases of associated scurvy and beriberi have been reported.

The fifth section is devoted to the relationship between trench foot and deficiency in vitamines. Certain factors in the genesis of the former are cold and moisture, compression, maceration, neuritis, infection, etc. Interest centers around the element of neuritis—one whose activity seems assured. This is recognizable in animal experiment in which it is able to cause edema. Mild neuritis may also exist without trench foot. The cause of the neuritis is evidently internal, and to a large extent the latter may be regarded as the parent lesion, the others being contributory. The differential diagnosis between trench foot and simple frostbite has long been possible, and different degrees of cold are required to produce the two. Trench foot has been seen outside of the trenches. There is some evidence to show that rice-eating Arabs suffered more promptly and severely than Europeans on regular rations. Trench foot has actually been seen in the warm months, and could then be readily explained by diet. The Japanese had peripheral neuritis before Mukden, which was, of course, frankly called beriberi. The relation of trench foot and edema from underfeeding has not yet been traced.

Sixth, the authors consider all of the war maladies which could possibly be classed as wholly or in part avitaminoses. There are many such, some local and others constitutional, which yield to treatment with vitaminiferous foods. To include everything which is benefited by the lactovegetarian regimen is, however, to go too far. Under the seventh head, prevention, the authors say that the two localities to be kept under observation constantly are the buccal cavity and the feet, while at the same time the diet must be carefully supervised both as to content and degree of cooking. Under actual treatment, the extracts which contain vitamines from whole rice, etc., and foods rich in the same, should be given. Finally, the authors assert that they have not the least doubt that trench foot is essentially an avitaminosis.

Announcement of the Volunteer Medical Service Corps.—The Council of National Defense has sent to each physician in the United States, exclusive of those who served in the Medical Corps of the Army for the past two years, and members of the Voluntary Medical Service Corps, a communication requesting that he fill out and return promptly to the Washington office an accompanying questionnaire, so that there might be on file in Washington complete individual information covering the members of the profession. Simultaneously with the distribution of these questionnaires, State and county representatives of the Voluntary Medical Service Corps were instructed to urge all doctors in their communities to comply promptly with the request of the Council to fill out and forward promptly to Washington the blanks sent them, and to advise those who by any chance failed to receive blanks to communicate with the Council of National Defense at once in order that application blanks might be furnished them. These records, upon their completion, will be transferred to the Surgeon General's Library, where they will be kept up to date by a force assigned for the purpose, and be accessible to all government bureaus. Every physician is requested to cooperate with the Council on National Defense in making this record complete.

To Consolidate Care of Wounded Soldiers.—A bill introduced into the Senate on February 18 by the Senate Building Committee provides for a consolidation of the work of caring for incapacitated soldiers under the Public Health Service and the War Risk Insurance Bureau, with army hospitals

turned over to the Public Health Service as needed. This consolidation can be arranged for so as to provide for 19,000 patients at a cost of $7,100,000, whereas, with authority for the work divided, buildings and equipment for the care of 5,000 patients would cost $12,000,000. Delivery to the Public Health Service of the Chicago Speedway Hospital was provided for upon the payment of $2,500,000 to the contractors. This hospital was started last summer, with the expectation that the War Department would pay this sum, but the contract was never approved by the department. The bill also provides an appropriation of $1,500,000 for the construction of a hospital at Dawson Springs, Ky., on a site donated to the government; $900,000 for the construction of a new hospital at Norfolk, and $190,000 for extending the hospital facilities at Stapleton, S. I.

Health of Home Troops Good.—A report issued by the Surgeon General's office under date of February 21 states that there were no epidemics in home camps during the week of February 14. There are in the camps only scattering cases of influenza.

War Community Service for Convalescent Officers.—The New York War Camp Community Service announces that a Convalescent Bureau has been opened at Madison Avenue and Forty-fourth Street the object of which is to offer to any officer of the United States Army, Navy, or Marine Corps, on furlough, or after discharge from the service, every facility for rest and recuperation in the country. Hospitality is offered in private homes at moderate prices, and special rates have been secured at out-of-town hotels and country clubs.

Captain Gouverneur M. Phelps, M. C., U. S. Army, of New York, who has worked on all battle fronts except the Italian, arrived home recently on the transport *Meraukee.*

Officers of Post-Graduate Unit Arrive.—Officers of the Post-Graduate Hospital Unit of New York, which left this city in August, 1917, returned on the *Manchuria,* on February 22. Among those aboard the vessel were Major James A. Martin, Major John Connors, Captain P. Knapp, and Lieut. James T. Sullivan. Lt.-Col. Samuel Lloyd, who was in command of the unit, is still in France. These officers report that at the hospital at Savenay they cared for about 67,000 men, about nine-tenths of whom were suffering from wounds.

Influenza Epidemic on Transport.—The transport *Manchuria,* arriving in New York on February 22, had aboard 4,248 returning soldiers when it left Brest. Two days after sailing an epidemic of influenza appeared, and 168 men came down with the disease, 24 of them developing pneumonia, and four died.

Death Rate in Army from Battle and Disease.—Statistics recently made public by General March, and prepared by the General Staff, reveal the fact that the battle death rates during the war exceeded the death rate from disease. The battle death rate for the entire American army in this war was 20 per thousand per year. In the Expeditionary Forces it was 57 per thousand per year. The disease death rate was 17 per thousand per year in the Expeditionary Forces and 16 in the army at home. This table shows that the battle death rate among the American forces was only half that of the British Expeditionary Forces, which is given as 110 per thousand per year. General March, in commenting on these death rates, expresses the belief that the decreased death rate from disease was due first to the inoculations, and second to the efficient work of the medical corps. Had it not been for the influenza epidemic the disease death rate would have been only half what it was.

Illness Among the Troops at Brest.—In a recent report to the Senate Military Committee, Major Samuel W. Ellsworth of the Medical Corps, who has recently returned from France, stated that many returning American soldiers were dying of disease at the debarkation camp at Brest after coming from the front line in good condition. He attributes this high mortality to the unsanitary condition of the camp, due to damp weather and overcrowding. United States Senator Robert L. Owens, who has just returned from France, has declared his intention of urging Secretary Baker to take action looking to the relief of these conditions immediately.

Deaths in the Service.—Capt. Thomas Hundley Seay, M. C., U. S. Army, of Laurel, Miss., a graduate of the University of Nashville, Tenn., in 1906, a member of the State Board of Health, on duty at Fort Oglethorpe until his discharge from the service a short time ago, died at his home from pneumonia following influenza, on January 15, aged 36 years.

Lieut. William John Davison, M. C., U. S. Army, of New Castle, Pa., a graduate of the Medico-Chirurgical College of Philadelphia, in 1905, on duty at Debarkation Hospital No. 3, New York City, died there recently from pneumonia at the age of 35 years.

Lieut. Edward Lewis Rochfort, M. C., U. S. Army, of New York City, a graduate of the Medical Department of Yale University, in 1912, an instructor in the United States Government Neurological School No. 1, New York City, died of influenza in that institution on January 26, aged 28 years.

Major Albert George Bising, M. C., U. S. Army, of Weehawken, N. J., a graduate of the College of Physicians and Surgeons, New York, in 1896, on duty with the American Expeditionary Forces in France, died from pneumonia in Toul, France, on November 2, aged 48 years.

Capt. Samuel McAllister Mauney, M. C., U. S. Army, of Earl, Ark., a graduate of the University of Tennessee, Nashville, in 1914, on duty with the American Expeditionary Forces in France, died at Nantes, France, on November 1, 1918, from pneumonia, aged 27 years.

Lieut. Charles Arthur Robertson, M. C., U. S. Army, of Hopkinsville, Ky., a graduate of Vanderbilt University, Nashville, Tenn., in 1917, aged 24 years, on duty with the American Expeditionary Forces in France, died on November 14 from lobar pneumonia following wounds received in action.

Lieut. Albert Marinus Larson, M. C., U. S. Army, of Jasper, Minn., a graduate of the University of Minnesota, in 1917, aged 29 years, on duty with the American Expeditionary Forces, died in American Red Cross Military Hospital No. 24, Moseley Hill, Liverpool, England, on October 13, 1918, from pneumonia.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, March 1, 1919.

ACUTE DILATATION OF THE STOMACH.

THE earliest authoritative account of this condition in English was published by Fagge in 1873. Previously, cases had been reported by Rokitanski, in 1842; by Miller and Humby, in 1853; by Bennett, in 1856, and by Wilks, in 1857. Campbell Thomson, in 1902, published an analysis of forty-four cases collected from the literature. Since then there have been a moderate number of cases reported in various parts of the world, especially in France, Germany, and America; yet the condition has been regarded as very rare. However, it is not likely that the condition is nearly so rare as the meager reports to be found in the literature would make one believe; rather it is likely that the condition is not recognized, and that many patients have been considered to have died from postoperative "shock" or from intestinal obstruction, when the actual pathological condition was acute dilatation of the stomach.

Doolin, who has seen two cases of acute dilatation of the stomach, contributed a very valuable article on this subject to the *British Journal of Surgery* for July, 1918. In this he refers to the very meager amount of information to be obtained from the textbooks, especially as to what he finds the most successful method of treatment. His article is based upon the reports of 188 cases which he succeeded in collating from various sources. Of these 188 cases, 133 (nearly 69 per cent.) occurred after operation, and fifty-five without any previous operative interference. As Doolin says, the postoperative group is of exceeding interest. The condition followed abdominal operations in ninety-six cases, of which forty were gynecological, twenty followed operations on the gall-bladder, eighteen followed operations on the stomach and duodenum, eleven followed appendectomy, and five followed herniotomy. Of the extraabdominal operations, seven were upon the kidney, six upon the thorax, thirteen upon the extremities, and one upon the face. Apparently in twelve of the reports the site of operation was not stated.

In the nonoperative group acute dilatation occurred under many conditions. In a fairly large number of cases it followed the ingestion of large quantities of food; while in ten cases it was associated with spinal deformity. It has also occurred in the course of long continued fevers, such as typhoid, or of acute infectious diseases, such as pneumonia. Among other less commonly associated conditions there are mentioned phthisis, injury to the abdominal wall, and confinement. Finally, there was an extremely remarkable group where acute gastric dilatation arose suddenly in perfect health, without any explanation whatever; in one case the condition started "in a hearty laugh."

Doolin finds that over 60 per cent. of the cases occurred in women; that it may occur at any age, but is most frequent between the ages of twenty and forty; that the youngest case was that of a breast-fed infant nine months old; and that the oldest case was that of a man of eighty-six, who was admitted to the hospital for intracapsular fracture of the neck of the femur, and who died within half an hour after taking a glass of milk, the diagnosis in the latter case being made at autopsy. After a study of the various hypotheses as to the causation of acute dilatation—and we may say, in passing, that the etiology of acute gastric distention is still shrouded in mystery, Doolin takes up at considerable length the symptoms, post-mortem appearances, prognosis, and treatment. He finds that the most prominent symptoms are vomiting, distention of the abdomen, and collapse; others being pain in the epigastrium, tenderness over the distended stomach, respiratory embarrassment, visible peristalsis, thirst, and scanty urine. The bowels may be loose or constipated. The initial symptom, as a rule, is epigastric pain. Vomiting occurs early in over 90 per cent. of the cases, but gives no relief. As the author says, "The fluid seems to well up, frequently accompanied by volumes of gas." The vomitus is watery, at first yellow or green, due to the admixture with bile, later dark brown or black, due to the admixture with blood. The vomitus may be of sour offensive odor, but is never feculent; and the quantity is often amazing. Distention develops rapidly; is manifest first in the epigastrium and gradually extends downward to and beyond the umbilicus, in some cases reaching even to Poupart's ligament. The distended stomach occupies the *left* side of the abdomen, the right side being very little affected. Pain varies in severity, but is exacerbated by the occurrence of visible peristalsis, the patient sometimes screaming aloud with the intensity of the cramping, vise-like pain. Pain is rarely altogether absent. Thirst seems to be a very constant symptom, and is sometimes so great as to be almost unbearable, in spite of infusions, enemata, or drinking. The enormous amount of fluid that is expelled from the stomach accounts for the scantiness of the urine, which may amount to almost total suppression. There is no particular rise in pulse rate or temperature in the early stages. Later there is always rise in pulse rate, but still without any rise in temperature. Respiration rate increases proportionately with the embarrassment due to pressure up through the diaphragm. Hiccough is an uncommon symptom. A few other uncommon symp-

toms, such as dilatation of the superficial abdominal veins, are mentioned.

In discussing the prognosis and treatment, Doolin calls attention to the fact that an acutely dilated stomach manifests little or no tendency to spontaneous cure, and remarks that practically all the untreated or unrecognized cases terminated fatally. During the past ten years there has been an improving prognosis, due to the adoption of better methods of treatment. Thus, statistics compiled in 1907 showed a mortality of 72 per cent.; in 1908, of 63 per cent.; in 1913, of 54 per cent. There are four methods of treatment; and, as Doolin says, "We get a truer perception of the patient's chances if we analyze the mortality of the various methods of treatment adopted:

1. Of 31 cases treated medically, 29 died.....93%
2. Of 29 cases treated by operation, 21 died.....72%
3. Of 54 cases treated by lavage, 25 died, nearly.....50%
4. Of 30 cases treated by posture, 2 died, nearly..... 7%

Thus, of 114 cases where postural treatment was not carried out, seventy-five died, giving a combined mortality of 65 per cent; whereas in the thirty cases where postural treatment was adopted, the mortality is reduced with a jump to below 7 per cent."

Since practically nothing is to be expected from purely medical treatment, it is idle to discuss it. Regarding purely surgical treatment, Doolin finds that five different procedures were carried out with the following results: Gastrotomy, with evacuation of the contents of the dilated viscus, was carried out in six patients with five deaths; gastrostomy was employed on seven patients with six deaths; gastroenterostomy was carried out seven times with four deaths; jejunostomy was fatal in the one case tried; exploratory laparotomy was performed eight times and the dilated stomach emptied by tube or manual compression, with five deaths. The statistics of the treatment by lavage have already been given. Regarding postural treatment, attention is called to the fact that the adoption of the prone position was first recommended by Schnitzler of Vienna in 1895. The technique is as follows: "The method is simplicity itself: the patient is turned over on the abdomen, with a large pillow beneath the pelvis, and the foot of the bed elevated; thereby the fluid which has collected in the lowest portion of the stomach is displaced upward by gravity; the fluid is then more easily evacuated out of the stomach, and relief is given from the downward drag of the loaded stomach on the intestine: the essential feature of this position is the relief it affords from the mechanical obstruction of the duodenum." Researches on experimental ileus have shown the importance of the earliest possible replacement by saline solution of the tissue fluid lost by vomiting; hence Doolin recommends, in addition to the early use of the tube and prone position, the free injection of saline solution in these cases of acute gastric dilatation. With earlier recognition of the condition and the routine employment of the above resources, the mortality of acute gastric distention should be markedly decreased.

CARDIAC COMPLICATIONS OF INFLUENZA.

Influenza when in a virulent form, or, perhaps, it may be more correct to say when the disease is complicated with pneumonia, almost inevitably involves the heart. Consequently, when a medical man is called in to treat influenzal pneumonia he adopts frequently a routine treatment of stimulating the heart. What then are the cardiac complications of influenza and to what are they due?

Sir James Mackenzie deals with the question in the *Practitioner* for January, 1919, and states that the cardiovascular phenomena in serious cases are the same as in other severe cases of infection. The picture of an individual suffering from a severe attack of influenza complicated by pneumonia is not really one of heart disease, but of intense intoxication of the cardiac system. The reason why Mackenzie refers to this general intoxication as being the true source of danger is that in treatment, when the diagnosis seems to point to a particular organ as at fault, remedies are all directed to that organ, and it is often stated that the patient died of heart failure, in spite of energetic therapeutic treatment. As a matter of fact, it may be gathered from the post-mortem study of the heart in such cases that the myocardium is so extensively damaged that it is useless to inject strychnine, caffeine, or oil of camphor. Mackenzie holds that these drugs are incapable of affecting the heart in health, let alone when in the grip of a severe poison, and for this reason, he holds, drugs of the digitalis group are also useless. Moreover, Mackenzie says that he has never seen any case of influenza in which damage was limited to the heart alone, such as occurs in rheumatic fever. In the treatment of severe cases he says there are no remedies of value so far as the heart is concerned, and the only hope is to employ such aids as will tide the patient over a serious crisis. If the patient is the host of some microbe, the treatment should be devoted to increasing his power of resistance. If he is poisoned, treatment should be devoted to the elimination of the poison. Should certain tissues be injured, then treatment should be devoted to their healthy renewal.

As for exercise in heart affections, Mackenzie points out that there is a notion deeply rooted that, if there is anything wrong with the heart, the patient must be restricted in the amount of effort. He, on the contrary, recommends gentle exercise, out of door exercise, as soon as possible after the fever has subsided. In advising this course, he wishes to improve the mental outlook of the patient as well as better his physical condition. In order to brace up the spirits of those suffering from cardiac disability following influenza, exercise of a pleasurable kind or occupation of an interesting nature is recommended. The notable feature of the paper is that in the opinion of this great authority on heart disease cardiac stimulants are of no avail in the treatment of severe influenza. This conflicts with the views of many, and probably the advice not to treat the heart symptoms by themselves will not be widely followed.

HYDATID CYSTS OF THE URINARY BLADDER.

Hydatid cysts of the urinary bladder coexist frequently with cysts of the same nature in other viscera. They have been known to attain the size of an apple or even larger, in one instance the cyst extending upwards above the umbilicus. Their rounded shape, smooth surface and contents do not differentiate them from hydatid cysts of other structures and they invariably contract rather close adhesions with the surrounding organs which they compress. Among the organs involved in cases of hydatid cyst of the bladder the rectum comes in for the largest share, and like the bladder, its functions are interfered with and this may afford the first clinical evidences of the presence of a growth in the pelvis. The majority of writers on this subject agree in the belief that these cysts are more prone to develop in subperitoneal connective tissue surrounding the bladder, but Legueu maintains that in one case the cyst had an extraperitoneal development.

These cysts develop slowly and as they increase in volume they decorticate the serous membrane and become intimately adherent to the walls of the bladder. Occasionally the adhesions are so intimate that one might be led to suspect that the cyst originated within the bladder, but the requisite condition for proving an intravesical origin must be the presence of muscular fibers of the same type as those of the bladder on the internal aspect of the cyst.

The onset of these cysts is generally insidious and disturbances in micturition are the first clinical manifestations of the process. These consist of frequency and difficulty in voiding urine, while complete retention may also arise. Rectal disturbances, such as difficult defecation or constipation do not usually arise in the early stages of development of the cyst. A sensation of weight in the perineum is most usually complained of and an examination will reveal a rounded, smooth tumor with little mobility on account of adhesions with the surrounding structures. When a catheter can be passed an obstacle will at once be detected in the region of the prostate, but when the instrument cannot be made to enter the bladder, which has been known to occur in some instances, the diagnosis may offer considerable difficulty. Hydatid thrill and exploratory puncture will prove the true nature of the tumor. After the cyst has attained a certain size all the symptoms to which it gives rise become more accentuated. Constipation increases, pain becomes more prominent, and the urine is voided in various ways, sometimes by an exaggerated pollakiuria. Autopsies have revealed dilatation of the ureters and renal pelvis, as might be expected, and this, of course, darkens the prognosis which depends very largely upon the patient's general state of health.

Treatment is naturally strictly surgical and the abdominal route should be selected as the only rational approach to the cyst, although in the case of very small cysts some operators select the perineal route.

Nature of Amaurosis from Quinine Synthetics.

Ocular troubles from quinine have never been regarded seriously in ordinary medical practice, and doubtless not a few practitioners are unaware of their existence, despite the large literature of quinine amaurosis. It is otherwise with the quinine-copper synthetic known as ethylhydrocupreine. When the latter is given to pneumonia patients serious eye troubles are looked upon as a frequent and unpleasant complication. Many ophthalmologists have reported cases of this accident. In an article in the *Correspondenz-Blatt fuer Schweizer Aerzte* for November 16, Ujiie, pathological anatomist in the University of Basle, was fortunate enough to obtain an autopsy specimen of the eye. The patient was a ten-year-old girl with pneumococcus peritonitis, who was operated upon in vain. Death occurred from lung complication, with full amaurosis. A complete histological study was made with controls in the shape of eyes from pneumonic patients who had been treated with this drug without the supervention of eye troubles. The retina was the seat of edema and vacuole formation, with swelling and beginning degeneration of the nerve fibers and medullary sheaths in the opticus. The technique of the author was defective in one respect—he did not use the Marchi method; but Uhthoff's experience, in which this method was employed, gave the same finds. The conclusion is that in certain patients receiving ethylhydrocupreine in quite large doses the retina and optic nerve may be structurally damaged. Recovery or permanent injury may result from these changes.

Yersin's Bacillus and Influenza.

That carelessness on the part of even the most estimable bacteriologists may be responsible for erroneous and dangerous mental states on the part of both profession and public, well appears from an editorial in *El Siglo Medico* for November 2. One of the most distinguished bacteriologists in Spain in the course of a report of his finds in a study of the bacterial flora of influenza chanced to mention incidentally the presence in some specimens of a bacillus which presented certain morphological analogies with the bacillus of Yersin, otherwise of pneumonic plague. Such statements are common among bacteriologists' reports, and the mere fact of similarity never connotes identity. But this casual mention started a panic of such extent and intensity that Ramon y Cajal, at present chief of Alfonzo XIII Institute, was summoned to investigate and report on the nature of the germ in question. The latter, after preliminary studies, was pronounced to be something other than Yersin's bacillus. Cultures submitted by Dr. Maldonado were not cultures of the latter. The unknown organism did not range itself among those which produce a hemorrhagic sepsis or pasteurellosis and hence could not be regarded as a congener of the Yersin type. Finally, to end the matter once for all, it was proved to be a saprophyte of no pathogenic power. These facts were quite sufficient to close the incident, but the occurrence of the panic itself shows the weakness of the human mind in being made so jumpy by the unknown.

News of the Week.

The Roades Prize of the American Laryngological Association, amounting to $200, is offered this year in general competition for the best thesis upon some subject directly connected with Laryngology or Rhinology. Papers must be in the hands of the Secretary, Dr. D. Bryson Delavan, 40 East 41st Street, N. Y. City, prior to June 1st.

A Dinner in Honor of Dr. Caroline M. Purnell of Philadelphia will be given Saturday evening, March 8, 1919, at the Hotel McAlpin, New York City, by the American Women's Hospitals, whose commissioner in France she has been for the past five months. The American Women's Hospitals, besides its own hospitals in France, at Luzancy and La Ferté-Milon, which are staffed entirely by women physicians and dentists from its own membership, has also had almost one hundred of its members doing medical and surgical work under the American Red Cross in France, Italy, Serbia, and Palestine, and is now supplying medical women for the American Committee for Relief in the near East, six physicians having recently sailed to take charge of hospitals in Turkey and Asia Minor.

X-Ray Class for Women.—An *x*-ray school for women has been opened at Hunter College, New York City. The course will last from two to three months, and consists of dark-room technique, regulation of *x*-ray tubes, principles of machinery, placing of patients for various roentgenographs, making the exposure, etc. This is the first college to give systematic training in the technique of radiography.

Second Epidemic of Influenza at Sing Sing.—A new epidemic of influenza has appeared among the prisoners of Sing Sing Prison. The twenty-five prisoners who are ill with the disease have been isolated. During the former epidemic there were 90 cases of influenza in the prison, but, though several of these developed pneumonia, no cases resulted fatally.

Typhus Epidemic Rages in Moscow.—The State Department at Washington has received information that a party of French, British, Belgian, Italian, and American relief workers returning from Moscow to Stockholm, report that a frightful epidemic of typhus is raging in Moscow. There are said to be a thousand new cases of typhus in Moscow weekly, and the hospitals are overcrowded and unable to care for the patients.

Influenza Still Prevalent in Paris.—A report from Paris, under date of February 18, states that there is a marked increase in the number of cases of influenza reported for that week. The number of deaths from the disease for the three weeks ended on February 18 was 284,370, and 550, respectively.

Joint Influenza Committee.—The Department of Commerce, Bureau of the Census, Washington, D. C., announces that a Joint Influenza Committee has just been created to study the epidemic and to make comparable, so far as possible, the influenza data gathered by the Government departments. The members of this committee as designated by the Surgeon General of the Army, the Surgeon General of the Navy, the Surgeon General of the Public Health Service, and the Director of the Census are: Dr. William H. Davis, chairman, and Mr. C. S. Sloane, representing the Bureau of the Census; Dr. Wade H. Frost and Mr. Edgar Sydenstricker, of the Public Health Service; Colonel D. C. Howard, Colonel F. F. Russell, and Lieutenant-Colonel A. G. Love, United States Army; Lieutenant-Commander J. R. Phelps and Surgeon Carroll Fox, United States Navy.

London Physicians Form a Business Union.—A despatch to the New York *Sun* states that, in view of the impending establishment of the Ministry of Health and its consequent effect on the medical profession, a meeting of some London physicians, both men and women was held on February 23 and by a vote of 207 to 30 adopted a resolution favoring the immediate organization of the profession on a trade union basis.

Opposed to Prohibition.—At a meeting of the Medical Society of the County of New York, held on Monday evening of this week, a resolution was adopted by a large majority condemning the hasty ratification by the State Legislature of the constitutional amendment establishing prohibition.

Red Cross Unit for Poland.—The first contingent of the American Red Cross Commission for Poland left Paris on February 20. A second group followed two days later. The commission, of which Dr. Walter C. Bailey of Boston is head, consists of fifty members coming from all parts of the United States. The typhus epidemic is said to be spreading to all parts of Poland and cholera, smallpox, and trachoma are also very prevalent. A recent message to Paris, setting forth the unhappy condition of Poland, urges the immediate dispatch of medical supplies. These are being rushed from France and from the Red Cross warehouses at Danzig, Copenhagen, and Berne.

Red Cross Starts International Public Health Movement.—At a dinner in Paris, on February 21, delegates to the Peace Conference listened to an address by H. P. Davison of the American Red Cross in which he outlined the international plans for world welfare work. He stated that, impelled by the unparalleled suffering throughout the world, immediately after the armistice was signed representatives of the Red Cross societies of the different nations came together for the purpose of finding a way of coordinating the efforts of all Red Cross organizations throughout the world in the interest of mankind. The aim of the present program would be the establishment at Geneva of a bureau which would devote itself, not to the actual study of human diseases, but to the coordination of the result of such studies. Their first efforts would be to cover the subjects of public health and sanitation, tuberculosis, nursing, child welfare, and malaria, and certain other infectious diseases. It is believed that the result of this program will be to awaken the peoples of every country of the world to a sense of their obligation to their fellowmen, and that there will follow naturally in each country an awakening to the needs in that country and a determination to meet them as far as possible. A second result would be that light would be thrown on the darkest corner of the earth and would give to all the world the full benefit of scientific study and experience in the prevention and cure of

disease. In the third place it would make possible the immediate cooperation of the various organizations to render aid when necessary in the case of a great disaster.

Conference on Child Welfare.—The third annual conference of the New York State Association of Child Welfare Boards was held in New York City on February 19, 20 and 21. The Acting Mayor assured the delegates that the city officials would consider any program which the members of the boards agreed upon as promising the best results in child welfare work. Health Commissioner Copeland advocated Government control of milk and deplored the fact that a large proportion of the hospital beds of the city were in private institutions. Assemblyman Martin G. McCue gave his assurance that as a member of the Legislature he would advance legislation to make the work of the boards more effective. One aim of the boards at the present time is to secure further legislation providing for the maintenance of widowed mothers with young children, so that these mothers can remain in the home and protect their children.

Ohio State Medical Association.—The seventy-second annual meeting of this association is to be held in Columbus, on Tuesday, Wednesday and Thursday, May 6, 7, and 8. The forthcoming convention is expected to be the largest in point of attendance and interest in the history of the Ohio State Association. Among the interesting features which are being planed in connection with the exhibition will be the scientific exhibits by the State Department of Health, the Ohio Board of Administration, the Ohio School for the Blind, and the National Society for the Control of Cancer.

Gift for Johns Hopkins University.—At the commemoration day exercises of Johns Hopkins University, February 22, Dr. William H. Welch, who presided, announced that a sum of approximately $400,000 had been given for the erection of a building at the Johns Hopkins Hospital to serve as a woman's clinic. The gift is an anonymous one.

Public Health Service Starts Campaign.—Surgeon General Rupert Blue announced that a nationwide drive has been started for an increased number of public health nurses to assist in the prosecution of an after-the-war health campaign, which was begun on February 23, Public Health Sunday. For the first time in its history the Public Health Service, during the war, organized a division of public health nursing. The work which these nurses performed was of inestimable value in keeping down sickness in the extra cantonment zones during the war and in lowering the rate of venereal diseases in the army. The intention is now to continue the general plan of the work conducted by the Public Health Service and also the special fight against venereal diseases. Surgeon General Blue, in his announcement of the plans for a nationwide health campaign, appeals to the women of the country to support the public health nurse, to encourage young women to take up the profession of public health nurse, and to insist that hospitals provide training for nurses in public health service.

The American Board of Ophthalmic Examinations will hold its next examinations at the Wills Eye Hospital, Philadelphia, June 6 and 7, 1919. The coming examination will be the fifth to be conducted by the Board, which is composed of members of representatives of the American Ophthalmological Society, the Section on Ophthalmology of the American Medical Association, and the Academy of Ophthalmology and Oto-Laryngology. By arrangement with the American College of Surgeons, the Board has become the Ophthalmic Credentials Committee of the College, and conducts the ophthalmic examination of the ophthalmic candidates for Fellowship in the college. Details with reference to the examination may be had upon request from the Secretary, Dr. William E. Wilder, 122 South Michigan Avenue, Chicago, Ill. The Board is doing a valuable work in trying to raise the standard of ophthalmology in this country.

Vacancies for Physicians.—The New York State Civil Service Commission announces that examinations will be held on March 19, 1919, to fill the following positions: Consultant in Venereal Diseases, Department of Health, for men between the ages of 35 and 55 years. Applicants for this position must have special training and experience in the diagnosis of venereal diseases. The position carries a salary of $3,000 a year. Assistant Physician, Regular or Homeopathic. This examination is intended to provide eligibles for the position of assistant physician in the State Hospitals and for other positions of a similar nature in State and County institutions. The examination is open to men or women who have had six months' experience on the resident medical staff of a general hospital or as medical interne in a State Hospital or institution, or have been engaged for one year in the practice of medicine. The salary is $1,200 with increase.

An examination is also announced for the position of Assistant Bacteriologist, Quarantine Laboratory, Department of the Health Office of the Port of New York, for men only. This position carries a salary of $1,200. An examination for Dietitian, Hoffman Island Quarantine Station, lower New York Bay, Health Officer's Department is open to men and women, and carries a salary of $900 and maintenance. In writing for application the candidates should specify the particular position for which they desire to be examined.

Vacancies for Nurses in New York Health Department.—There are seventy-four vacancies for nurses in the New York Health Department at a salary of $960 a year. Application for permission to take the examination for these places must be in the hands of the Municipal Civil Service Commission before March 13.

Pan-American Child Welfare Congress.—The United States has been invited through the Uruguayan legation to send delegates to the Second Pan-American Congress for the Welfare of the Child to be held at Montevideo. The congress will meet May 18 to 25, the session having been postponed several times because of the war.

The Massachusetts Medical Society has found it necessary to change the date previously set for its next annual meeting. It announces that the

next annual meeting will be held on June 3 and 4, 1919.

Indians Ravaged by Influenza.—Reports from Cross Lake, eighty miles north of Winnipeg, indicates that influenza has almost wiped out the Indian population in that district. According to the report there are no physicians near to give aid.

The Southern Medical Association, the annual meeting of which was omitted in 1918 because of the influenza, will hold its next session at Asheville, N. C., November 10-13, 1919.

Dr. C. W. Goddard of Holland has been appointed Health Officer of the State of Texas.

Honorary Degrees.—At the annual celebration of Washington's Birthday the University of Pennsylvania conferred the degree of Doctor of Laws on Dr. William Williams Keen of Philadelphia and on Dr. Frederick Peterson of New York City.

Wills Eye Hospital, Philadelphia.—Dr. William Campbell Posey has resigned as attending surgeon and has been elected consulting surgeon. Dr. Thomas E. Conrad has been elected acting attending surgeon.

A Dearth of Vital Statistics.—Marysville, Pa., one of the smallest boroughs in the United States, having less than 100 inhabitants, has made a new vital statistics record, in that it did not report a death during the year 1918. It also made a new record in that but a single birth occurred during the year. This is one of the very few districts in the country that did not report a death during the past year.

Medical Society Elections.—The WARE COUNTY (GA.) MEDICAL SOCIETY, at its annual meeting, held Feruary 10, elected the following officers for the ensuing year: *President*, Dr. G. N. MacDonald; *Vice-President*, Dr. J. H. Latimer; *Secretary-Treasurer*, Dr. W. F. Reavis.

The PORTSMOUTH (N. H.) MEDICAL SOCIETY, at its annual meeting, held February 4, elected the following officers for the ensuing year: *President*, Dr. M. A. Higgins; *Secretary*, Dr. C. W. Hannaford; *Treasurer*, Dr. E. B. Eastman.

The WESTERLY (R. I.) PHYSICIANS' ASSOCIATION, at its annual meeting, held February 7, elected the following officers for the ensuing year: *President*, Dr. Henry L. Johnson; *Vice-President*, Dr. J. DeVere Barber; *Secretary*, William A. Hillard; *Treasurer*, Dr. John Champlin; *Censor for three years*, Dr. Frank I. Payne.

Obituary Notes.—Dr. MARY WALKER, a practising physician, and an army surgeon, died at her home in Oswego, on February 21, aged 87 years. She volunteered her services at the beginning of the Civil War, and served four years in the field, receiving the Congressional Medal of Honor. She was an ardent advocate of feminine dress reforms, and was the only woman allowed to appear in male attire by act of Congress. She was also a pioneer woman suffragist, being active in the support of various woman's rights measures. In addition to her political and dress reform activities she continued to practise medicine until within two years of the time of her death.

Dr. HENRY H. BOBB of East Greenville, Pa., died of heart disease on February 10, at the home of his son-in-law, in Philadelphia, Dr. J. Parsons Schaffer, at the age of 72 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1868.

Dr. WM. P. PAINTER died at Darby, Pa., on February 14, at the age of 77 years. He was graduated from Jefferson Medical College in the class of 1875. He was vice-president of the First National Bank of Darby.

Dr. THOMAS R. STRASSER died at Reading, Pa., on February 15, at the age of 73 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1867. He was at one time physician to the Lehigh County Hospital.

Dr. EDWIN M. HERBST died at Oley, Pa.,, on February 17, at the age of 62 years. He was graduated from Jefferson Medical College in the class of 1878. He served at one time as Pennsylvania State Senator, was physician to the port of Philadelphia from 1891 to 1893, and United States pension examiner at Reading from 1893 to 1898.

Dr. ERLO ELSTEN KENNEDY, a graduate of Baltimore Medical College, in 1905, formerly of Basalt, Col., died of pneumonia at his home in Denver on February 4, aged 38 years. Dr. Kennedy was at one time Mayor of Basalt, later representative of Eagle County at the Nineteenth General Assembly, and at the time of his death secretary of the State Board of Health.

Dr. JONAS M. O. TUFTY, a graduate of the University of Norway, in 1885, died at his home in Duluth on February 3, aged 61 years.

Dr. A. LOWRY IVINS, a graduate of the New York Homeopathic Medical College, in 1911, for a time in charge of the hospital of the Braden Copper Company at Santiago, Chile, died at his home in Sayville, L. I., on February 22, of pneumonia following influenza, aged 32 years.

Dr. ALFRED M. GOODALE, a recent graduate of Harvard Medical School, and prominent in the athletics of that institution, attached to the staff of the Boston City Hospital, died of pneumonia on February 21.

Obituary.

JAMES TYSON, M.D., LL.D.,

PHILADELPHIA.

DR. JAMES TYSON, who died on Friday of last week, at the age of 77 years, was born in Philadelphia and received his premedical education at Haverford College. He was graduated from the medical department of the University of Pennsylvania in the class of 1863. He served as resident physician in the Pennsylvania Hospital in 1863-4 and as Acting Assistant Surgeon in the United States Army from 1863 to 1865. In 1868 he became lecturer on microscopy in the University of Pennsylvania, in 1870 lecturer on urinary chemistry, in 1874 lecturer on pathological histology, in 1876 professor of general pathology and morbid anatomy, in 1889 professor of clinical medicine, in 1899 professor of medicine, and in 1910 emeritus professor of medicine. He was secretary of the Faculty of Medicine from 1877 to 1888 and Dean from 1888 to 1892. He served also as physician to the University Hospital, a member of the Board of Managers from 1874 to 1877

and again from 1891 to 1910. In 1866 he became microscopist to the Philadelphia Hospital, in 1870 pathologist, and in 1872 visiting physician. He was one of the incorporators of the Rush Hospital for Consumptives and one of the trustees. He was consulting physician to the Kensington Hospital for Women and to St. Mary's Hospital. He was a fellow of the College of Physicians of Philadelphia and at one time its president, a member of the Philadelphia County Medical Society and at one time its president, a member of the Medical Society of the State of Pennsylvania and at one time its president, a member of the American Medical Association, a member of the Pathological Society of Philadelphia and at one time its president, an original member of the Obstetrical Society of Philadelphia, one of the founders of the Association of American Physicians, a member of the American Climatological Association and of the American Philosophical Society. He had served as president of the Pennsylvania Society for the Prevention of Tuberculosis. He was the author of numerous text books and treatises on medical subjects and a frequent contributer to periodical medical literature.

JOHN ALFRED BODINE, M.D., F.A.C.S.,

NEW YORK.

Dr. John Alfred Bodine, of this city, who died suddenly of angina pectoris on Monday of this week, was for nearly twenty-five years closely connected with the New York Polyclinic Medical School. He was born in Kentucky in 1865 and was descended from a line of medical men, his father and grandfather having been well known surgeons in their day. He was graduated in medicine from the University of Louisville in 1893 and soon thereafter began practice in New York City. He was a member of the New York Academy of Medicine, of the Medical Societies of the County and State of New York, of the American Medical Association. He was visiting surgeon to the New York Polyclinic Medical School and Hospital, and consulting surgeon to St. John's and the Long Island College Hospitals, and to the Northwestern and the Northern Dispensaries.

Correspondence.

THE HEALTH INSURANCE BILL.

To the Editor of the Medical Record:

Sir:—In reply to the letter sent to the president of the Medical Society of the State of New York, and kindly published in the Medical Record, I take pleasure in stating that I have just received a letter from the president of the State society in which he says: "I am sending a letter to each president of the county societies calling his attention to the health insurance bill, and urging a special meeting be called to discuss the question." Word received from Erie County is to the effect that the society not only condemned the health insurance bill but that a number of members signed an agreement not to work under it if passed.

It remains for every physician to let his Assemblyman and Senator know at once his attitude on this form of legislation for the socialization of medicine.

John P. Davin, M.D.

OUR LONDON LETTER.

(From Our Own Correspondent.)

London, January 29, 1919.

The Annual Birth Rate and the Toll of Youth.—From several official sources as well as from the authoritative statements of private persons in a position to know, it is fairly clear that one result of the war has been that the age-constitution of many nations has seriously altered, even though the actual numbers of the populations have not varied much—the total population may as in the case of Great Britain have actually increased. It had been observed as a matter of fact before the war that the extension of the age limit and therefore of age expectation was marked in many countries while in Great Britain the birthday of a centenarian was so frequently reported as to pass unnoticed and the obituary columns of the great daily papers were studded with announcements of the deaths of persons between the ages of 85 and 95. For obvious reasons the destructive hand of war has been particularly heavy on the young. Young men have perished literally by the million; an undue number of young women have succumbed to the altered conditions of life and the severe strain of war work—the size of this figure is however much in dispute—and lastly the infant and child death rates have enormously increased. One other factor making the proportion of births, and therefore of young lives, abnormally small must also be alluded to. It is undoubted that practices in prevention of conception, formery confined to the wealthier and more luxurious classes, have now become common in all grades of society, and the small size of all families had become notorious several years before William of Germany willed a war. The whole position is one that requires great attention previous to the institution of any series of remedies, and it is to vital statistics that we must all look for guidance in future policy. For that reason the recent announcement in *The Lancet* that the Registrar General, Dr. T. H. C. Stevenson, has proposed the inauguration of a "single master register" for the United Kingdom is of great significance. There has been no census in this country since 1911, and a proper enumeration of our population is urgently required. If, as would naturally be expected, the Ministry of Health, when founded, decides to embark with determination upon a large and inclusive scheme for the improvement of the national health it is on medical statistics that reliance must be placed, and just such a register as Dr. Stevenson has adumbrated will then have to be formed as a basis of all operation as well as a test of all proceedings. The register, to be truly "master," should include every man, woman and child in the country, and should give particulars of name, address, sex, age and occupation, the date of birth, and other information concerning marriage and family history should also be provided; many of these details finding place in special registers forming supplements to a coordinated system, and subject to a central index. The Commission for the Reconstruction of the National Birth Rate has now resolved that there is immediate need for such a "single master register," and the appointment of two medical men, Dr. Addison and Sir Auckland Geddes, as members of the Government upon whom the constructive policy of the Ministry of Health

will devolve, is a good earnest of prompt activity. There are so many charitable, benevolent, and semi-medical agencies in existence working on more or less parallel lines, and having as at least one of their main objects to maintain a proper birth-rate and minimize the opposing forces which lead to abnormal death-rate among the young, that there is some risk of energy being wasted through overlapping or misdirection. Legislation is sure to be set in hand at once to promote proper housing of the poorer classes and so to provide the environment in which the birth-rate should have proper chances. There are many voluntary bodies working at different objects of this reform. The National Council for Combating Venereal Diseases, by the eradication of the specific poisons as well as by the prevention of their spread, aims both at increasing the number of healthy children born and at giving good chances to those who are cruelly born with a taint. Further, many associations founded in behalf of maternity and child welfare are playing a useful part. Crêches are being established in connection with such welfare work in or near factories where mothers are employed, thus recognizing that, though the best place for the mother may be in her home, social conditions may compel her to be working outside. All this work requires to be coordinated and should find its logical center in the new Ministry of Health, the possible range of whose labors is unlimited. And a "master" register would serve the purposes of all existing activities, and would indicate with all the force of accurate figures both the places where evil was most rampant and the units where work was being duplicated wastefully.

The Value of Moral Education.—In connection with certain statements respecting the prevalence of venereal disease in the navy in the early days of the war, the Reverend Bevill Close, who was chaplain from September, 1914, to April, 1915, with a large Royal Naval Division quartered at the Crystal Palace, London, has made a public pronouncement upon the value of moral education in such circumstances. Upwards of 12,000 men passed through the Crystal Palace depôt between the dates of his holding office, but as each new draft arrived the highest moral ideal was placed before them by the chaplain, whose teaching was reinforced by both medical and executive officers. Leave was granted to the men every evening and only forty venereal cases had to be recorded!

The Housing Problem.—For a long time the housing of the industrial classes, that of the agricultural laborer no less than that of the urban worker, has been discussed as a matter that must be immediately dealt with by the Government upon the cessation of the pressing business of the war, and here again the Ministry of Health will have to assume vast responsibility. Doctors and philanthropists, clergymen and statisticians, employers of labor of all kinds, and the employees of every class and grade have discussed the matter at by and large, and now the time is clearly approaching when something is about to be done. It is, for example, an open secret that Dr. Christopher Addison holds his portfolio at the Local Government Board in response to his own direct wish to deal with housing, and it is now understood that a Government scheme is in existence to meet the necessary cost of a huge piece of domestic reform. The Government has under consideration the payment of no less than 75 per cent. of the loss incurred by building new houses for the industrial classes, by acquisition and alteration of existing buildings, by the purchase of sites, and so on, it being recognized that there must be a loss because no economic existing conditions could possibly allow, save in exceptional circumstances, the payment of any rent large enough to constitute profitable interest on the capital involved. The other 25 per cent. of any loss incurred will, it is suggested, be produced by a rate amounting to one penny in the pound, but it is clear that many urban communities could afford more than this rate, while some rural districts will be hard put to raise the money. From the medical point of view it is essential that when the building schemes begin, no cheeseparing policy should be pursued, though no money should be spent on what may be called architectural frills. Soil, site, aspect, water supply, and convenience of transit and transport must all be considered without much eye to the total cost, but unnecessary gables, sham mullions, foolish railings, and all the delights of the inferior builder must be suppressed. It is possible that the lesson of the sanatoriums for tuberculosis will remain in the minds of those who have the spending of money on the housing schemes. Medical men will never forget the profuseness with which money was poured out to place these institutions where they do not appear to serve local wants, and to construct them at needless cost with a vast responsibility for repairs incumbent upon them. The note of the new houses must be simplicity. The position was well summed up at the recent presidential address of the Royal Anthropological Institute. The president, Sir C. Hercules Read, the keeper of the Mediaeval Antiquities in the British Museum, speaking of the housing of the community in the future, and declaring that in this direction we must look for the greatest amelioration in the physical condition of the people, said that three qualities were wanted in the ideal residence, in this order: (1) Healthiness, (2) convenience, and (3) beauty. Usually these things were put in the reverse order, he said, and the final result was that the cost was so high as to make it impossible for anyone but a generous Government to build a workman's cottage. The Office of Works, although its functions ranged from the erection of a new Embassy at Peking to the mowing of the lawns at the British Museum, had had no man whose function it was to provide for the erection of suitable houses, and he supposed it must now be left to a Ministry of Health.

The Special Clinical Meeting of the British Medical Association.—As I announced recently, this meeting, in substitution of a general annual meeting, will be held in April next. Mr. Cuthbert Wallace, surgeon to St. Thomas's Hospital, Mr. S. Maynard Smith, surgeon to St. Mary's Hospital, and Dr. Gordon Holmes, physician to Charing Cross and the Royal Ophthalmic Hospitals, have accepted jointly the general secretaryship, and Mr. C. H. S. Frankau, surgeon to St. George's Hospital, and Colonel des Crespigny and Major Ellis, of the Australian and Canadian Army Medical Staffs, respectively, will act as the organizing secretaries of the three sections of surgery, medicine, and pathology.

Death of Sir James Sawyer.—Sir James Sawyer, whose death has just been announced, was consulting physician to the Queen's Hospital, Birmingham, and was well known in the political as well as the medical world.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

PARIS, January 16, 1919.

Horrible Fate of the Children of Lille.—No one can read without pity, nor, to use President Wilson's words, "without horror and a burning heart," the petition of the mothers of Lille imploring the French government to demand of Germany the instant return of their children whom the Huns have carried off into captivity. The list of those taken from Lille alone comprises 4,068 names. Thirteen are children of fourteen years of age, 1,100 are fifteen, 1,447 are sixteen, and 1,499 are seventeen. We beg "the Government of the Republic," says the petition, "to summon the German government to restore to their mothers the children who have been carried off and are retained in contempt of the law of nations. We are tortured by the thought that they are being dragged along with the barbarous hordes fleeing in disorder, that they are at the mercy of heartless and pitiless men, and that, enfeebled by four years of unheard-of privations, they are exposed to all the dangers and sufferings of a routed army."

At the present moment, when Germany to escape the punishment of her crimes is pretending to reform her governmental system, it is well that this pathetically terrible indictment be given the fullest publicity. The system certainly was monstrous and in need of reform. But what about the people? The system was the product of the nation; it faithfully reflected the nature of the most abject savages that ever disgraced the human race, arrogant and merciless in victory, groveling and treacherous in defeat. The efforts that have been and are being made to distinguish between the Huns and their masters, to whitewash the people and incriminate only the "ruling caste," fill one with pity for the naiveté or contempt for the duplicity of those making the efforts. This war is the war of the German people. It is repudiated by the people now only because the Germans' treacherous and bloody aggression on civilization has failed. Did the German people protest in 1914? Gloating over the prospect of booty, of war indemnities, trade privileges and territorial acquisitions, the German people, like one man, hailed with joy the opening of the long promised and impatiently awaited "fresh and frolicsome war," and rushed to participate in it and the pillage.

Four times in a century the German hordes have delibrately drenched Europe with blood. Four times in a century they have poured into France, murdering, burning, plundering; the entire race, officer and private, shopkeeper and laborer, professor and peasant, welded into a solid block by lust and envy and avarice. Read the indignant protestation sent by Lille scientists, Drs. Calmette, Parenty, Witz, and others, to the Academy of Science, and read at the meeting of that eminent body last Monday. Some purblind or callous pacifists urge that the people is not responsible for the crimes of its leaders. But, protest the signers of the protestation, those who have witnessed, as we have, the readiness and zeal displayed by all the troops, young and old, in the execution of their orders, must feel convinced of their complicity.

Proof of that, if further proof were needed, would be found in the hideous *razzia* which has called forth the pitiful petition from Lille, a petition signed by 5,000 mothers robbed of their children. For the nation guilty of such bestiality can any punishment be too severe? Can any conditions to prevent further German barbarity be sufficiently rigorous? It is not the Kaiser and the "ruling caste" alone that must be shackled; it is the entire horde that must be rendered powerless for evil in the future. Any weakness in dealing with the enemy of mankind, the German people in its entirety, would be fatal. M. Clemenceau's powerful declaration is dictated by a spirit of strict justice and by a sense of duty to humanity: "The most terrible account has been opened between people and people. It shall be paid!"

The *Berliner Tageblatt* now demands an official investigation of the charges laid at the door of the German army and its chiefs. But nothing was said so long as the fortune of war seemed to be favoring the criminal nation; no one, from prince to peasant, condemned the nameless horrors committed in France and Belgium—the ruining of entire provinces, the razing of towns, the driving forth of hapless citizens, the torture and maltreatment of women and girls, the deliberate destruction of hospitals, and murder of wounded, the creating of awful deserts where once were fertile fields and orchards. For all this hideous work of bestial ferocity the German nation has a direct and crushing responsibility.

Measures to Curb the Influenza Epidemic.—Serious steps are now about to be taken by the Paris authorities to cope with the insidious malady sometimes described as "grippe," influenza, or "Spanish flu," but which in innumerable cases develops all the symptoms and results of bronchopneumonia, congestion of the lungs, and other diseases on whose orthodox medical classification no doubt whatever can be cast. It had been intimated in some quarters that the epidemic is already distinctly on the decline in the city of Paris, if not throughout France, but the suggestion is not borne out by figures which the *Temps* publishes and emphasizes. When it is remembered that the scientific and medical staff of the *Temps* includes some of the greatest authorities in Europe it will be understood that the *Temps* analysis of the situation should be accepted even by those professionally disposed to be censorious of "newspaper reports." The *Temps* mentions that the deaths in Paris from the vague disease and its complications during the forty-third statistical week of the year were the highest since the outreak of the epidemic. The death rate rose on October 27, October 28, and October 29, and on the last-mentioned date 230 deaths were recorded. The 2,566 deaths of the forty-third statistical week included 1,263 attributed to "grippe." These are tabulated as follows:

Males	Females	Age
16	10	0 to 2 years
12	36	2 to 9 years
68	98	10 to 19 years
212	493	20 to 39 years

Males	Females	Age
100	122	40 to 59 years
38	58	60 and over
446	817	

From this table it is clear that adults between 20 and 50 years of age are most liable to the fatal forms of the disease, and that, proportionately, women pay the highest death tribute. While many provincial cities have taken active measures against the epidemic, there has been considerable laxity in the capital. At Montceau-les-Mines the mayor has had all the churches, theaters, and cinema halls closed, and has installed a special influenza hospital outside the industrial district. At the Creusot the necessity of supplying milk for the sufferers has led to the suppression of milk cards for healthy children over 18 months of age. The *Temps* urges that the numerous precautionary measures adopted in the provinces should be at least extended to Paris, and that something should be done to diminish the present chaos regarding the difficulty of obtaining the remedies prescribed by physicians, milk, and nearly all the requisites for invalids in Paris. Meanwhile, Parisians have been notified that the Minister of Food Supplies has "released" 50,000 liters of rum to enable influenza patients to be supplied with hot, stimulating drinks when prescribed by their medical attendants. The "release" was formally made two or three days ago, according to the Paris press, but has not yet reached the chemists' shops through which it will be dispensed.

The United States Army Ambulance Service attached to the French Army will continue work with the French divisions which are marching into Germany. The American sections will be disbanded only when the French divisions to which they are attached are demobilized. We now have 82 sections composed of 45 men each, nearly 3,700 men of this ambulance service serving with the French, and while they are all glad that the war is won, and want to go home as soon as possible, they realize that there is still more work to be done, and they are interested to continue their share until the end. There will be no change whatever in the status of these American ambulance drivers with the French divisions. Although their duty consisted in transporting the wounded from the battlefields, and that particular work no longer exists, the divisions of which they form a part will not demobilize. About ten sections have been detached from divisions which are not going into Germany and are employed in civilian work in the Lille area and also around Rheims. The U. S. A. A. S. has handled about 70 per cent. of the French wounded. These figures are not as yet official, but it is reasonably certain that they are not exaggerated.

Returning Prisoners.—Hundreds of prisoners returning from Germany are now arriving daily in Nancy, Luneville and other towns near the frontier. Most of them are British and Canadians, but there are also many French and a few Americans. The Y. M. C. A. in Nancy and the Foyer du Soldat, the Y. M. C. A. in Luneville, and other towns in Lorraine, are working with the Red Cross and other relief organizations to take care of the men as they arrive. The famous natural hot-water baths at Nancy, which are under the jurisdiction of the Y. M. C. A., are being diverted to the use of the ex-prisoners, and the Red Triangle is providing baths for a thousand men each day. All hotels at Nancy are crowded and private houses are being opened to the men until they can recuperate. British officers are also on the job. They are bringing in truckloads of old uniforms and also many new uniforms of the British Royal Flying Corps, in which the ex-prisoners are blossoming out from the baths.

Progress of Medical Science.

New York Medical Journal.

February 15, 1919.

1. The Etiology of Chorea. Stuart Graves and Beryl H. Paige.
2. Medical and Surgical History of American Participation in the European War. Loy McAfee.
3. Bacteriological Examination of the Sputum in Influenza. Herbert U. Williams.
4. Venereal Diseases in the Army. Isaac W. Brewer.
5. The Treatment of the Anemia in Chronic Ailments. Albert C. Geyser.
6. Tonic Muscle Spasm: Its Significance as a Clinical Phenomenon. J. Madison Taylor.
7. Studies in the Treatment of Influenza and Pneumonia in the Recent Epidemic. Hyman I. Goldstein.
8. The Treatment of Lung Injuries. Charles Greene Cumston.
9. Recent Gleanings Relative to the Prophylaxis and the Treatment of Influenza. Louis T. de M. Sajous.

6. Tonic Muscle Spasm; Its Significance as a Clinical Phenomenon.—J. Madison Taylor points out that the element, or phenomenon, of spasm is an exceedingly common denominator, affording the key to diagnosis and to relief, or even at times to cure, of manifold distresses and disorders, among which may be mentioned the group of "colics," intestinal, uterine, cholecystitic, nephritic, cystitic, pyloric, etc.; disturbances of function nonsensory, such as suppression of urine, of defecation, or respiration, etc.; and vertiginous states, disorders of special sense of eye, of ear, or throat, and various forms of backache. Familiarity with norms is, of course, essential in diagnostic exploration. Anomalies in resistance will be revealed, the localized spasms or contractures in muscles and bundles bearing direct relationship to irritated centers, and these again to sources of irritation on the periphery. Under certain conditions tenderness on firm pressure will be found. The source of irritation can be thus inferred to lie in a particular area and to be more pronounced on one or other side, indicating that fuller explorations are required in the suspected area. It is especially interesting to know that judicious, gentle manipulation brings about marked mitigation of spasm and tenderness with relief to the overwrought center and, efferently, to the lesion or disordered area. The action is a blend of interactions, one involving spinal centers and sympathetic centers—and explainable through the autonomic nervous system. The diagnostic spasm and tenderness is most pronounced in the paravertebral structures close to the backbone. Until this spasmodic state is relieved much suffering and often serious peril continues. In any exigency, when the phenomenon of spasm can be reasonably inferred, it is the part of wisdom and economy to focus attention upon its relief, which may also readily become a cure of remoter conditions. Excess, unrelieved spasm stress leads to shock, which may prove actually fatal through strain.

Journal of the American Medical Association.

February 15, 1919.

1. Typhoid Fever Occurring After Prophylactic Inoculation. Claude P. Brown, Francis W. Palfrey, and Leonard Hart.
2. The Clinical Significance of Lymphoid Hyperplasia of the Appendix. Douglas Symmers with the Collaboration of Morris Greenberg.
3. Statistical Study of Simple and Toxic Goiter at Jefferson Barracks, Mo. Fred M. Smith.
4. Acute Lymphatic Leukemia Complicating Pulmonary Tuberculosis. Michael L. Ryan.
5. Purging Before and After Abdominal Section. Henry T. Byford.
6. A Filtrable Poison Produced by *B. Influenzae* (Pfeiffer). Julia T. Parker.

7. Recurrent Renal Crises. George S. Whiteside.
8. Idiopathic Tauresis in Adults. Heiman Caro.
9. Dystocia from Large Bladder Stone Impacted in the Pelvis. C. S. Neer.
10. Multiple Myeloma with Bone Marrow Plasma Cells in the Blood: Report of Case. Harvey G. Beck and Standish McCleary.
11. Anthrax Enteritis: The Morbid Anatomy and Histology of Two Cases at Camp Dodge, Iowa. Arthur S. Brumbaugh.
12. The Expert and the Issue. Sanger Brown.
13. Gas Bacillus Infection in an Army Camp: Report of Case. Louis M. Warfield.
14. Influenza and Influenzal Pneumonia at Fort Riley, Kan., from September 15 to November 1, 1918. Willard J. Stone and George W. Swift.

1. Typhoid Fever Occurring After Prophylactic Inoculation.—Claude P. Brown, Francis W. Palfrey, and Leonard Hart report a number of cases of typhoid fever which began to appear about the end of June, 1918, among troops stationed at Camp Greene, N. C. Of the cases reported twelve had previously received the full dosage of antityphoid vaccine, two recruits had each received two doses of vaccine, two had received a single dose each, and two had not been inoculated. A mild epidemic of typhoid occurred concurrently in Charlotte, the nearest city to the camp, and infection was thought by the health authorities to be fly-borne. As this mode of infection was not considered probable in the camp, careful investigations were made in regard to the milk, water, and ice used, but no particular information was elicited. Cultural examinations were made of the blood, urine, and feces of the eighteen cases reported; the blood was positive in thirteen cases, or 72.2 per cent.; the urine in the same number of cases, and the feces in nine, or 50 per cent. Cross agglutination tests showed wide variation, both as regards individual strains and the preparation of the agglutinating fluid by different methods, thus demonstrating the desirability of using standard agglutinating fluid for Widal tests. The results of these tests also strongly suggest that the same method should be used in checking the agglutination of patients' serum with the homologous strain. The authors conclude from their observations on these cases that occasional cases occur in which the usual preventive inoculations against typhoid fever fail to protect against the disease, most probably on account of the ingestion of virulent organisms in massive doses. They suggest the following precautions as a means of prevention: (1) Care should be taken that cooks and food handlers are not changed and new ones put in their places without examination for carriers of *B. typhosus*. (2) Special inquiry should be made by the surgeon of all prospective cooks and food handlers with reference to their having had typhoid fever, and note of this made when specimens are submitted for examination. (3) Repeated examinations should be made of prospective food handlers whose history is suggestive of typhoid fever before the men are accepted for such work. (4) Clinical cases of typhoid fever should have intensive study made of both urine and feces.

The Lancet.

January 25, 1919.

1. A Personal Retrospect of General Practice. James Pearse.
2. Accidental Hemorrhage in Connection with Eclampsism. Sir William Smyly.
3. The Differential Diagnosis of Amebic and Bacillary Dysentery from the Blood. G. Marshall Findlay.
4. Nasal Obstruction in Aviators. Captain Douglas Guthrie.
5. Post-Influenzal Hemoptysis. Horace Wilson.
6. Note on *Staphylococcus Aureus* Septicaemia as a Complication of Influenza in an Epidemic in Malta. Captain Adam Patrick, with a Note by Colonel Sir A. Garrod, K. C. M. G.
7. On Some Simply Prepared Culture Media for *B. Influenzae*. With a Note Regarding the Agglutination Reaction of Sera from Patients Suffering from Influenza to this Bacillus. Captain Alexander Fleming.

4. Nasal Obstruction in Aviators.—Captain Douglas Guthrie points out the importance of good binocular vision and normal ears to the air pilot. We must remember that the ear is not only the organ of hearing, but also an accessory organ of equilibration. In addition to a sound heart and sound lungs, a stable nervous system, and a healthy "mentality," the aviator must possess good vision, on which he mainly depends, and a sense of equilibration. It is regrettable that the latter, which is so highly developed in birds and may be so accurately estimated in man by the Bàràny tests, has received so little attention. Free nasal respiration is an important asset to the flying man. The author has had occasion to examine and operate on a number of officers suffering from nasal obstruction and, from his experience, summarizes as follows the baneful effects of such a condition in the aviator: (1) *Effect on the lungs.* It has been experimentally demonstrated by Mendel that the amount of air which the mouth breather inhales with each breath is less by one-fifth than the amount inhaled in normal nasal respiration. It follows, then, that if the subject be an aviator he will readily suffer from symptoms of "Oxygen-want." (2) *Effect of equilibration.* The Eustachian tubes, the function of which is to adjust the pressure of air within the middle ear to the changes produced by sound-waves, atmospheric pressure, etc., and which come into use so largely during flying, are impaired in their function if any nasal obstruction is present. During a rapid descent the tympanic membranes are driven inwards by atmospheric pressure, causing deafness and earache. Normally these symptoms disappear if the ears are "inflated" by swallowing or by movement of the jaw. But if the nasal passages are blocked so that air does not freely reach the Eustachian tubes the alteration of pressure within the middle ear cannot be compensated and the symptoms persist, perhaps with the addition of giddiness caused by altered labyrinthine tension, communicated from middle to inner ear through the round and oval windows. Under such circumstances the risk of a crash is naturally considerable. (3) *"Reflex" effects.* A third possible result of nasal obstruction is headache coming on in the air or after landing. This is in many cases due to a deflected nasal septum against the middle turbinal, the socalled reflex nasal headache. The commoner causes of nasal obstruction are adenoids, hypertrophic rhinitis, and septal deviations. In the majority of cases examined obstruction was due to deformity of the nasal septum, the patient usually giving a history of former injury at boxing or football. In some cases there was almost complete obtsruction of both nostrils; in others, symptoms were nil. Aggravated cases of septal deformity require treatment naturally, but the wisdom of operating on minor degrees of deviation in cadets is questionable, since absolute symmetry is rare. It should be noted, however, that a degree of nasal obstruction which would cause little trouble on the ground may be very troublesome in the air, for at heights over 7000 to 10,000 feet the mucous membrane of the nose becomes swollen and engorged and any existing obstruction is greatly aggravated. In the treatment of such cases, the main object, from a military point of view, is to render the patient fit as quickly as possible, and therefore local anesthesia is advisable. A method which answers well is to pack both nasal cavities half an hour before operation with 10 per cent. cocaine, and at the same time give a hypodermic of morphine and atropine. After-treatment consists in packing both sides with ribbon gauze wrung out in liquid paraffin, a dressing which adapts itself to the tissues and is easily removed on the following day. Treated in this way, septum cases need remain in hospital for only a few days.

5. Post-Influenzal Hemoptysis.—Horace Wilson draws attention to those cases in which hemoptysis occurs with influenza and which may be mistaken for pulmonary tuberculosis. As a rule the hemoptysis commences towards the end of the illness, when there is a light cough, an increasing weight, and no great tendency to wasting. The sputum shows a bright red staining, and not the typical rusty tint of acute pneumonia. Pneumococci are the predominant organisms and tubercle bacilli are absent. The characteristic physical signs are generally marked by their bilateral posterior distribution in the suprascapular areas, where breath sounds are faint and moist granular adventitious sounds are abundant, with no bronchial breathing and some bilateral impairment of the percussion note. The corresponding areas in front show little or no change, excepting some lack of resonance on percussion. The mid-area of the lungs posteriorly is fairly clear, but the bases show congestive crepitation on both sides. The temperature for a time is irregular and fluctuating, but pulse is not so rapid as in a tuberculous case. There is subsidence

of symptoms in a few weeks, with increasing weight and improved general condition. If, therefore, with slight hemotypsis the physical signs are bilaterial and chiefly marked posteriorly, a hasty diagnosis of pulmonary tuberculosis should not be made but frequent examinations of the chest and sputum should be undertaken and the general progress of the case taken into consideration. Many such cases have proved to be pneumococcal and transient. As regards the physical signs the converse hold good, and monolateral anterior signs with hemoptysis point to early pulmonary tuberculosis, particularly with no regain in weight, rapid pulse, and night sweats.

British Medical Journal.

January 25, 1919.

1. Herpes Zoster: Its Causes and Association with Varicella. R. Cranston Low.
2. Public Measures for the Prevention of Tuberculosis. Lieut.-Col. Nathan Raw, C. M. G.
3. An Investigation into the Incidence of Albuminuria and Casts in British Soldiers During Training, and the Relationship of This Condition to War Nephritis. Captain H. Maclean.
4. The Policy of the Ostrich. Colonel J. G. Adami.
5. Recent Experiments on the Life History of Ascaris Lumbricoides. Major F. H. Stewart.

1. Herpes Zoster: Its Cause with Varicella.—R. Cranston Low reports three cases of herpes zoster, each of which was followed by one or more cases of chicken-pox either in the same family or in the same hospital ward, after an interval of nineteen, thirteen, and two days respectively. These cases support similar observations made first by Bokay in 1892 and since then by a number of other observers. In all the recorded cases the chicken-pox eruption appeared in from eight to twenty-one days after contact with a case of herpes zoster. In one of the author's cases, two days interval only elapsed between the appearance of herpes zoster and chicken-pox but as both patients had been in hospital for some time, the infection was probably brought by visitors. The converse condition, that is chicken-pox followed by herpes zoster, has also been reported by several observers, but not so frequently. Further, cases have been recorded from time to time in which herpes zoster and a varicella-like eruption have occurred in the same individual. These facts would lead one to conclude that the two conditions are due to the same virus. The author would go further, and suggests that in herpes zoster the infection is probably local, through the nose, along the lymphatics, round the olfactory nerves, as has been shown to be the mode of infection with the virus of anterior poliomyelitis, which has many points of analogy with herpes zoster. Once the virus reaches the meninges and cerebrospinal fluid, it is easy for it to get to the ganglia on the sensory nerve trunks. In chicken-pox there is probably a blood infection with the virus. In cases in which the two conditions appear, the virus probably attacks the ganglia first and, four or five days later, gets into the general circulation. Microscopically, the vesicle in herpes zoster is similar to that seen in the early stages of varicella. The lesions in chicken-pox occur in groups, suggesting that a small branch of the peripheral nerve is the seat of a focus of infection. Moreover, many of the chicken-pox lesions show a vesicle with no inflammatory halo around it, as is seen in pemphigus and dermatitis herpetiformis, which are generally considered to be nerve lesions. These facts would seem to show that the eruption in varicella is primarily not due to the virus settling in the end capillaries of the skin but in the nerve endings or minute nerve twigs in the skin. No causal organism has yet been discovered in chicken-pox or herpes zoster. It is possible that the virus belongs to the group of filter-passing ultramicroscopic organisms mentioned by Flexner in his Huxley lecture as being the cause of poliomyelitis and vaccinia among other diseases. Since both chicken-pox and herpes zoster occur in epidemic form, if they have a common origin one would expect simultaneous epidemics to occur. The only instance on record is that reported by Heim as occurring in Budapest during April and May, 1912. As neither disease is notifiable, statistics are wanting. As regards immunity, an attack of chicken-pox usually conveys immunity for life. Similarly, an attack of herpes zoster is rarely followed by another; most of the recurrent attacks are attacks of peripheral neuritis due to pressure by a tumor on nerves. An attack of varicella does not necessarily protect the individual against herpes zoster. It is possible that an attack of herpes zoster may confer immunity to chicken-pox, but individuals who have herpes zoster in many cases are past the age when they are likely to have the former. Further knowledge is required on this point. In cases of herpes zoster which occur whilst arsenic is being taken, the question arises whether the arsenic produces an arsenical neuritis with the eruption in the distribution of the nerve, or whether the arsenic renders the nervous system more susceptible to infection with herpes zoster. The latter would seem to be the more probable explanation, because even although the patient continues to take the arsenic, the herpes zoster runs a normal course, heals up, and does not recur. Parkes Weber, moreover, reports an instance in which a patient was taking arsenic and developed herpes zoster with a generalized varicella-like eruption, and another patient from the same ward developed chicken-pox fifteen days later.

4. The Policy of the Ostrich.—Colonel J. G. Adami draws attention to the ravages of venereal disease in the British army both before and particularly during the war, and to the policy of the ostrich, as he aptly describes it, with which conditions have been met. Describing conditions as they existed in England in 1914, Colonel Adami refers particularly to those at Salisbury Plain upon the arrival of the first Canadian Contingent in the autumn of that year. He commends the work of the National Council for Combating Venereal Diseases though he deplores their tardiness in taking definite action, "so heavily did the dead hand of Mrs. Grundy press upon them." Colonel Adami makes an earnest plea for frankness and open speaking. Had the medical profession in the first place, the National Council, and the Government spoken out at the beginning of the war, conditions would have been very different today. Even now much might be accomplished were the National Council to influence the Government to publish a statement regarding the venereal disease situation in the army in successive years of the war in the different regions, and also obtain powers to make an investigation into the frequency of syphilis or venereal disease in general in selected areas or classes of the population. Let the situation be known and faced. America did not hesitate to speak out, even before the war. In 1912, the Surgeon-General at Washington published regulations directing all soldiers returning to camp to state whether they had exposed themselves to the possibility of venereal disease and detailing early preventive treatment. General Pershing, moreover, made it one of his army regulations that the venereal status of a unit should be taken into account in determining the promotion of the officer commanding. In the overseas forces of Canada all the methods instituted in the American army, with exception of court martial, are now employed, namely, education, warning, recreation, diversion, protection, isolation, prophylaxis, and penalties. A trained N. C. O. is in attendance night and day in every Canadian orderly room in England to see that the soldier carries out instructions so as to protect himself, and these instructions are clearly set forth on the walls of the room. In London there are two early treatment centers—at Southampton Street and at Victoria—and if not in the neighborhood of these centers, the men are instructed to go to an Australian or a New Zealand center. The Dominions are working together on this matter and are appointing centers throughout the United Kingdom, which are open to men from any of the British Imperial Forces. In this work the fact that absolute immunity cannot be assured, even though preventive measures are taken, is emphasized. Otherwise, the methods adopted might lead to an increase in the spread of disease, as has actually happened in Germany. The penalty exacted in the case of the Canadian soldier is the suppression of half pay during the entire period that he is on the sick list. The venereal record is also inserted in his medical history and accompanies him throughout his military career. Colonel Adami points out that, contrary to the generally accepted view, experience at the special hospital at Witley camp has

shown that physical training materially shortens the period of hospitalization in acute gonorrhea. As a result of the campaign against venereal disease, its incidence among Canadians in Great Britain has been reduced from 960 cases among 42,000 men in 1916 to 750 among 110,000 men in 1918, or more than 66 per cent. As to the effect of the return of the soldiers upon the venereal incidence throughout the country, Colonel Adami draws attention to the fact that it is not the civil population that has to fear the soldier, but the soldier the civilian. A Wassermann test is made in the case of every returning soldier whose medical sheets show a record of venereal disease and the figures for the month of August show that only 2 per cent. of the total number of men reacted, whereas in the civilian population the average number of reactions is from 8 to 12 per cent. During the four years of war nothing has been done to meet the emergency. The provision of early treatment centers throughout the country is an impossibility, at any rate before demobilization has become a matter of history. In the author's opinion, therefore, the only way of preventing a tremendous increase in the number of cases of venereal disease throughout the country lies in providing the soldier, before demobilization, with the means of prophylactic treatment, with information as to how to obtain the same without difficulty, and by giving him precise instructions as to the method of employment.

Berliner klinische Wochenschrift.

December 23, 1918.

Addison's Disease and Sclerodermia.—M. Gerson describes the remarkable results obtained by treatment of this affection with adrenalin. He believes that in one of his cases he produced a generalized pigmentation, by the exhibition of thyroid tablets, of the Addison type. Sclerodermia enters the class of diseases due to vagotonia of the Vienna school and in some cases of this affection the writer refers to the relations existing between the vegetative nervous system and the endocrine glands. He was able to note that, in the vagotonias, the pigment metabolism might be influenced by four factors, namely, pregnancy, sclerodermia, thyroid products and locally by lesions of the nerves.

Polycythemia Rubra.—H. Zeller relates the case history of a typical essential polyglobulia (Vaquez's disease) with a slight splenomegalia but without hypertension. The case does not differ from many others already published excepting the presence of myelocytes in the blood, which would seem to indicate a state of irritation of the red bone marrow.

Left-Handedness.—H. Siebert recalls the distinction that has been made between "essential" left-handedness and the "occasional" form, the latter resulting from an encephalitis or other lesion of the left hemisphere in childhood. Both forms can be distinguished by a sign that Siebert has been able to verify, namely, that true left-handed subjects learn to write mirror writing with the greatest ease with the left hand, this faculty increasing with advancing years. Four cases of left-handedness following an organic cerebral lesion studied by the writer, presented, on the contrary, a marked incapacity for this exercise. The writer also insists on the lesser differentiation of the lower limbs so that both left and right-handed subjects offer less difference in their control of the leg movements.

Münchener medizinische Wochenschrift.

December 17, 1918.

Gunshot Wounds of the Diaphragm and Diaphragmatic Hernia.—Oberndorfer gives a detailed account of six cases of traumatic diaphragmatic hernia with figures. The writer's conclusion is to always look for this lesion in wounds of the lower left thoracic wall. The diagnosis cannot usually be made without radioscopy.

Traumatic Eventration of the Stomach Into the Left Hemithorax, with a Clinical Picture of Hypertensive Pneumothorax.—W. Lehn shows that, besides traumatic diaphragmatic hernia, which tends toward chronicity and may even be well borne by the patient, there is also an acute syndrome following the initial lesion. In the case reported by the writer there was a tangental tear of the left diaphragmatic dome from a shrapnel bullet. An intense dyspnea and cyanosis arose within a few hours following the receipt of the injury, the heart was forcibly pushed to the right while the left thorax became immobilized in the position of expiration, giving a marked tympanic note. The diagnosis was uncertain and the question of operation was under discussion, when the patient settled all controversy by making his exit from this world. At autopsy it was found that the entire stomach had passed into the left thoracic cavity, this having been favored by the patient's respiratory efforts which became more and more intense as the displacement of the stomach and heart progressed.

Diaphragmatic Hernia Becoming Strangulated in an Old Gunshot Tear in the Diaphragm.—E. Seifert reports a successful operation for this pathologic condition.

Positive Wassermann in the Cerebrospinal Fluid in Non-Luetic Meningitis.—C. Kraemer and Zadek record five cases of meningococcic, pneumococcic or tuberculous meningitides in patents where syphilis could be excluded both from the antecedents and autopsy and where a Wassermann of the blood was negative. The writers endeavor to explain the positive Wassermann of the cerebrospinal fluid in these cases by the presence of antilipoid ferments in the fluid, without being able to explain why this phenomenon should be more frequent in septic meningitis than in the tuberculous variety where a positive Wassermann is very much less common.

Deutsche medizinische Wochenschrift.

December 19, 1918.

The Mechanism of the Action of Cleansing Substances.—J. Geppert questions whether or not the mechanism of cleansing resides in a dissolution or in an emulsion of dirt from the action of soap and water. He concludes that such explanations are insufficient and in their stead invokes the action of capillarity. Water, alkalis and soaps are bodies which adhere to the object to be cleaned and thus remove the insoluble dirty matter. Just as in a test-tube water will insinuate itself between the walls of the glass and an oily content forming a meniscus with an upward concavity, in a like manner water has a tendency to become substituted for dirt on a bit of tissue or the cutaneous surface. The writer has microscopically verified this mechanism of mechanical washing as well as the influence of the nature of the texture; for example, tissues with fine meshes are more difficult to wash on account of the greater capillary adhesion of dirty matter to the fibers. The writer ends by giving some data on the way different fatty acids and oleaginous substances behave in this respect.

Meiniche's Serodiagnosis of Syphilis.—Von Vagedes and Korbsch have noted that the procedure of floculation gives results in accord with the Wassermann. Meiniche's procedure is to be recommended on account of its simplicity, especially when guinea pigs cannot be obtained. However, the Wassermann remains indispensable for the examination of the cerebrospinal fluid and serahemolysis.

The Struggle Against Typhus Fever.—Jürgens refers to the danger of a pandemic of typhus now that demobilized troops are returning to Germany. He outlines rules for the prevention of extension of possible foci of the disease and for assuring attentive care for every case. The certitude of being well cared for will bring the patients to hospital as soon as they feel ill, but if too severe measures for isolation of the cases are adopted the people will hide their disease as long as they possibly can.

Wiener medizinische Wochenschrift.

December 7, 1918.

The Choice of Isoquinolinic Alkaloids (Isochinolinalkaloide) of Opium and Emetine, and Their Therapeutic Uses.—J. Pal recalls the fact that these alcaloids diminish the tonus of the unstripped musculature and therefore are of appreciable utility in the treatment of certain painful spasms (arteries, bladder, intestine, etc.). The writer, however, shows that this hypotensive action

is not accompanied by an increase in the lumen of these hollow organs. The chemical parenty of emetine with the alcaloids of opium caused Pal to experiment on their therapeutic substitution. Thus papaverin and narcotin possess a dilating action on the bronchial tubes as does emetine, but are devoid of the fluidifying action on the bronchial secretions. Papaverin, like emetine, has a decongestive action on the lesser circulation, an action which can be utilized in hemoptysis. In dysentery, the writer has noted an action of papaverin quite as efficacious as emetine, especially from the viewpoint of the control of rectal tenesmus. He likewise gives an outline of the reciprocal use of these divers alcaloids.

The Radiodiagnosis of the Consolidation of Fractures.—R. Lenk shows that the distinctness with which a callus can be seen does not indicate the solidity of the union, since a callus is more the evidence of the gravity of the fracture than evidence of its resistance. The writer proposes to manipulate the limb while observing the callus on the radioscopic screen. The degree of immobility will allow one to judge the amount of consolidation obtained.

Le Progrès Médical.

December 21, 1918.

Hexamethylenamine and Methylene Blue in Grippe.—Loeper and Grosdidier refer to a number of favorable reports on the intravenous administration of hexamethylenamine in influenza. The authors were, however, the first to make use of it and take this opportunity to state that in doses which aggregate 2 to 3 grams daily the drug is antithermic, sedative, and diuretic. They are convinced that this treatment will prevent and abort but not cure bronchopneumonia in a good percentage of grippe victims, while admitting that it sometimes fails perhaps more in streptococcic than other cases. When its action is positive, it is prompt and decided so that in failure there is time for other treatment. The authors are not partisans of the view that hexamethylenamine acts by the liberation of fomol, a bactericidal substance. Its beneficent activity they ascribe solely to its action upon the kidneys in stimulating the elimination of the disease virus. In confirmation it is added that it is the patient who shows prompt diuresis who recovers. There is some danger that too large initial doses may aggravate the albuminuria which is so common in these cases, so that it is best to begin with a low dosage and increase as rapidly as possible. In the case which does not respond to this drug methylene blue appears to give positive results. In 13 out of 20 cases of bronchopneumonia the authors saw recovery take place under methylene blue given by the mouth in usual dosage. In their experience the intravenous method was in no wise superior to the buccal route, and they therefore preferred the latter as being by far the simplest and absolutely free from danger. They would reserve this remedy for the bronchopneumonias of grippe just as they would employ hexamethylenamine for the first stages of the simple and toxic forms of the disease.

Bulletin Général de Thérapeutique.

December, 1918.

Treatment of the Pandemic of Grippe.—The editor gives a full picture of the various attempts in different parts of the world to prevent and cure influenza. He begins with plain, every day grippe and with its prophylaxis. This is bound up in isolation and segregation and in prevention of assembly by the public, in the disinfection of public buildings and transportation vehicles, in hygiene of the mouth and throat with antiseptic applications and the use of masks. Vincent would protect the eyes, believing that the spread of the disease may be traced to the ocular discharges. The author believes firmly in vaccination and for the present would make Pfeiffer's bacillus responsible for infection and strive to immunize against it. Under cure of simple grippe he recommends quinine as hydrobromate in connection with the usual aspirin or equivalents, and phenacetine. Given alone the latter drugs cause perspiration and otherwise appear to depress, so that he would combine quinine with aspirin. For persistent fever he recommends hydrotherapy. He believes in the colloidal metals and in heart stimulants like adrenalin and strychnine. A small quantity of alcohol is allowable. Under influenza with complications and increased severity, of course, he makes the statement that autotherapy has been tried extensively in these cases, whether with blood serum or blister serum. Injection of convalescent serum from others is advocated in this connection. Serotherapy against the various cocci of secondary infection is also used. These resources may be employed to prevent complications, while for cure after complications have developed the author believes in the various colloidal metals—the colloidal solutions of tin and arsenic have been used of late by competent authorities, while fixation abscess is another resource. In treating chest complications we must ask: "are we menaced by pneumonia or edema of the lungs?" It is often in the fulminant case that we have no absolute means of judgment. We may combine these fulminant cases under the name of asphyctic grippe. In such cases we cannot do much with drugs, unless they are given by intravenous injection, as their absorption when exhibited per os would be very problematical. Copious venesection followed by saline infusion is our only recourse unless Vincent's hot baths prove of value. The author is silent as to camphor in this connection.

Il Policlinico.

December 18, 1918.

Influenzal Pneumonia and Pestous Pneumonia.—Dragotti refers to the frequency and severity of pneumonia in widely separated epidemics of influenza during the past year, which led many to ask soberly "is not this affection true pestous pneumonia?" It was evident that on the furthest Eastern fronts of battle severe affections of the troops were pardonably placed in hypothetical connection with the bubonic plague and not only the rank and file, but people of class were by no means certain that the lung pest had not gained a foothold in Europe. The bacteriologists quickly and finally placed the quietus on all such reports, but all men are not yet convinced that some occult connection between the two pestilences does not exist. In regard to anatomical appearances but few Italian pathologists have personal knowledge of the lung pest. Despite alleged great similarities in the finds, no buboes have been seen anywhere. This fact, together with certain dissimilarities in the affected lungs, constitute strong testimony for the dualist, but the unicist is not wholly convinced because the pandemic has not subsided and something may yet appear to support his contention. In this connection the author cites the finds of Symmers of New York as to the many analogies and the few points of difference in autopsy lung finds. On the other hand, De Brume of Paris, who has evidently taken care of both types of case, speaks of clinical differences. The cough in the lung pest is unique and has not been seen in influenza. There is one paroxysmal expiratory effort every ten or twenty seconds which persists even through much of the night. With all of this cough we see very little expectoration and then very inoffensive looking, although swarming with pest bacilli. Only occasionally is the sputum abundant and rusty. Dyspnea and cyanosis are constant and largely unmotivated as in fulminant influenza without frank pneumonia. In many cases at least the lungs on physical examination are nearly sound and the heart suffers but little if at all—these people do not die by the heart. But in the secondary pneumonia of the bubonic plague the phenomena differ from pestous pneumonia as a primary affection. Further clinical comparison between influenza and lung pest reveals numerous dissimilarities. In the latter there is no delirium and the mind is clear to the last. In conclusion the greatest similarity is in anatomical finds, while extreme dissimilarity is seen in both bacteriological and clinical aspects. To this add the differences in epidemiology and the unicist has little to sustain his viewpoint.

Book Reviews.

COMPENDIUM OF HISTO-PATHOLOGICAL TECHNIC. By EMMA H. ADLER, Formerly Technician Pathological Laboratory, Presbyterian Hospital, New York. Price $1.25. New York: Paul B. Hoeber, 1918.

THIS is a useful little compendium of histological technic. It is intended for the use of the student untrained in laboratory work and should well fulfill this purpose.

WAR SURGERY OF THE ABDOMEN. By CUTHBERT WALLACE, C. M. G., F. R. C. S. Eng., M.B., B.S. Lond. Surgeon, St. Thomas' Hospital; Lecturer on Surgery in the Medical School; Consulting Surgeon, British Armies in France. Pp. 152, with 26 illustrations. Price, $3.00 net. Philadelphia: P. Blakiston's Son & Co., 1918.

WHILE this book appeared too late to aid in the training of many American surgeons for war service, fortunately it is a book whose value does not cease with the signing of the armistice but will be of value in solving certain problems in civil practice also. Based upon the author's experience as Consulting Surgeon to the British Armies in France, and with the utilization of material drawn from a sector of the battle line over a period of 30 months, naturally the methods recommended and the conclusions drawn are of much more than ordinary interest, particularly since the author's statistics are based upon the careful study of nearly 1,000 operated cases.

The introductory chapter discusses the utility of former experiences in war surgery, methods of treatment in the earlier periods of the war, and various other subjects bearing upon actual war problems. The second and third chapters also are largely concerned with the surgery of war rather than of wounds received under such conditions as might obtain in civil practice. The remaining chapters, however, contain much material of the greatest value to the civil surgeon who may have to deal with gunshot and other abdominal injuries, and have the following headings: "Diagnosis and Treatment Considered Generally; Wounds of Hollow Alimentary Organs and Their Treatment; Wounds of Solid Alimentary Organs and Spleen; Genito-Urinary Organs; Abdomino-Thoracic Wounds and Diaphragmatic Herniæ; Causes of Failure; and Statistics, Results and the Future."

Wallace finds that experience has shown the wisdom of operating as a routine measure in abdominal cases; but that there are some exceptions, such as, (1) Cases in very bad condition; (2) Cases shot high up in the abdomen in the liver area; (3) High abdomino-Thoracic wounds on the left side; and (4) Cases arriving late—after 24 hours. In some of these classes, especially the first, the question of operation is a matter for the individual surgeon to decide. In these, he says, the pulse will be a valuable guide and the bolder surgeon may get the worse operative mortality and yet save more lives. In considering wounds of individual organs statistics are given showing results under different methods of treatment and with various methods of operative technique. These statistics should be of great value to surgeons in civil practice who are sometimes called upon to operate upon cases of gunshot wounds of the abdomen; while the text is filled with valuable observations and suggestions.

WAR SURGERY FROM FIRING LINE TO BASE. By BASIL HUGHES, D.S.O., M.A., M.B., B.C. (Cantab.), B.S.C. (Lond.), F.R.C.S. Temporary Major, R.A.M.C., T.F., and H. STANLEY BANKS, M.A., M.B., Ch.B. (Glasg.), D.P.H. (Cantab.), Captain R.A.M.C., T.C., with special chapters by Lieut. Colonel L. F. SMITH, C.M.G., R.A.M.C., and Miss C. BILTON, R.R.C., Q.A.T.M.N.S., and an introduction by Colonel Sir T. CRISP ENGLISH, K.C.M.G., F.R.C.S., A.M.S., Consulting Surgeon to the British Forces in Italy; Formerly to the British Salonika Force; Surgeon St. George's Hospital, London. Price, $9.00. New York: William Wood & Co., 1919.

THE title of the work expresses its contents. It is a description of the manner in which wounded soldiers were treated from the time they were first wounded until they were discharged. Only the newer methods are discussed. The authors are peculiarly well adapted for the writing of such a work, as their experience was gained from three and a half years' work on both the Eastern and the Western Fronts, during which time they were engaged in all the different kinds of surgical service that fall to the lot of an army surgeon in war time.

Gunshot fractures are dealt with at considerable length and the subject is handled from all angles. It was found that the Carrel-Dakin treatment, when properly and systematically applied to war wounds, gave the best results. The chapters concerned with the conditions peculiar to airmen contain a good deal of valuable and interesting matter and it is pointed out that the immediate danger of wounds inflicted on men whilst flying is uncontrollable and rapid hemorrhage, due to the rarefied state of the atmosphere.

The authors found that superficial wounds caused by hand grenades and into which dirt and very small fragments of thin metal had been driven were best cleaned by scrubbing with hydrogen peroxide. Messrs. Hughes and Banks appear to be in favor of mechanical means for keeping fractured limbs in place, and little mention is made of passive and active movements in the treatment of broken limbs. The treatment of burns is considered at length and it is stated that paraffin wax is the best dressing for burns if applied within an hour or two of the injury.

Lieut. Col. L. F. Smith contributes a chapter on the effects of climate and certain diseases on wounds with diagnosis and treatment, and Miss C. T. Bilton writes regarding nursing on active service. The work is adequately illustrated. In fact, the colored illustrations are quite a feature of the book, being distinctly comical. It is not usual to inject humor into works on surgery. However, it is by no means a displeasing innovation. Some of the colored representations of the wounded remind one of Bairnsfather's cartoons. The object of the funny cuts may be to show that the British Tommy is cheerful and inclined to joke even in the most untoward circumstances. In any event, the colored illustrations certainly add to the interest of the work, and they are thoroughly correct in what they are intended to show in the way of splints and dressings. The book is thoroughly modern and eminently practical and shows how successfully wounds can be treated when a definite plan of campaign is laid down and strictly adhered to. It should be mentioned that the authors discuss the general health of troops while in the trenches, as they are convinced that prophylactic measures mean everything to the soldier when his day of misfortune arrives.

SURGICAL APPLIED ANATOMY. By SIR FREDERICK TREVES, Bart., G.C.V.O., C.B., LL.D., F.R.C.S. Eng. Sergeant Surgeon to H. M. the King; Consulting Surgeon to the London Hospital; Late Lecturer on Anatomy at the London Hospital. Seventh Edition. Revised by ARTHUR KEITH, M.D., LL.D. Aber., F.R.C.S. Eng., F.R.S. Hunterian Professor and Conservator of the Museum, Royal College of Surgeons of England; Formerly Lecturer on and Senior Demonstrator of Anatomy at the London Hospital; Examiner in the Universities of Aberdeen, Cambridge, etc.; and W. COLIN MACKENZIE, M.D. Melb., F.R.C.S. Edin., F.R.S.E. Member of the Council of the Anatomical Society of Great Britain and Ireland; Formerly Lecturer on Applied Anatomy, University of Melbourne. Price, $3.00. Philadelphia and New York: Lea & Febiger, 1918.

WHEN a book reaches a seventh edition it rarely needs favorable comment by the reviewer to stimulate its distribution. This is particularly true of Treves' Surgical Applied Anatomy; for it has enjoyed a constantly increasing popularity for 35 years and is well and favorably known to a large majority of all those who have studied medicine and surgery during that period. The present edition has been revised in the light of recent surgical experience. Many additions have been made, especially in the field of orthopedic anatomy, which is concerned with "the kind of knowledge which is necessary for the successful treatment of stiffened joints and disabled limbs." Twenty-seven new illustrations have been added. The book contains, in compact form, information of great value to the operating surgeon as well as the interne and the student.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held November 26, 1918.

DR. WILBUR WARD IN THE CHAIR.

The Visitations of Influenza and Its Influence on Gynecological and Obstetrical Conditions.—Dr. LILIAN K. P. FARRAR presented this communication, in which she first reviewed historical data which showed that epidemics of influenza had occurred from time to time for many centuries. She said that though the uncertain and fragmentary character of the oldest medical chronicles did not permit the absolute identification of influenza with the "Epidemical Diseases" of Hippocrates or with "The Plague of Athens" described by Thucydides, nevertheless, many historians believed them to be one and the same disease. Chronicles gave evidence that influenza was probably endemic in Italy from the Sixth to the Tenth Century, but it was not until the Twelfth Century that the epidemic character of the disease was recorded. Dr. Farrar cited evidence to show that since that time epidemics of influenza had at intervals swept over Europe, though the term "influenza" did not come into use until the latter part of the Eighteenth Century, and was formally adopted by the College of Physicians in London in 1782. Seven epidemics of influenza were recorded during the Eighteenth Century, and in 1780 a remarkable pandemic encircled the globe. The Nineteenth Century was marked by several epidemics in Europe, four in the Western Hemisphere and by three pandemics. The type of influenza of 1889 differed somewhat from previous invasions in that while catarrhal symptoms were present the prostration and ensuing weakness were the most marked symptoms; but the chief characteristic of this epidemic, which had made it unique in the long history of invasions was the recurrence of the epidemic in three successive seasons. The present epidemic of the Twentieth Century, while yet unwritten, had contributed a name to history—"Flu"—descriptive not only of the disease, but of its power of mobility. In closing this historical review Dr. Farrar cited several theories that had been put forth from time to time to explain this illusive, universal disease which swept in waves over the earth at intervals. The cause of the disease had been sought in something as phenomenal as the disease itself, something telluric or cosmic. A mysterious something was looked for in the air, in the variations of the atmosphere, the alterations in drought and moisture, in effluvia from the soil, emanations from animals, earthquakes, volcanic eruptions, comets, and the relations of astral bodies. A remarkable theory of modern times had been expounded by Noah Webster. He said: "It seems probable to me that neither season, earthquakes, nor volcanic eruptions are the cause of the principal derangements we behold in animal and vegetable life, but are themselves the *effects* of those motions and invisible operations which affect mankind. Hence catarrh and other epidemics often appear before the visible phenomena of eruptions and earthquakes, and influenza is the effect of some excess of stimulant powers to the atmosphere by means of the electrical principle; for no other principle in creation which has yet come under the cognizance of the human mind seems adequate to the same effects." Dr. Farrar then considered the influence of influenza on the genital tract in women. That it had a very definite influence on both gynecologic and obstetric conditions was recognized and recorded in earlier epidemics, even Hippocrates having commented upon it. The influence of a severe attack of influenza upon menstruation was to markedly increase the flow if the onset of the disease coincided with the regular time of the menstrual period. The consensus of opinion was that menstruation did not render the individual more susceptible to influenza, but if the disease occurred it would call back a menstruation after a normal period had ended several days before, or it would bring on a period before its time. In either case the flow lasted longer and was much more profuse than normally. The bleeding was hard to check and frequently lasted until the influenza symptoms subsided. Often girls of ten or twelve years had their first period during an attack of influenza. In the presence of influenza the tendency of chronic uterine or pelvic disease was to almost certain acute exacerbation of local infection. According to Mynlieff, Gottschalk, and others, the cause of uterine bleeding was an acute infection of the mucous membrane of the uterus, as in other infectious diseases, as cholera, smallpox, typhus, and typhoid, as a result (1) of intoxication of the blood; or (2) due to a reflex motor disturbance of the uterus by infection in the respiratory or gastrointestinal tract; or (3) the bacillus itself caused an acute hemorrhagic endometritis. In discussing the influence of influenza on obstetric conditions, the essayist stated that pregnancy did not seem to make the individual more susceptible to influenza. Abortion was likely to occur at any period of gestation, but more especially in the early months, as the ovum was then more readily cast off. Dr. Farrar discussed the influence of influenza during the latter months of pregnancy, during labor and the puerperium, and concluded as follows: "(1) Mild attacks of influenza have no influence on gynecologic or obstetric conditions. (2) Severe attacks of influenza produce menorrhagia and exacerbation of chronic gynecologic conditions. (3) Severe attacks often cause abortion, premature delivery, or still birth. (4) Labor is prolonged and tedious. (5) Pregnancy has an unfavorable influence upon the course of a bronchitis or pneumonia in influenza. (6) Induction of labor has no beneficial effect upon the course of influenza. (7) The chances of general infection are greater if influenza occurs during the puerperium.

The Occurrence of Epidemic Influenza in Pregnancy.—Dr. GEORGE W. KOSMAK read this paper, in which he said that we might well inquire into the salient features that presented themselves to an observer which might be of assistance in future years if similar plagues came upon us. Had we learned enough from the incidence of influenza complicating pregnancy to warrant us in advising vaccine as a preventive or curative procedure, or if the influenza went on to the production of pneumonia were we warranted by our experiences to put an end to pregnancy? In answer to these questions it was difficult to formulate specific conclusions and the individual observer could do nothing more than present what in his opinion was a safe method of procedure. In presenting his own observations, Dr. Kosmak said he did so with the admission that they were limited to his personal experiences, that he had not drawn on the observations of others, and, being personal, such observations must necessarily be limited in scope. He had observed considerable differences on the course of the recent epidemic of influenza in different classes of the population. Among a series of private patients who were previously in good health and well nourished the symptoms complex described as influenza did not pursue any different course in the pregnant woman than in the non-pregnant woman. The question of prophylaxis against influenza infection was brought forward by the importunities of many patients who had read or heard of these procedures. He felt that he could not advise them satisfactorily, and consultation with both medical men and serologists failed to convince him that the procedure was either necessary or desirable. This might seem an iconoclastic attitude to assume, but in view of the scant knowledge we possessed regarding the causative germ of epidemic influenza, he did not feel it proper to subject pregnant women to a procedure the ultimate effects of which were doubtful at best and which, among other things, might lead to a sense of false security. He considered it more important to advise pregnant women to avoid crowds, to isolate themselves immediately if evidence of nasal discharge, cough, etc., appeared, to wear face masks if there were any other cases of influenza in the immediate family, and to keep their mouths as clean as possible by frequent rinsing with a mild antiseptic solution. Regarding the influence of the influenzal infection on the course of a pregnancy, it was not possible to make any definite statement. Among the writer's private cases there was only one case of threatened abortion in a patient, a II-para, who was about four

months pregnant. She developed a typical influenzal attack, but without any complicating pneumonia, and bled slightly for almost a week. Rest in bed and the administration of small doses of codeine, in addition to the treatment directed to the influenza itself, were all that were employed, and the pregnancy went on. In this patient there was a history of bleeding in the early months of her pregnancy, so that the influenza could not be accepted definitely as a factor. In neither his private nor his hospital practice did the writer notice any additional cases of this kind, except in one hospital patient with pneumonia in whom abortion at the fourth month took place. In one instance a nephritis developed which it seemed fair to attribute to the infectious disease as nothing of this kind had been observed in the patient's previous pregnancies. There were no signs of abortion in this case. During the height of the epidemic, from the end of September until the middle of November, there were twenty cases of undoubted pneumonia admitted to the wards of the Lying-in Hospital. Among these sixteen ended fatally. Four of these women were admitted after having been delivered at their homes. The others were all at or near term, with two at four or five months and two at seven months. Of twelve admitted at term and undelivered, five living children were delivered among the cases which ended fatally; of these two died within one or two days. Both premature babies died. In addition to the cases with complicating pneumonia, a considerable number of women in the wards had symptoms of the prevailing illness. The cough was the most troublesome symptom, although in none of the milder cases were any definite physical signs present in the chest. The women in labor who entered with the disease were isolated in a corner of the ward and the bed curtains drawn, but none of the milder cases developed pneumonia, nor did they apparently infect any of the other women as no cases whatever developed in the wards. In attempting to obtain a definite picture of the above group of cases, the impression was given of an illness of extreme severity in which the chances of recovery were doubtful in almost every case. Comparing the pregnant, however, with non-pregnant cases, he did not believe we could find any great degree of distinction. Pneumonia in a pregnant woman was always a serious complication, but their cases at least did not show that relief from pregnancy contributed to their well being. Personally, he did not believe that in a single instance would any better outcome have resulted had steps been taken to bring on abortion or labor in any of these cases. In the patient in whom an abortion resulted this was complete and easy, and in those in whom natural labor came on interference was only necessary in one case, in which a median forceps operation was done as soon as the patient was fully dilated. Labor in these severe pneumonias, as in eclampsia, often surprised one by its rapidity and ease. So far as prognosis in the baby was concerned, the essayist did not believe that we should sacrifice the chances of the mother in any way by the induction of labor or the employment of operative delivery in order to save the child. As to the treatment of these cases of pneumonia complicating pregnancy, no diversion need be considered from the usual routine. In conclusion, Dr. Kosmak said that if he were asked what he would do as the result of his observations in this epidemic in cases of influenza complicating pregnancy he would unhesitatingly answer, "Treat the influenza and let the pregnancy take care of itself." He would not resort to the induction of abortion unless some other circumstances called for the same. It seemed to him that the patient needed all her reserve strength to combat the toxemia from the influenza or pulmonary infection, and as her life was at stake she should not be jeopardized by adding the extra burden of an induced labor.

Dr. Frank Oastler said that he did not pay much attention to the disease when it first appeared. Later when the reports came in from the base hospitals in respect to vaccination they were fairly encouraging, so he decided to try it inasmuch as it was found to be harmless. He vaccinated 346 persons, twenty of them being pregnant women, and among these only one case of influenza occurred. This might be simply a circumstance. After he saw more of the disease and saw people dying in spite of everything that could be done for them, he felt that one was justified in vaccinating pregnant women, and he then vaccinated twenty pregnant women and none of them had influenza. That, too, might be simply a circumstance. However, among 346 persons it would seem that there would have been more than one case if there was nothing in the vaccination. Menstruation was nearly always induced among the women with influenza; nose bleeding occurred frequently among the men. Many women aborted or went into labor. He had had two cases of abortion and two cases of labor in pneumonia, and all four patients died. Of the two cases close to term the two children lived, one of these being a post-mortem cesarean section. These children were extremely cyanotic and it did not seem for a time that they would live. Every case of pneumonia that he had seen during the epidemic, and he had had ninety-eight cases, died with the exception of two. All forms of stimulation were tried, but without any effect whatever. Dr. Oastler said he had many horrible experiences during the epidemic. For instance, in one family of seven the disease broke out on Wednesday and by Sunday only two of the family were alive. Under such circumstances one felt justified in doing anything to protect the people. This might be the same disease we had in 1889 and 1890, but the virulence of the organism was different from anything we had had before. He had in years past had cases of ordinary grippe during pregnancy, and of five or six such cases that he recalled only one aborted, and she had a pleurisy with empyema but all got well. During the present epidemic all died and there seemed to be no way of saving them or of relieving them in any way. He had used three vaccines and had had no bad sequelæ from any of these vaccines.

Dr. J. Clifton Edgar said he had watched these two epidemics, the one in 1889-90 and the present one, in both hospital and private practice. While there was tremendous prostration in the former epidemic, there was not the prevalence of pneumonia and there was not the mortality that we had in the recent epidemic. In their reviews both Dr. Farrar and Dr. Kosmak thought abortion had no influence on the course of the disease. At Bellevue they thought the induction of abortion might help, but after due consideration it was decided to leave these patients alone. Dr. Edgar said he had not used vaccines in families other than those in which there were pregnant cases. There were sixty-one cases of influenza complicated by pneumonia on his Bellevue service and of these forty died, a mortality of 66.6 per cent. It would be ridiculous to say that these patients left the hospital in good condition, for most of them were in deplorable condition and were turned over to social workers. Of the forty fatal cases four died undelivered and thirty-six died after delivery. Of the four dying undelivered, one died at the fifth month of her pregnancy, one at the seventh month, and one at seven and one-half months. A post-mortem cesarean section was done in one case and the fetus was dead. Of the thirty-six cases that died after delivery, three were received as post-mortem cases, two were delivered at the fifth month, seven at the sixth month, eight at the seventh month, ten at the eighth month, and six at the ninth month. The only possible hint that these figures gave was that the further on in pregnancy the patient was, the greater was the interference with the diaphragm and lungs and the higher was the percentage of pneumonias developing. The severity of the pneumonias was the most striking feature. It progressed so rapidly that in several instances it was scarcely possible to get the patients off the delivery table before they died. Many patients brought to the hospital in ambulances with well developed pneumonia died in twenty-four, forty-eight, or seventy-two hours. Another characteristic observed was the severe toxemia of the pneumonia, the early collapse with cyanosis, and the rapid progress of the disease, with death a few hours after labor. The extent of the consolidation had impressed the speaker forcibly, there being at first a small area of consolidation in the lobar cases and large areas of consolidation, sometimes the whole of one side, in the bronchial variety. The early pulmonary edema was very characteristic and there was an almost constant occurrence of still births. The ordinary treatment for pneumonia was practically a failure. The

best results were obtained with digitalis. In the presence of kidney complications or a toxemia of pregnancy the cases almost invariably terminated fatally.

Dr. JOSEPH BRETTAUER said that his experience with these cases during the brief period from October 6 to 16 was still vivid in his mind and the depression caused by it was still present. He saw ten cases during that time, all of which ended fatally. The history of one of these cases was applicable to all. A young woman, between twenty and thirty years of age, either at or close to term, severely cyanotic with labored respiration, but no very extensive signs of consolidation of either lung, a rapid pulse and a temperature varying between 103° and 106°; the child found dead in utero from twenty-four to thirty-six hours before the onset of labor. Labor progressed normally with but slight effect upon the general condition of the patient. The respiration post partum seemed somewhat easier for a few hours, but cyanosis increased and death occurred between twenty-four and thirty-six hours post partum. Subsequent to the above mentioned dates he saw several additional cases and observed a lessened virulency of the infection. None of these cases ended fatally. The results obtained by immunization with various vaccines were doubtful. If Dr. Oastler vaccinated 350 cases and found that only one of them contracted influenza, it would seem as though the procedure must be of value if his experience was statistically correct. Immunization was resorted to at Mt. Sinai Hospital, but the number was too small to justify any positive conclusions. One positive deduction was made, however, and this was that among those attacked by the influenza there was no decisive difference in the percentage of those who had been immunized and those who had not.

Dr. HIRAM VINEBERG mentioned that a major had told him his experience in a cantonment. Five hundred men were given vaccines and 500 others received no vaccines. Of the 500 men who did not get the vaccine 33 per cent. contracted the disease, while of the 500 who received the vaccines only about 11 per cent. contracted the disease.

Dr. GEORGE GRAY WARD expressed his appreciation of the papers and said that his experience was very similar to that of the other speakers. He related one sad case occurring near the end of the sixth month of pregnancy. This woman developed influenza and pneumonia with marked cyanosis and died within seventy-two hours. There were no signs of the onset of labor in this case. Several other cases in pregnant women he put to bed and treated symptomatically, and there was no disturbance so far as the pregnancy was concerned.

Dr. J. CLIFTON EDGAR said that he had used a number of methods of vaccination, but not in pregnant women. As Dr. Kosmak had stated, they felt that it might be better not to attempt vaccination in these women until they felt more certain of its immunizing value. In families in which there was a case of pregnancy he vaccinated everybody, from the furnaceman up, except the pregnant woman. He had vaccinated over 200 persons in families in which there was a pregnant woman and had been able to follow every person, and he did not know of any one who had contracted influenza; but 200 cases did not mean much. He hesitated to use vaccines in pregnant women for fear of miscarriage.

Dr. HIRAM VINEBERG related an interesting case that he was called to see out of town. The woman was three days post partum, was running a temperature, and was fairly ill. She had been seen by several medical men who diagnosed the case as influenza and thought the fever was due to that disease. It seemed to the speaker that the case was one of septic infection, and subsequent events showed that his diagnosis was correct. This case was cited to bring up the question as to whether others had been called in consultation to determine whether a case was one of influenza or sepsis.

Dr. KOSMAK, in closing, said that the discussion seemed to have hinged on the value of vaccination. His reason for not giving the vaccination was that it gave a false sense of security. On the other hand, mechanical prevention was very important. He felt that we knew so little in regard to the value of vaccination that he was not warranted in subjecting a pregnant woman to this slight procedure. Nobody would say that it would do any harm, but that was not enough. Vaccination among soldiers in camp, where they were under constant observation, was a very different proposition from vaccinating individuals whom we could not follow. Dr. Kosmak said he had been led to take up the question of inducing abortion in pregnant women with influenza because a wave of hysteria seemed to be sweeping over the physicians on the East Side and word was passed around among them that every case of influenza in a pregnant woman ought to be aborted, and that had led him to suggest a symposium on this subject. The marked cyanosis in these cases did not seem to be due to want of air in the lungs, since some of the patients had very small areas of consolidation and yet would be almost black. It was thought that they might have hemolytic streptococcus infection, and this was found to be true in one case, while one of the blackest cases was sterile. As to the manner of infection, many of the nurses and personnel of the hospital were ill with the disease, but no cases developed in the wards. When cases came in with the infection they were isolated at the end of the ward and the disease did not spread in the ward. It had been a surprise that the cases in which labor came on were just like eclampsia in that labor was easy, natural, and rapid. He felt confident that if the induction of labor had been undertaken with the introduction of bags, etc., the cases would have had a much more serious course than they did.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting Wednesday, January 22, 1919.

THE PRESIDENT, DR. B. FRANKLIN STAHL, IN THE CHAIR

Social Disease in the Army.—Dr. EDWIN S. COOKE said that the prevalence of venereal diseases in the National Army had been the cause of much anxiety to the officers upon whom devolved the care and training of the youths in the service. From the writer's experience during fourteen months in the venereal work of one of the largest cantonments of the Army in this country he was forced to the conclusion that it was the unsuspected sufferers from venereal indiscretion, but revealed by the exigencies of military examinations, who were responsible for aspersions cast upon the Army and Navy. The first means toward safeguarding the soldiers from infection after induction into service was the selection of remote sites for cantonments by which so much, apparently unnecessary, hardship was entailed upon the soldiers and their friends. The disproportion between infections acquired before and after induction was approximately 95 to 5. Certain organizations showed a still lower percentage of incidence while in service. Of the infections acquired after induction many were of only brief duration and in all, cure occurred more quickly than would have been the case in civilian life. Examination by dark field illumination was required in every case of an open lesion upon the genitals, and a routine Wassermann blood test was made upon every soldier admitted to the venereal wards of base hospitals. The military hospital treatment of syphilis consisted of courses of arsphenamine, mercury, and in latent cases, or when tertiary lesions were manifest, iodides, which necessarily caused considerable loss of time from active duty, and entailed upon the Government an enormous expenditure of money for drugs and in pay for the incapacitated soldiers. It was the rule in the Army not to deprive men of their pay while under treatment for venereal disease, provided they became infected prior to entrance into military service. By reason of the rigid enforcement of sanitation the incidence of ophthalmic infection had been reduced to a minimum. In the writer's experience not a single case of acute gonorrhœal ophthalmia arose in any of the wards under his care during the entire fourteen months of service. This record could be attributed to the admonitions of medical officers and attendants who were ever watchful lest an infected soldier should become lax and transfer the pus to his own eyes or those of others, and thereby subject the officers to reproach and a possible court martial examination upon the charge of negligence. As

contrasted with his civilian brother the soldier with social disease had by far the better of the argument, since he was not forced to hide his ailment, to treat himself with quack nostrums, or to prolong the malady by active exercise. It would seem therefore that the soldier was fairly well safeguarded and that it was rather the civilian population whose attention should be directed toward lessening the social evil.

Treatment of Early Stages of Syphilis.—Dr. Hiram R. Loux believed that with the early diagnosis of syphilis much could be done to prevent the rapid invasion and frightful sequelæ of this disease. All were convinced that there has been a percentage of cure by control. With the arsenical preparations a remedy had been found more speedy in its control possibly than was mercury. Excision of the sore did not prevent constitutional manifestations, but under careful examination the spirochætes were revealed and he believed it important that the general practitioner should be adequately equipped to make such examinations for early diagnosis. The State and municipal laboratories he said were available for the benefit of patients who could not pay for laboratory examinations, and he felt that if the profession at large could be induced to exercise particular care in such studies the percentage of the sequelæ of syphilis could be greatly reduced. He did not believe justice was done to patients unless in examinations there were checked up results in both the cerebrospinal fluid and blood tests. In the treatment of early syphilis there should be mapped out a régime of treatment as in tuberculosis. Why, for example, he asked, should one who had acquired syphilis be allowed to go about at will? Since it was known that in early syphilis the use of alcohol often destroyed the effect of treatment, why should it not be prohibited? Also, the labor of the patient should be regulated that his strength might not be overtaxed. The small and frequently repeated dose of salvarsan he had found to give better results than when the drug was given less frequently but in larger dosage.

Intraspinal Therapy in Syphilis.—Drs. Jay F. Schamberg and Albert Strickler said that their results in the intraspinal treatment of syphilis had convinced them of the indispensability of the method in appropriate cases. The paper presented the history of a group of cases so treated. No conclusive deduction, he said, could be drawn giving the reason why the combined intravenous and intraspinal injections effect better results than the intravenous alone. It might be that the blood serum sets up a mild aseptic meningitis and that this process increased the permeability of the choroid plexus to the passage into the spinal fluid of the arsphenamine charged blood plasma. Other physical conditions induced by the injection of the blood serum into the subdural space might likewise be operative. Dr. Francis X. Dercum was quoted as stating that he had seen on many occasions improvement in the symptoms of nerve syphilis brought about by the injection into the spinal canal of plain blood serum. Dr. Schamberg believed the query whether intraspinal treatment in syphilis would achieve that which could not be accomplished by other means was answered by the results obtained in patients in whom intravenous medication had been first tried with negative or mediocre results, and in whom combined intravenous and intraspinal treatment afterward brought about brilliant results. Case XVI was a striking example of this. The patient had had numerous intravenous injections of arsphenamine associated with the use of mercury and iodides administered in approved form. Not only was there no improvement, but the patient grew progressively worse and became incoherent and irrational. Thirty-six hours after the first combined intravenous and intraspinal treatment the patient's mind and speech suddenly cleared up, and had remained normal to the present time, a period of seven months. It was now realized, the speaker said, that syphilis might occur without any local lesion recognizable clinically as a chancre. If it were ultimately proved that there was a special strain of spirochetes having an affinity for nerve structure, it might possibly be demonstrated that infection with such strains induced relatively little reaction in cutaneous and mucous tissues. Another plausible explanation of unsuspected syphilis was that there might be a synchronous infection of gonorrhea and syphilis, the chancre being located in the urethra. Whatever the true explanation, the fact remained that there were encountered many cases of late syphilis in patients in good social standing who had no knowledge of a chancre or of any other antecedent manifestation. During the secondary stage or period of vascular diffusion of the spirochetes these parasites were carried to the central nervous system and either brought about inflammatory changes in a few months or years resulting in the exudative form of nerve syphilis, or in the course of years insidiously led to inflammatory and degenerative types such as tabes dorsalis and paresis. Regarding the limitations of intraspinal therapy, the author said one could never hope to restore degenerated nerve tissue. Paresis could not be cured unless treatment were begun at an extremely early stage. The most favorable time for treatment was before clinical evidence of paresis developed. A routine examination of the spinal fluid in all cases of syphilis would enable physicians to detect the pre-paretic stage by the spinal fluid findings. Systematic treatment at this time would doubtless prevent this unfortunate eventuality. The same statement was to a greater extent true of other forms of nerve syphilis which were more amenable to treatment. There were needed numerous well equipped institutions and well trained men to carry out the arduous work which such systematic examinations and treatments would entail.

Dr. William H. Mackinney urged that the only hope of avoiding grave constitutional manifestations and involvement of the central nervous system in syphilis lay in early diagnosis and treatment. To the genito-urinary man early syphilis meant the initial lesion and a negative Wassermann reaction. With the advent of a positive Wassermann there was late syphilis, a constitutional syphilis which invaded every organ in the body. There was only one stage of early syphilis, generally the first week or ten days of the chancre. Constitutional syphilis was present at the end of three weeks and not at the end of six weeks. Every sore not interfered with by mercurial washes or powders could be examined for spirochetes by the dark field illuminator in five or ten minutes. In all medicine there was no disease in which in connection with diagnosis a period of two weeks made so much difference as in syphilis. If a negative Wassermann were waited for one would wait until constitutional syphilis was present. Whenever possible without mutilating the part Dr. Mackinney excised the chancre. This did not mean anything in the way of cure but that there was removed a hard indurated area of infection which in all probability was not easily influenced by anything put into the man's body at any other part of his anatomy.

Dr. Alfred Gordon said that in a series of cases of neurosyphilis of great variety treated by the intraspinal method his results had coincided with those reported by Dr. Schamberg. In one case of a locomotive engineer who suffered with lancinating pain and ataxia there was entire relief following one treatment by the intraspinal method. In another case in which the patient was incapacitated he was able to resume his work after two treatments with an interval of two weeks. Dr. Gordon had obtained moderate improvement in early stages of paresis, but not in the late stages. Recalling the tremendous number of spirochetes to be observed in the meninges it was not to be wondered at that their removal was practically impossible.

Dr. F. X. Dercum said that in the diagnosis of all cases in which neurosyphilis was suspected examinations should never be confined to the blood tests. The examination of the spinal fluid was an absolute necessity. In the intraspinous treatment of syphilis in his own clinic, where the method was practised most extensively, drainage was much more freely done than by Swift himself. In paresis the most serious problems were presented and he had yet to see cases in which paresis had been cured. These patients might improve for a time and remain apparently well for years, but when the metabolic processes began to fail the spirochetes got the upper hand and then followed tabes and paresis. In the paretic case emphasis should be placed upon the importance of treating the general condition of the patient.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, January 1, 1919.

THE PRESIDENT, COLONEL RICHARD H. HARTE, IN THE CHAIR.

Reconstruction Program of the Public Health Service.—Senior Surgeon CHARLES E. BANKS, U. S. P. H. S., Washington, D. C., said that the writer of the history of the present war would find among the most significant of its developments the achievements of the medical profession in the field of preventive medicine; in the huge army of nearly five millions mobilized in the United States there had been less than 200 cases of typhoid fever. One might safely say that as a result of the remarkable work in sanitation and preventive medicine carried on by the allied medical organizations, hundreds of thousands of fighting men had been preserved from ignominious death from preventable disease. That which had been accomplished in the military zone under most unfavorable environments, the author said, could be duplicated in civil life under less complicated conditions. The men whose lives had been saved by the application of modern sanitary methods and the principles of preventive medicine understood the necessity for the application of sound sanitary principles to the ordinary daily walks of life. They would not only practise these principles themselves, but demand that those in authority in health matters should apply them in the interest of the public health. The superficial work which had characterized a good deal of the health activities in the past would be no longer tolerated. The medical profession must be prepared for a reconstruction of methods in connection with the public health. The saner logic of preventive medicine would supersede the ancient order of attempting to cure disease that has become established. The leadership in this period of reconstruction would naturally devolve upon the United States Public Health Service. The program with which this national organization intended to meet the emergencies of the situation was comprehensive and far-reaching and for its full success was dependent upon the cooperation of organized medicine. Such program, it was said, met urgent national needs by outlining health activities which were practicable and which would yield the maximum result in protecting national health and would diminish the toll of thousands of lives sacrificed by preventable disease and insanitary conditions. The program comprised exhaustive work under industrial hygiene, rural hygiene, prevention of the diseases of infancy and childhood, water supplies (national development of safe water supplies), milk supplies (national development of safe milk supplies), sewage disposal, malaria (national development of measures for its control), venereal diseases, tuberculosis, railway sanitation, municipal sanitation, health standards, health education, collection of morbidity reports, organization and training for duty in emergency of the Reserve of the Public Health Service. The speaker said if this great world war had found the nation unprepared, the same should not be true in this period of reconstruction.

Dr. J. M. ANDERS stated that public health activities had greatly suffered during the war, which was perhaps especially true of civilian tuberculosis activities, for the reason that many able workers were in the army and navy. Perhaps the most important of the lessons learned in the recent world war was the fact that the individual efficiency of the men on the firing line was the foremost factor in modern warfare. The large percentage of rejections, by the local draft boards, of the men called to the colors directed especial attention to the problem of physical education in this country during this reconstruction period. Every individual, it seems to him, should be taught how to promote his or her health and he believed this could be best accomplished in connection with public and secondary schools as well as in the colleges and universities. While the idea of universal military training should be encouraged, the scope of the plan should be, and the one presented to-night was, sufficiently comprehensive to include the entire American race. Dr. ANDERS believed that if in the immediate future sufficient attention were devoted to the matter of physical education many of the details in the program just outlined by Dr. BANKS would in due course be found to be unnecessary. All are probably aware of the fact that in England there had recently been formed a ministry of health which would combine and coordinate all the public health activities under one head. Such a reorganization of the public health activities in this country was reported as a consummation devoutly to be wished for, and which would certainly facilitate that which Dr. BANKS had emphasized, namely: The necessity of sympathetic cooperation among all allied agencies having to do with public health work. Moreover, he felt strongly that there could be no more propitious time than the present to set in motion efforts to such end.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

TEXAS STATE BOARD OF MEDICAL EXAMINERS.

Austin, June 18, 1918.

(*Concluded from page* 310.)

GYNECOLOGY.

1. Differentiate irritable bladder from cystitis.
2. How would you manage septic abortion, incomplete, with hemorrhage?
3. What are the sequelae of a second degree tear of the perineum of years' standing?
4. Differentiate threatened abortion and tubal pregnancy at six weeks' gestation.
5. Give your technic in nephropexy.
6. Differentiate sarcoma of the ovary and fibroid of the uterus, tumors of the same size.
7. What are the following: Bartholin's glands; Gartner's duct; cysts of Morgagni; episiotomy?
8. Give operative technic and after care in cystocele, rectocele, in women of fifty years of age.
9. Describe the female urethra.
10. What are the symptoms of prolapsed ovaries?

SURGERY.

1. What are the indications for enucleation of the eye ball?
2. Give the diagnosis and surgical treatment of infection of the antrum of Highmore.
3. Describe the technique of an operation for the transfusion of blood.
4. What is a bunion and describe an operation for relief of same.
5. Differentiate between acute appendicitis and a calculus lodged in the right ureter at the brim of the pelvis.
6. Diagnosis and treatment of splenic anemia (Banti's disease).
7. Diagnosis and surgical treatment of chronic enlarged prostate in the aged.
8. Diagnosis of acute intestinal obstruction.
9. Diagnosis and surgical treatment of acute perforation of a gastric ulcer.
10. Diagnosis and treatment of fracture of the external condyle of the humerus.

MEDICAL JURISPRUDENCE.

1. Name the two classes of witnesses and differentiate.
2. Define cadaveric spasm and explain its importance in suicide.
3. Differentiate between male and female pelvis.
4. Define puerperal insanity.
5. Give signs of pregnancy.
6. Give difference between civil and criminal malpractice.
7. Differentiate between amentia and dementia.
8. What is a lucid interval?
9. Define cerebral neurotics and name two.
10. Give symptoms of carbolic acid poisoning.

ANSWERS.

GYNECOLOGY.

1. In *cystitis*, the symptoms are: Frequent urination, with tenesmus and a burning sensation in the

urethra; later on pain in the bladder, hematuria, and the urine contains pus and epithelial cells. Chills, fever, rapid pulse, and headache may also be present. A feeling of weight or pain in the pelvis is noticed. Cystoscopic examination will show an area of inflammation.

In *irritable bladder*, the symptoms are: Increased frequency of urination, with tenderness at base of bladder. There is no pus in the urine, and no inflammatory area will be found on cystoscopic examination.

2. In *incomplete, septic, abortion*, the uterus must be emptied at once; the cervix may need to be dilated, and a finger or curette may be used to clean out the débris. Irrigation with an antiseptic is next indicated; the uterus is then plugged with iodoform gauze, which is allowed to remain for twenty-four hours. Subsequent irrigations with saline solution or an antiseptic are required. Subsequent treatment is on the lines of that used in ordinary puerperal sepsis. Rest, stimulating food, tonics, and good nursing are imperative.

3. *Sequelæ of torn perineum*, are: Rectocele, cystocele, prolapsed uterus, loss of support of pelvic floor and viscera.

4.

ABORTION.	ECTOPIC PREGNANCY.
1. Onset quiet, with gradually intensifying and regular pains in the lower abdomen, resembling labor.	1. Onset stormy, with irregular and colicky pains, sometimes few and excruciating, localized on one side.
2. External hemorrhage profuse or moderate, with clots.	2. External hemorrhage slight or absent and dark fluid.
3. Symptoms of hemorrhage proportionate to visible blood-loss.	3. Symptoms of hemorrhage and shock much greater than visible blood-loss.
4. Discharge of parts of ovum.	4. Only a uterine decidua, if anything; no villi.
5. Demonstration of ovum in uterus or empty uterus and empty pelvis.	5. Finding of a mass alongside the uterus.

—(De Lee's *Obstetrics.*)

5. *Nephropexy:* "A lateral incision is employed, extending from just above the last rib nearly vertically down to the crista ilii; the muscles are divided; the last dorsal nerve is retracted and protected; and the kidney in its fatty capsule exposed and cleared. The upper half of the fibrous capsule is then dissected up from the posterior surface and carried round the last rib to serve as a sling to the kidney; the apex of this flap is secured to its own base. Two silkworm-gut stitches are passed under the capsule of the lower half of the organ in a semicircular fashion, and carried through the muscles and skin at the upper angle of the incision, being finally tied over a pad of gauze and retained *in situ* for three weeks. The wound is then closed in the usual way, and dressed, special care being taken to exercise pressure over the right iliac fossa below the kidney by a suitable pad of sterilized wool. The organ is thus firmly fixed, but it is wise to keep the patient in bed for four or five weeks subsequently, to allow of consolidation, and afterward a binder or belt should be worn for a time."—(Rose and Carless' *Surgery.*)

6.

FIBROID OF UTERUS.	OVARIAN TUMOR.
1. Slow growth.	1. Usually more rapid growth.
2. Facial expression unchanged. Face may be full and flushed; later pale from hemorrhage.	2. Facies ovariana in later stages.
3. General health not necessarily impaired except from loss of blood if submucous or mural; may be painful.	3. General health early impaired from emaciation. Not painful.
4. Abdomen often asymmetrical from irregular shape of tumor.	4. Abdomen more symmetrical, especially when tumor is large.
5. Usual menorrhagia.	5. Menstruation unchanged or diminished.
6. Vaginal touch and conjoined examination show tumor dense and firm, and, unless pedunculated, continuous with uterus. Uterus large and heavy.	6. Uterus normal, except displacement from pressure. Tumor separate from uterus.
7. Uterine cavity much elongated.	7. Not materially elongated.
8. Uterus moves with tumor.	8. Does not move with tumor.

—(From Dudley's *Gynecology.*)

7. *Bartholin's glands* are two small glands situated one on either side of the vaginal orifice.

Gartner's duct is a tube which extends (during fetal life) from the broad ligament to the wall of the uterus and vagina.

Cysts of Morgagni are structures sometimes found in connection with one of the fimbriæ of the Fallopian tube.

Episiotomy is a lateral incision of the vulva performed with the idea of enlarging the vaginal outlet and so preventing extensive laceration.

8. For the *rectocele*, "the patient is secured in the lithotomy position, and the vagina thoroughly exposed with retractors. An elliptical incision, one end of the major axis being close to the cervix, the other near the vulvar orifice, is made in the mucous membrane of the posterior vaginal wall, taking care not to cut deeper than the rectovaginal septum, lest the bowel be opened. The vaginal mucous membrane is then cautiously dissected off; the amount to be removed is estimated by the laxity of the parts and the degree of narrowing which the operator regards as necessary to meet the needs of the case. After removing the vaginal wall and securing the bleeding vessels the cut edges of the mucous membrane are brought into apposition by a continuous silk suture or interrupted suture of silkworm gut or such other material as the operator thinks well to employ. The patient is kept in bed for at least two weeks; her bowels are regulated, and the bladder should not be allowed to become overdistended. The sutures should be removed in about ten days." For the *cystocele*, "a similar procedure is carried out on the anterior vaginal wall. The bladder is very liable to be injured in dissecting off the mucous membrane, and is particularly liable to be punctured when the sutures are introduced."—(Sutton and Giles' *Diseases of Women.*)

9. *The urethra in the female* is about an inch and a half in length and its transverse diameter is about a quarter of an inch; it is embedded in the anterior vaginal wall; its direction is downward and forward, and its walls are anterior and posterior. It passes through the two layers of the triangular ligament. The external orifice is the narrowest part, and opens between the labia minora, immediately in front of the external orifice of the vagina, and about an inch behind and below the clitoris.

10. *The symptoms of prolapsed ovaries*, are: Pain, which is made worse on standing, walking, exercising, and during coitus, defecation or urination. The pain is in the iliac region or near the sacrum, and may radiate to the rectum, hips or thighs. There are menstrual disturbances such as menorrhagia and dysmenorrhea. Faintness, nausea, vomiting, hysteria, indigestion and neurasthenia may be present.

SURGERY.

1. The *indications for enucleation of the eye* are: "(1) Injuries of the ciliary region when the eye is completely blind, or the traumatism so extensive that the form of the eyeball cannot be preserved; (2) traumatic irido-cyclitis, to prevent or cure sympathetic ophthalmia; (3) severe pain in a blind eye; (4) irido-cyclitis, phthisis bulbi, and glaucoma, when accompanied by severe pain or inflammatory symptoms, and when the eye is blind or is certain to become so; (5) malignant tumors, either intraocular or epiocular, if they cannot be removed with retention of the eyeball; (6) anterior staphyloma, if the eye is blind, troublesome, and dis-

figuring; (7) panophthalmitis, after the suppurative stage is passed; (8) foreign bodies in the eye when they cannot be removed and cause irritation, or the eye is blind."—(May's *Diseases of the Eye.*)

2. Abscess of antrum of Highmore. *Symptoms:* "There is pain, tenderness on pressing over the canine fossa or on tapping the teeth of the upper jaw, and sometimes swelling of the cheek. The complaint of a bad odor or taste, the reappearance of pus in the middle meatus after mopping it away and directing the patient to bend his head well forward, and opacity on transillumination of the suspected cavity are signs which strongly suggest an affection of the maxillary sinus. The withdrawal of pus by a puncture through the thin outer wall of the inferior meatus of the nose with a fine trocar and cannula will establish the diagnosis. The *treatment* consists in opening and draining the antrum. If the infection is due to a carious tooth this should be extracted, the socket opened up and drainage established through it. If the teeth are sound the antrum is opened through the canine fossa and its walls curetted, after which the cavity is packed with iodoform worsted. To avoid the risk of reinfecting the cavity from the mouth, an opening may be made into the nose, by removing the anterior portion of the nasal wall of the antrum and part of the inferior turbinated bone, after which the incision in the buccal mucous membrane is closed with sutures."—(Thomson and Miles' *Surgery.*)

3. *Transfusion of blood:* "Crile has recently revived direct transfusion by anastomosing the radial artery of one individual with any convenient superficial vein of another. Under local anesthesia both artery and vein are exposed, tied below, and secured with an arterial clamp above. Each is then cut above the ligature and the adventitia of the central end pulled down and snipped off with scissors. The vessels may then be united by the Carrel method. Crile uses a little tube which has two grooves in its outer surface. The central end of the vein is pulled through the tube, turned back over it like a cuff, and held in place by a ligature which is tied in the second groove. The artery is next drawn over the everted vein and secured by a ligature in the first groove. The clamps are then removed and the anastomosis covered with a hot moist sponge, to relax the artery. The time the blood is allowed to flow depends upon the effects noted, but is usually from twenty to forty minutes. In acute hemorrhage and shock and in pathological hemorrhage direct transfusion has proved of value, but in blood diseases and toxemias it seems of little use. As there is some danger of hemolysis and agglutination the effect of the donor's blood upon that of the recipient should always be studied before transfusion. If, owing to lack of facilities or time (the hemolytic test occupies twenty-four hours), this cannot be done, intravenous infusion of salt solution should be employed. Transfusion may, of course, be performed later if such seems to be indicated."—(Stewart's *Surgery.*)

4. A *bunion* is an enlarged, thickened, and (sometimes) inflamed or suppurating bursa situated over the inner aspect of the metatarsophalangeal joint of the great toe.

Operation includes either osteotomy of the first phalanx or of the first metatarsal bone; or removal of the head of the metatarsal bone with part of the hypertrophy on the inner side, and turning of the bursa into the joint area in front of the bone. The bursa is now sutured in place.

5. In *appendicitis:* The pain is at first diffuse, but later becomes localized over the appendix in the right iliac fossa; nausea, vomiting, and constipation may be present; tenderness over the appendix and rigidity of the right rectus abdominis muscle are present; there is generally moderate fever.

In *impacted stone in the ureter:* Colicky pain shooting along ureter, tenderness over ureter, hematuria, anuria (if opposite kidney is blocked or diseased), abdominal tumor (persistent or intermittent). Urine contains crystals, blood, or pus. Prolapse of ureter into bladder. Skiagram shows stone. In the majority of cases the symptoms are simply those of renal calculus, and diagnosis is only complete on lumbar exploration and passing ureteral sound.

6. *Banti's disease.* The disease is *diagnosed* by the symptoms: "The disease begins with the enlargement of the spleen, and the patient may first complain of a 'lump' in the left side of the abdomen. There may be pain in the splenic region, and the tumor is found to be tender. Splenic friction may be heard. The enlargement is progressive, and may become very great, but the lymphatic glands are not enlarged. Anemia usually accompanies the enlargement, but may be comparatively late. The red corpuscles may fall to 3,000,000 per cmm., the hemoglobin being still more deficient, and the color index therefore low. The leucocytes are reduced in number. This stage may last for several years, and is succeeded by aggravation of the anemia, with attacks of hematemesis, followed by melena. Other hemorrhages may occur, as from the nose, gums, or kidneys. Finally the liver becomes cirrhotic, and the last stage may be marked by jaundice, ascites, and diarrhea."

Treatment: "The splenic origin of the disease is indicated by the effects of *splenectomy*, which in the early stages often results in cure, but in the later stages is of little avail. Iron and arsenic may be of use, and the *x*-rays have sometimes proved beneficial, but operation is the only hopeful treatment."—(Wheeler and Jack's *Practice of Medicine.*)

Talma's operation of omentopexy has been performed in combination with splenectomy.

7. Hypertrophy of the Prostate.

The *Symptoms* of an enlarging prostate usually begin with frequency of micturition, then some difficulty in the act of micturition, with diminution in the power of projection. Some pain and tenesmus occur later. Secondary changes in the bladder depend on the amount of obstruction. Hypertrophy and sacculation come on, and are followed by atrophy and dilatation. Dilatation of the ureters and hydronephrosis are produced still later. As atrophy of the bladder comes on, a certain amount of residual urine remains after each act of micturition. As this increases, distension and atony are found with overflow incontinence. Cystitis soon comes on, and may be followed by septic changes in the kidney. The early changes may be unnoticed till overflow incontinence appears. Priapism may occur in the early stages.

The *Diagnosis* is made by a consideration of the symptoms and physical examination. The gland may be felt to be enlarged from the rectum, but there may be marked prostatic obstruction with little posterior enlargement. The length and direction of the urethra are measured by a coudé catheter, and the amount of residual urine is noted.

The *Complications* which may occur are the following: retention, cystitis, calculi, hematuria, urethritis, and prostatic abscess.

Treatment is either palliative or operative, according to the indications present in the individual case.

Palliative measures consist in attention to the general health and avoidance of alcohol, exposure to cold, and excessive exercise. If there is any residual urine, the bladder must be emptied regularly by a catheter, either coudé, bicoudé, or silver prostatic; in catheterizing great care must be taken to make certain that the instrument is always aseptic.

Prostatectomy is conducted through a suprapubic cystotomy. The mucous membrane is torn or cut through all round the urethral orifice. A finger is then introduced, and by working all round with it the prostate is shelled out from its true capsule, leaving the urethra intact. A gum-elastic catheter is kept in the urethra during the operation, and the left forefinger is kept in the rectum to push up the prostate and help the right. The cavity is washed out with saline solution and drained by a tube through the suprapubic wound for five days. No catheter need be passed. Some cases die from hemorrhage or sepsis, but the others recover the power of micturition, and have no further trouble.

The prostate may also be enucleated by a perineal incision.—(*Aids to Surgery.*)

8. *Intestinal Obstruction:* For the diagnosis of the several forms of intestinal obstruction see the table on the following page.

STRANGULATION	INTUSSUSCEPTION.	TWISTS (VOLVULUS).	CHRONIC INTESTINAL OBSTRUCTION.	APPENDICITIS	PERITONITIS
Subjective Symptoms.	*Subjective Symptoms.*	*Subjective Symptoms.*	*Subjective Symptoms.*	*Subjective Symptoms.*	*Subjective Symptoms.*
1. Generally occurs after age of 20.	1. Most frequent in childhood.	1. Most frequent after age of 30.	1. Middle life.	1. Most cases occur before age of 25.	1. Usually in middle life.
2. Pain localized, rapid collapse.	2. Constant tenesmus.	2. Pain diffuse.	2. Pain diffuse, but comes on gradually.	2. Pain often develops rapidly.	2. Pain develops suddenly.
3. Pain intense, paroxysmal in character.	3. Pain develops suddenly and is continuous.	3. Pain paroxysmal; recurs less often than in strangulation.	3. Pain continuous.	3. Pain continuous	3. Pain continuous.
4. Constipation complete.	4. Frequent diarrhea, passage of bloody mucus.	4. Constipation complete.	4. Constipation complete.	4. Stools infrequent.	4. Stools infrequent.
Objective Symptoms.	*Objective Symptoms.*	*Objective Symptoms.*	*Objective Symptoms.*	*Objective Symptoms.*	*Objective Symptoms.*
1. Temperature often subnormal.	1. Temperature normal or subnormal.	1. Temperature slightly elevated.	1. Temperature moderate; frequently high.	1. Temperature moderate; frequently 104° F.	1. Same as in appendicitis.
2. Pulse very weak.	2. Same as in strangulation.	2. Same as in strangulation.	2. Pulse of good volume.	2. Pulse of good volume.	2. Pulse usually of high tension.
3. Stercoraceous vomiting comes on early.	3. Same as in strangulation.	3. Same as in strangulation.	3. Stercoraceous vomiting comes on after first few days.	3. Same as in intestinal obstruction.	3. Vomitus greenish; rarely stercoraceous.
4. Location in small intestine.	4. Localization in small intestine; bowel frequently protrudes at rectum.	4. Location, small intestine; abdomen often protrudes, in certain areas, giving dulness on percussion.	4. Location in large intestine; dulness on percussion.	4. Location in right iliac region; dulness on percussion.	4. Diffuse inflammation; tympanitic resonance.

—(*Pocket Cyclopedia.*)

9. *Acute perforation* of a gastric ulcer is announced by "sudden violent pain in the epigastrium, which often radiates to the back, up to the left shoulder, and down into the right iliac fossa. There are great tenderness, marked rigidity of the abdominal muscles, and shock of varying severity. There may be absence of liver dulness and movable dulness in the flanks. In about half the cases the stomach contents are vomited, but rarely is there any blood. In 10 per cent. of the cases there is no previous history of indigestion. There may be a leucocytosis.

"The *treatment* is immediate abdominal section, any existing shock being combated while the preparations for operation are under way. The incision is made in the middle line above the umbilicus, the perforation closed by a double row of Lembert's sutures of silk without excising the ulcer, the abdominal cavity cleansed with salt solution, and a gauze drain passed down to the vicinity of the perforation. If there is a generalized peritonitis, a second incision should be made above the pubes and the pelvis drained. In cases in which suture is impossible, the opening may be closed by the omentum, a loop of intestine, or gauze packing. The possibility of a second perforation should never be forgotten. Some surgeons perform gastroenterostomy at the time the perforation is closed, a practice which must necessarily increase the mortality, which, at present, is between 40 and 50 per cent."—(Stewart's *Surgery.*)

10. *Fracture of the external condyle of the humerus.*—"Examination shows localized pain, tenderness, swelling, and in some instances contusion of the soft parts over the external condyle. In addition there will be found crepitus, mobility of the condyle if the detached fragment is large, possibility of hyperadduction, and occasional displacement of the fragment upward. When the last condition is present, hyperabduction of the forearm is possible and a condition of cubitus valgus may be obtained. When marked displacement of the fragment is present the roughened edge of the large fragment may be felt. Widening of the joint may be present. Dislocation backward of the ulna may be present as a complication." *Treatment* consists in reduction, and retention by hyperflexion and supination; "an assistant should grasp the arm firmly, steady it, and at the proper time make counter-traction; the surgeon should first hyperextend the elbow-joint, separate impacted fragments, and then, by means of manipulation, engage the ends of the fragments; when this procedure has been accomplished, direct traction should be made upon the condyles; internal rotation should be corrected and the elbow slowly flexed, hyperflexed, and the forearm supinated. The degree of hyperflexion will depend upon the amount of swelling present. In cases of much swelling it is always wise to abstain from using flexion for a few days. As a rule it should stop at the point which causes discomfort or which is likely to cause compression of the brachial artery. The radial pulse should always be felt, after the bandage or other dressing has been applied, and an unobstructed beat of the radial artery proved to be present. An adhesive plaster strap two inches in width is applied by placing its center over the upper outer surface of the arm, and the two ends are then carried around the extensor surface of the supinated forearm at a point about two inches above the radial styloid. A wrist sling made of a cotton roller bandage surrounded by rubber tubing may be used to support the limb. The hyperflexion and supination should be maintained for at least three weeks. The dressing should be inspected every other day during the first week and twice weekly during the succeeding two weeks; it should be changed whenever necessary. The hyperflexed position is decreased slowly, and passive motion and massage are employed."—(Roberts and Kelly's *Fractures.*)

MEDICAL JURISPRUDENCE.

1. An *expert* witness may give his *opinion* on facts or supposed facts as noted by himself or asserted by others. *Theoretically*, this can only be done by one perfectly familiar with the subject in question; but *practically* any (or almost any) physician with a license to practise is accepted as an expert witness. A *non-expert*, or *material*, witness testifies only to the *facts* which he has seen, or heard, or with which he has become acquainted by personal observation.

2. *Cadaveric spasm* is a condition in which strong muscular contraction occurs at the moment of death; it is found in cases of sudden, violent death. It passes off, and the usual cadaveric rigidity may succeed it. It is often observed in cases of suicide, where the weapon is found firmly grasped in the hand of the dead person. It is evidence against homicide, and in favor of suicide.

3. The chief differences between the male and female pelvis are thus tabulated in Morris's *Anatomy:*

MALE.	FEMALE.
Bones heavier and rougher.	Bones more slender.
Ilia less vertical.	Ilia more vertical.
Iliac fossæ deeper.	Iliac fossæ shallower.
False pelvis relatively wider.	False pelvis relatively narrower.
True pelvis deeper.	True pelvis shallower.
True pelvis narrower.	True pelvis wider.
Inlet more heart-shaped.	Inlet more oval.

MALE.	FEMALE.
Symphysis deeper.	Symphysis shallower.
Tuberosities of ischia inflexed.	Tuberosities of ischia everted.
Pubic arch narrower and more pointed.	Pubic arch wider and more rounded.
Margins of ischiopubic rami more everted.	Margins of ischiopubic rami less everted.
Obturator foramen oval.	Obturator foramen triangular.
Sacrum narrower and more curved.	Sacrum wider and less curved.
Capacity of true pelvis less.	Capacity of true pelvis greater.

4. *Puerperal insanity* is a form of insanity which attacks women soon after childbirth; it generally occurs before the cessation of the lochia, and the patient frequently has a strong homicidal mania against the child.

5. *Positive signs of pregnancy:* (1) Hearing the fetal heart sound; (2) active movement of the fetus; (3) ballottement; (4) outlining the fetus in whole or part by palpation; and (5) the umbilical or funic souffle.

Doubtful signs of pregnancy: (1) Progressive enlargement of the uterus; (2) Hegar's sign; (3) Braxton Hick's sign; (4) uterine murmur; (5) cessation of menstruation; (6) changes in the breasts; (7) discoloration of the vagina and cervix; (8) pigmentation and striæ; (9) morning sickness.

Subjective signs of pregnancy, in the order of their appearance, are: Cessation of menstruation, morning sickness, increased frequency of urination, active fetal movements.

Objective signs of pregnancy, in the order of their appearance, are: Softening of the cervix, changes in the mammary glands, discoloration of the vulva and vagina, pulsation in the vaginal vault, Hegar's sign, active fetal movements, ballottement, palpation of the fetus, intermittent uterine contractions, hearing the fetal heartbeat, rate of growth of the uterine tumor.

6. *Malpractice* is a failure on the part of a medical practitioner to use such skill, care, and judgment in the treatment of a patient as the law requires; and thereby the patient suffers damage. If due to negligence only, it is *civil malpractice.* But if done deliberately, or wrongfully, or if gross carelessness or neglect have been shown, or if some illegal operation (such as criminal abortion) be performed, it is *criminal malpractice.*

7. *Dementia*, or, as it is commonly called, *softening of the brain*, is a term which is applied to a condition of mental enfeeblement gradually increasing until it reaches a stage of absolute mental decay.

Amentia is a congenital condition, or comes on very early in life before the mind has fully developed.

8. *A lucid interval* (in insanity) is a period in which there is a temporary cessation of the insanity, or a complete restoration to reason.

9. *Cerebral neurotics* is the name given to a group of poisons which have a specific action upon the brain; they cause headache, drowsiness, delirium, coma, convulsions or paralysis. *Two examples:* Opium and alcohol.

10. *Symptoms of carbolic acid poisoning:* Buccal mucous membrane is whitened and hardened; vomiting; burning pain in mouth, esophagus, and stomach; pulse and body temperature are lowered; the pupils are contracted; collapse, and finally death. The urine may become dark.

BULLETIN OF APPROACHING EXAMINATIONS.

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION†	
Alabama*	S. W. Welch, Montgomery	Montgomery	July 8
Arizona*	A. H. Williams, 219 Goodrich Building, Phoenix	Phoenix	April 1
Arkansas	T. J. Stout, Brinkley	Little Rock	May 13
California	C. B. Pinkham, Sacramento	Los Angeles	Mar. 17
Colorado	David A. Strickler, Empire Building, Denver	Denver	April 2
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Mar. 11
Delaware		Wilmington	
Dist. of Col'ba	E. P. Copeland, Washington	Washington	April 8
Florida*	W. M. Rowlett, Tampa		
Georgia	C. T. Nolan, Marietta	Atlanta	
Idaho*	Ray H. Fisher, Rigby	Pocatello	April 1
Illinois	F. C. Dodds, Springfield	Chicago	Mar. 3
Indiana	W. T. Gott, Crawfordsville	Indianapolis	
Iowa	G. H. Sumner, Des Moines	Iowa City	Mar. 24
Kansas	H. A. Dykes, Lebanon	Topeka	
Kentucky	J. N. McCormack, Bowling Green	Louisville	
Louisiana	E. W Mahler, New Orleans	New Orleans	
Maine	F. W. Searle, Portland	Portland	Mar. 11
Maryland	J. McP. Scott, Hagerstown	Baltimore	
Massachusetts*	W. P. Bowers, 1 Beacon St., Boston	Boston	Mar. 11
Michigan	B. D Harison, 205 Whitney Building, Detroit	Ann Arbor	June 10
Minnesota	T. McDavitt, St. Paul	Minneapolis	April 1
Mississippi	J. D. Gilleylen, Jackson	Jackson	
Missouri	G. H. Jones, Jefferson City	St. Louis	
Montana*	S. A. Cooney, Helena	Helena	April 1
Nebraska	J. J. Hompes, Lincoln	Lincoln	
Nevada	S. L. Lee, Carson City	Carson City	May 5
N. Hampshire	Walter T. Crosby, Manchester	Concord	Mar. 13
New Jersey	A. MacAlister, Trenton	Trenton	June 17
New Mexico	R. K. McClanahan, East Las Vegas	Santa Fe	
New York	G. M. Wiley, Univ. of State of New York, Albany	New York / Albany / Syracuse / Buffalo	May 20
N. Carolina	H. A. Rosyter, Raleigh	Raleigh	June 23
N. Dakota	G. M. Williamson, Grand Forks	Grand Forks	July 1
Ohio	H. M. Platter, Columbus	Columbus	
Oklahoma	J. J Williams, Weatherford	Oklahoma City	
Oregon	B. E. Miller, Portland	Portland	July 1
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia	
Rhode Island	B. U. Richards, Pawtucket	Providence	April 3
S. Carolina	A. E. Boozer, Columbia	Columbia	June 10
S. Dakota	P. B. Jenkins, Waubay	Pierre	
Tennessee	A. B. DeLoach, Memphis	Memphis / Nashville / Knoxville	June
Texas	M. F. Bettencourt, Mart	Dallas	
Utah	G. F. Harding, Salt Lake City	Salt Lake City	April 7
Vermont	W. Scott Nay, Underhill	Burlington	
Virginia	J. W. Preston, Roanoke	Richmond	
Washington*	C. N. Suttner, Spokane	Seattle	July 1
W. Virginia	S. L. Jepson, Charleston	Huntington	July 15
Wisconsin	J. M. Dodd, Ashland	Milwaukee	June 24
Wyoming	H. E. McCollum, Laramie	Moorcroft	
National Board	J. S. Rodman, 310 Real Estate Trust Building, Philadelphia.		

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for all the details regarding the examination in any particular State.

Endocrinous Function of the Nasal Mucosa.—According to Volpe histological studies of the pituitary membrane show certain formations termed by him siderophile granules, which are analogous to formations in the adrenals of the same name. These granules occur in hypertrophic and hyperemic epithelium, especially where bloodvessels are near at hand. They are colored by iron particles and strongly resist discoloration. Fuchsinophile granules are also present in both surface and glandular epithelium, corresponding to similar formations in secretory glands. Volpe believes that this double cell content indicates a double secretory action, internal and external.—*Archives Médicales Belges.*

The Descent of Man.—Fritsch has described the scalp hair of the higher apes in contrast with that of the different races of mankind. In the anthropoids the scalp hair differs in no wise from that of the surface at large. The reverse is true in man. To descend to detail, the wool of the negro in no wise resembles the scalp hair of the gorilla. The fine, red scalp hair of the orang is equally unlike the coarse, black Mongolian hair. These dissimilarities seem to clinch the belief that man did not descend directly from the anthropoids.—*Nederlandsch Tijdschrift voor Geneeskunde.*

Pearls and Blindness.—As an example of pseudology the following appeared in a French periodical during 1837. A certain man swallowed a pearl by accident, and immediately went blind. The most celebrated oculists could do nothing for him and he drifted to the care of a notorious chalatan, who gave him a violent course of emetic treatment, at the close of which the pearl was ejected, whereupon vision at once returned. after 15 months' blindness. Naturally the fact that a swallowed pearl could hardly be expected to sojourn in the stomach for any considerable interval and would almost certainly have passed by the bowels in a very short time deprives the story of any credibility, irrespective of the coming and going of blindness. But an enterprising practitioner apparently or actually gave full credence to the story, and having caused to be made a fluid which contained pearl substance began to use and recommend it for practically all diseases of the eye, upon the theory that what is homeopathically sovereign for blindness could hardly fail to benefit lesser ills of the eye.—*El Siglo Médico.*

Miscellany.

Vaccine and the Grip.—In 1914, shortly after the outbreak of war, we noted in an anticipatory comment the fact that war brought in its track epidemic disease which was usually more destructive of life than the sword or gunshot. The latter part of 1918 has seen the ravages of influenza, during which a toll of more than six million lives has been exacted, and many observers seem to be of the opinion that this pandemic is somehow associated with the war. Some of the views as to the causation may be dismissed as amusing. There is the bacon theory, for instance. The irrepressible Dr. Hadwen seizes the opportunity to invent a theory to fit the disbelief in the existence of microbes. We conceive it as a possible chemico-organic poisoning arising as an influenza miasma and disseminated by aerial connection via the Mediterranean from the region of the Dardanelles. He enumerates a few other agencies which may have contributed their effects. The *Inquirer* naturally leans to Dr. Bell, and gleefully inquires, "Is vaccination implicated?" The editor confesses to "some slight congestion of the brain and confusion of ideas" on the subject. "We know," says the *Inquirer*, "that millions of our soldiers have been vaccinated or inoculated many times during the war." It does not occur to the *Inquirer* that millions of our soldiers thus treated have not succumbed to influenza, whereas millions of civilians not so treated have been victims of the scourge. We are not surprised at the confusion of ideas just referred to. Dr. Bell and Dr. Hadwen are both pets with the antis. Dr. Bell says in the *National News* of November 5 that influenza is not influenza at all, but "breakdown fever," which he further says, "is microbic disease encouraged by the toxic condition of the bodies of the people it attacks." Now Dr. Hadwen asserts that there ain't no such thing as microbic disease. No wonder then that the confident believer in each of these "authorities" gets congestion of the brain when contemplating the divergent views.—*The Medical Officer*, January 18, 1919.

Dermatology in Brazil.—In the *Brazil-Medico* for November 23, 1918, is the report of an historical paper on this subject by Terra. Dermatology in Brazil began with the study of pian, which at the same time was confounded with syphilis. Without counting indigenous affections, white colonists and negro slaves brought their own ailments, including syphilis, yaws or pian, and lepra. A program published by the municipality of Rio in 1789 for proceeding against endemics in the metropolis mentions lepra by the term elephantiasis græcorum, while syphilis, which is not specified by name, may have been included with yaws under the name pian, as was the case two centuries before when the disease was called disreputable. Medical teaching did not begin until 1913, while the parent medical society was organized in 1829. The earlier graduation theses comprised many dermatological subjects. The first considerable monograph on the dermatoses of Brazil appeared in 1826 and shows that great confusion existed on the subject. In 1866 Wucherer who began the use of the microscope in Bahia made important discoveries in filariasis. At a later period Silva Lima did some pioneer work on the disease ainhum. In 1882 chairs in dermatology were founded in two Brazilian universities. Silva Araujo of Rio became famous as a teacher and clinician at the Policlinic, and within a short time pure empiricism had given way to scientific dermatology. An immense amount of original work has been accomplished in the domain of tropical skin diseases, and along with an abundance of material also known fully in temperate zones as syphilis and lupus, we see blastomycoses, sporotrichoses, leishmanioses, tropical phagedenic ulcer, granuloma venereum, frambesia, etc. The credit for accomplishing the cure of some of these apparently incurable maladies, like leishmaniosis and granuloma venereum, is given without stint to Vianna of the University of Sao Paulo.

The University of Strasbourg.—This institution having once more become French, a summary of its history is given by a contributor to the *Gazette des hôpitaux* in the issue for January 11. It was founded in 1621 as a continuation of the old Protestant gymnasium which goes back to 1538. At this period but three professors belonged to the medical faculty. When Alsace was ceded to France under Louis XIV the university became French, and so great was its prestige in the XVIII century that it even took precedence over the University of Paris. It seems to have been strictly a Protestant university until the reign of Louis XVI, when a few Catholic students and one Hebrew were admitted. In 1794, during the revolution, military and marine hospitals were established. A sanitary college was another new feature, and the faculty included numerous military surgeons. This new movement culminated in a separate Faculty of Medicine, which dates from 1802. Just before the Prussian war there were sixteen full professors and the same number of *agrégés*, and 511 medical students. This large number was due to the attendance of military pupils, over half of them being intended for army practice. The latter, however, were graduated at Val de Grace.

The university was germanized in 1871 and remained German until 1918—nearly half a century. In returning to French control the property which changes hands is valued at 23,000,000 marks, but little of which comes from German sources outside of Alsace. There is no intention of allowing the university to recede in any way from the standards set by Germany. But it will be French in ideals, just as for many years its ideals have been Teutonic. It will cease as a distributing point for German propaganda. It is to be hoped that American, British, Belgian and other students from the Allied nations will seek its doors for admission. The German university faculty comprised fifty-seven men, many of whom were Germans exclusive of Alsatians. There are only a few departments of modern medicine which are unrepresented. There will be no general upheaval, and for several years instruction will still be given in the German language. In 1871 the Germans sent their very best professors to take the reins, and France will be forced to take the same step.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 95, No. 10.
Whole No. 2522.

New York, March 8, 1919.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

SOME PRACTICAL POINTS IN THE DIAGNOSIS OF SYPHILIS OF THE NERVOUS SYSTEM.*

By EDWARD LIVINGSTON HUNT, M.D.,

NEW YORK.

ASSISTANT PROFESSOR OF CLINICAL NEUROLOGY, COLUMBIA UNIVERSITY.

THE title of this paper, "Some Practical Points in the Diagnosis of Syphilis of the Nervous System," means that I want to call attention in an informal way to a few *practical* and *essential* points.

To diagnose a case of syphilis of the nervous system it is necessary first of all to recognize the fact that the patient is suffering from constitutional syphilis, and that, therefore, he may have any one of the many manifestations which constitutional syphilis gives. It is, therefore, imperative to make every possible clinical examination and every possible laboratory analysis. I make a routine measure in these cases, of *first* a history, *second* a clinical examination, *third* a laboratory analysis, and *fourth* an *x*-ray examination. I am not going to burden you with the details of each one of these, but rather emphasize the important points.

First.—The history in syphilis is not so important as one has been led to believe from textbooks and teaching. The man who has had syphilis does not wish to realize it, and often is unwilling to admit it. His mental attitude is that of one constantly looking for an excuse. He is constantly seeking for reasons to prove that, even if he has had syphilis, he has been properly treated, and therefore cured. I have met so many patients who say that they did not have a hard chancre, but one that was soft, and therefore not syphilitic. Again, I have seen so many patients, who, in telling their story, have omitted the infection of syphilis, and when it was finally brought up, the excuse was that the infection occurred twenty-five or thirty years ago, and therefore is no longer important. I have also treated many patients who did not mention the syphilitic infection, because, when it was brought up, they said that the infection occurred but was treated promptly and effectively, and cured, and so was of no possible importance in the present status of the case. Finally, there is a large class of patients who will deliberately deny that they have had a syphilitic infection. This is done to mislead the examiner, and because the patient is thoroughly convinced that syphilis is a bugbear and that the modern practitioner is on the alert for its symptoms. Therefore, if a syphilitic infection is admitted, the diagnosis of syphilis will be a foregone conclusion. All these point to the fact that the *history* in syphilis is of minor importance. Personally, in examining nervous cases, I think it is almost a futile question to ask a patient whether or not he has incurred a syphilitic infection. I believe that if he has had syphilis, you will probably acquire his confidence easier and more rapidly if you fail to ask him, and later prove it by the clinical and laboratory reports.

Secondly, the practical points in the *clinical examination* of the syphilitic are: (1) The condition of the pupils; (2) the condition of the reflexes; (3) the condition of the circulation.

Of these three, by far the most important is the condition of the pupil. In examining the pupil, look for three things—size, contour, and reaction to both light and accommodation. The *pin-point pupil* is much more suggestive than the dilated. Markedly unequal pupils are even more suggestive. The contour of the pupil is something which the neurologist looks for but which the general practitioner is prone to neglect. Of course, we know what contour means—the outline of the pupil. In the normal individual this should be smooth and even. Syphilis causes rough and unequal edges. Apparently the poison causes a breaking or bulging out of the line of the pupil. Perhaps the most important of all these three eye signs is that of the reflexes. A very sure, almost definite, sign of syphilis is the failure of the pupil to react to light. We all know this, but often fail to realize that before there is absolute failure in reaction to light, there occurs a partial failure, termed sluggishness. There may be every degree of pupil reaction, from the normal to a complete immobile pupil. The normal man has a pupil which reacts promptly; the man of neurotic temperament has a pupil which reacts in an unduly rapid way; the syphilitic has a pupil which reacts slowly. The sluggish pupil is almost as important as the immobile pupil. It precedes the immobile pupil, and is of great assistance in prophesying future trouble. I have known patients who have had for years pupils which were slow in their reaction to light and without any other physical signs, only to find that at the end of five or ten years they developed absent knee jerks and positive Wassermanns.

The condition of the tendon reflexes is of equal importance with that of the pupil. Changes in the reflexes do not, however, occur as early, nor progress as fast. The important reflex affected in syphilis is

*Read before the City Hospital Alumni Society, New York, Jan. 16, 1919.

the knee jerk. We must bear in mind not only that it may be absent, but also that it may be exaggerated, or that the two knee jerks may be unequal. Syphilis is a poison, and like alcohol or any other poison, it first stimulates, then depresses, and finally destroys. The arc of the knee jerk, when the poison first begins to affect it, over-acts, then weakens, and finally fails. During this process, whether syphilitic or alcoholic, one knee jerk may be more affected than the other.

The condition which an examination of the circulation reveals, is, to my mind, of equal importance with the one shown by the reflexes and with that of the pupil. The heart may be enlarged, there may be valvular lesions, especially aortic, and there may be a dilatation of the aorta, or even an aneurysm. There may be very high blood pressure, or there may be palpable thickening of the arteries. Marked attention should be paid to the condition of the circulation, and every possible effort made to determine its condition.

Thirdly, I want to call attention to the *laboratory analyses* which can and should be made in the examination of syphilis of the nervous system. They may be classified under two headings—those of the blood, and those of the spinal fluid. Of the two, undoubtedly the examination of the spinal fluid is the more important. As we learn more and more of syphilis of the nervous system, I think we shall become more and more convinced that a Wassermann test of the blood is less important and more misleading than it is valuable and suggestive. This seems a radical statement and at first rather difficult to comprehend. You will, however, agree with me when I say that I constantly see cases in which the blood Wassermann is negative, but the spinal fluid is positive, revealing a syphilitic infection. Again, I see many cases with a negative blood Wassermann which show a positive Wassermann a month later, or following antisyphilitic treatment. Another reason for considering the Wassermann of doubtful value is the fact that there is no standard in the laboratory for its preparation. Another reason is that the personal element enters into the report; and, again, that the test varies according to the amounts of blood examined. We must realize also that there are cases of syphilis of the nervous system in which there are not sufficient Wassermann producing bodies in the blood to cause a positive Wassermann to appear, whereas, there may be a sufficient number in the spinal fluid. Without any reflection on laboratory men, for none is intended, it is by no means unusual to find contradictory reports on the same patient from different laboratories. Another practical point to bear in mind is that certain drugs, when taken in large amounts, immediately before the Wassermann test on the blood is made, have the effect of reducing and nullifying this reaction. Thus, the alcoholic who has been taking large doses of alcohol for a few days previous to having his blood tested may very well send to the laboratory blood which is negative, whereas if he abstains for two weeks the same blood may return a positive Wassermann. There is no reason why this statement should not also apply to large doses of salvarsan; I believe it does. This is also the reason for the provocative test. The provocative test is one in which a negative blood Wassermann becomes positive after one dose of salvarsan. This means that the salvarsan, like every other poison, first stimulates then depresses. In this way it causes the Wassermann producing bodies to leave the corners and walls of the blood vessels and to be thrown into the general blood stream.

The examination of the spinal fluid is the one examination of prime importance in diagnosing syphilis. I consider that no examination of a nervous case is complete without a spinal fluid examination. It is by far more important than an *x*-ray, than an ophthalmoscopic, and even, to my mind, than a clinical examination. I think that there is no doubt now that the nervous system is affected by syphilis very early. We were formerly led to believe that the manifestations in the nervous system did not occur until ten or fifteen years after the initial lesion, but it is now beginning to be recognized that the nervous system becomes involved early—in the first few months—and that therefore the spinal fluid will reveal changes early. I am asking you to conceive of a case of syphilis of the nervous system as one of constitutional syphilis. Every case of syphilis has the nervous system affected and in some cases of syphilis the nervous system is much more affected than the other systems. These cases we call locomotor ataxia, paresis, and cerebrospinal syphilis. A common error which may occur in a laboratory report of syphilitic spinal fluid lies in the fact that the quantity of spinal fluid examined makes a difference in the tests. Small quantities of spinal fluid may not reveal a positive Wassermann, whereas larger quantities in the same individual may. Therefore it is necessary and important that we should ask the laboratory to indicate what amount of spinal fluid has been examined. The spinal fluid test is especially a quantitative test.

The cell count is not considered of so much importance as formerly. I do not believe that it is possible to indicate from the number of cells the form of nervous syphilis. All we can tell from a large cell count is that there is an inflammation, an irritation, an abnormal condition, in the spinal canal. This may be due to syphilis, mechanical disturbances, or a meningeal infection. In other words, anything which irritates or disturbs the spinal canal will cause nature to manufacture more cells. We know perfectly well that a spinal cord injection of almost anything, whether it be salvarsan, mercury, or saline solution, will stimulate the cells and cause an increased number. This means that the spinal membranes or meninges have been irritated. In reply to this irritation nature sends out an army of cells. We do know that the greater the irritation the greater the involvement of the meninges, the more intense is this meningitis, the larger the number of cells. Therefore, an acute involvement means hundreds and hundreds of cells and a subacute involvement means tens of cells. It is safe to say that a large cell count indicates a superficial or meningitic involvement and a small count of cells indicates an arterial or deep involvement.

A very important test is the colloidal gold. I will not go into the technique of this, but will simply call attention to the fact that no spinal fluid report should be considered complete without

a gold test. It is difficult to make, it requires a great deal of time, and the solution easily deteriorates. Therefore, the laboratory will not render it unless specifically asked to do so. The gold test shows a series of color changes in test tubes. These can be transferred to diagrams, and in this way charts can be made out. These charts present typical lines or curves in different diseases. They are given the names of paretic, tabetic, luetic, and meningitic curves. The gold test is the one of all most to be relied upon. I can, at this moment, cite two cases of epilepsy in which everything is normal —history, clinical examination, *x*-ray, and laboratory analyses, with the single exception of the colloidal gold curve. In these two cases, there is no history of syphilis, no indication of any Wassermann reaction in blood or spinal fluid, and no increase of cell count. There is, however, in each of these cases, a typical luetic curve. Each of these patients has typical convulsions, occurring with more or less frequency. One is a man in the "fifties" and the other a boy in the "teens." It seems fair to me to assume that with a typical luetic curve and a manifestation of convulsions, the cause of the condition is syphilis. Some of the laboratory men maintain that those cases in which the colloidal gold curve alone is positive later on show a positive Wassermann reaction in the blood and fluid. Whether this is true or not I cannot say.

When the cell count, the Wassermann, and the gold test are taken together, they form three arguments which I consider more valuable and more infallible than any other three—either the history, the clinical examination, or the *x*-ray pictures.

Fourthly, the *x*-ray is of value because it reveals the enlarged aorta the beginning aneurysm, the dilated heart, and occasionally, some specific condition in the head. It is the least important of the four factors which I have mentioned, but, taken in conjunction with the other three, will be of help.

A practical point of considerable interest, and also of some prognostic value, is the character, the severity, and the prevalence of the headache following the lumbar puncture. It has been my experience, and I think also that of many others, that the syphilitic cases are much less apt to have headache following a puncture than are the normal cases. This has become so well established a rule that it is almost possible to forecast the character of the puncture from the character of the reaction in the head following it.

There is nothing to do for these headaches, and very little to do before the puncture to prevent their occurrence. The only thing which I can suggest is to have these patients drink a great deal of water for twelve hours before the puncture. If this is done the headache will probably be diminished. This may be accounted for by the fact that the increased amount of water increases the amount of fluid in the human organism.

I might mention, in passing, that an excellent form of treatment for delirium tremens is the lumbar puncture. Those cases in which the mental symptoms are pronounced, and in which the delirium is very great, will be aided by the removal of 30 or 40 c.c. of spinal fluid.

Finally, the one important point in diagnosing syphilis of the nervous system is to get as much data as possible and then to correlate it properly. Weigh the history with the clinical findings, with the laboratory report, and the *x*-ray pictures. Do not stop at any one of the four, nor at any three of the four. If you must place emphasis on one more than any other, let it be on the laboratory report of the spinal fluid. If I suspected a syphilitic infection, and was told that I could have only one of these four methods to prove or disprove its presence, I would ask for the spinal fluid examination, and after this the Wassermann test and the gold test. If these were positive, and everything else was negative, I would know that the case was one of not only syphilis of the nervous system, but also constitutional syphilis.

41 East Sixty-third Street.

A THEORY OF ASTHMA AS CONFIRMED BY NEARLY FOUR HUNDRED CASES, SUCCESSFULLY TREATED.

By MARK I. KNAPP, M.D., LL.M.,

NEW YORK.

One of the hardest propositions one is up against is, when he differs from the accepted views and attempts to remove, what to him seems to be, an erroneous assumption. When he has concrete facts with which he can convince his hearers his road is easy enough. But, when instead he is to face a profession, justly prejudiced against any innovation and he has to appeal only to abstract thinking and reasoning, his task is certainly not a very enviable one. It was easy enough to prove to the world, and that instantly, that there existed certain rays which enable us to look through dense matter. The rays were there, the matter was there, and all one had to do was to look. But when we have been taught for centuries past that asthma is a spasm of the bronchial tubes, and when I now attempt to disprove this as a most erroneous and fallacious theory which has never been proved, I beg that the reader follow my remarks most closely. I have no specially constructed physical instruments to prove my contention. All I offer is reasoning. I shall attempt to reason out that the view of the profession, that asthma is due to a spasm of the bronchial tubes, not only has been the merest speculation, not only has never been proved, but from the very nature of it never can be proved.

In this monograph we are concerned with the subject of asthma, and the first question is, is the present teaching of asthma based upon actual scientifically proved facts, or are such teachings merely a repetition of views held for ages, the validity of which no one thought of challenging or dared not challenge. What are we taught is the immediate cause of asthma? For an answer the books give us that the asthmatic spell is due to a spasm of the bronchial tubes. This teaching I challenge. What proof is there or has there been given or can be given that a spasm of the bronchial tubes is present? Proof, of necessity, can be only of two kinds, the direct proof and the indirect proof. We naturally prefer the direct proof. Have we any direct proof of the existence of a spasm of the bronchial

tubes? I have failed to discover such. Moreover, such proof is impossible of production. A spasm is a manifestation of a vital activity, that is, a manifestation which is possible only during life. There is no spasm of visceral structures after life has departed. Therefore, a positive demonstration of a spasm of the bronchial tubes at an autopsy, could such be performed on an asthmatic patient while in an asthmatic spasm, is absolutely impossible. Nor is it known that an asthmatic ever submitted to the opening of his chest during an attack, so that the presence of a spasm of the bronchial tubes could be definitely proved. Neither in the past nor at present has an absolute, direct proof of a bronchial spasm been produced, nor can such direct proof be produced. We are therefore compelled to analyze critically the adequacy of the indirect proofs which have been given us and from which we are to reason out the presence of a bronchial spasm. Here again we are surprised by the paucity of arguments; in fact, there are no arguments advanced. We merely find the dogmatic assertion that the asthmatic attack is due to a bronchial spasm. No substantiation of such an assumption seemed necessary. Our forefathers so believed it and so must we believe.

Let us now reflect. Can we assume the presence of a bronchial spasm without at the same time denying well established self-apparent scientific and clinical facts? A spasm means a contraction. A spasm of the bronchial tubes means a contraction of the bronchial tubes and a contraction means a diminution of the lumen of the bronchial tubes. Therefore, a spasm of the bronchial tubes means a contraction of the bronchial tubes and a diminution of their lumen, and when there is a diminution of the lumen there must necessarily be a lessened quantity of air getting into the air cells. The necessary consequence of this must be a lack of distention of the air cells. This, again, is equivalent to a lack of expansion of the lungs *in toto*. But the clinical evidence of this insufficient distention of the lungs is retraction of the intercostal spaces and not their distention. The clinical evidence of insufficient inflation of the air cells of the lungs is not a fullness of the chest wall, but the very opposite; the chest wall is diminished in its various diameters. This reasoning is excellently exemplified by the clinical phenomena which accompany a diminution of the lumen of the larynx, be this due to spasm of the larynx, or its inflammation with membrane formation, or to some growth within the larynx or surrounding it, and pressing upon it. Retraction of the chest, retraction of the intercostal spaces, retraction of the supraclavicular fossæ are the clinical evidence of a stenotic condition of the larynx. In marked contrast to this is the clinical picture we behold during an attack of asthma. Not only is there no evidence of any retraction of the chest and of the intercostal spaces, but one sees the very contrary picture. The chest is distended, the intercostal spaces bulge out, the supraclavicular fossæ are full. If the causal relationship between stenosis of the larynx and the retraction of the chest be firmly established; if we be sure that the one conditions the other, then the deduction is patent that whenever we find a general retracted condition of the costal interspaces, there must be an obstruction to the filling up of the lungs with air. And, conversely, whenever we are sure that there is an obstruction to the filling up of the lungs with air, there must be external evidence thereof in the retraction of the chest. Therefore, it is preposterous to maintain that there is an obstruction to the intake of air, that there is an impediment to the filling up of the air cells, which is the necessary corollary of a spasm of the bronchi, when the chest shows not only no retraction, but the very contrary, when it does show fullness, distention. So much we can learn from the mere inspection of the chest during an asthmatic attack. But we have additional evidence of the fallacy of our present conception of the cause of the asthmatic attack. If it be true, that the asthmatic attack is due to spasm of the bronchial tubes, then we must assume, as already stated, an obstruction to the taking in of air. This could be evidenced only, as in the stenotic condition of the larynx, by labored inspiration. Again, this is not the fact. All who are familiar with an asthmatic paroxysm know, that the patient's trouble is not with the inspiration, but with the expiration. The inspiration takes place freely enough. It is the expiration which is causing the agony. During the asthmatic paroxysm we note the short and absolutely free inspiration, followed by the very labored expiration, during which the patient bends forward and, as a rule, gets hold of some piece of furniture against which he braces. He uses that to bear down upon as, similarly, does the parturient woman, and in both instances the additional force, gained by such intuitive effort, is used for the purpose of expulsion—the air in the one case, and the fetus in the other. Auscultation offers additional proof of the mistake in which we were reared. Asthmatic wheezing is heard in the much prolonged expiration, while the inspiration is about normal.

Believing that the foregoing remarks will cause the earnest reader, if not to change his views at once, at least to begin to think over the question elaborated above, I will now proceed to the discussion of another fallacy—our erroneous interpretation of the act of coughing. From time immemorial the act of coughing has been associated with some pathological condition of the respiratory tract. So ingrained is this view in us, that I feel that, even the slightest allusion to the questioning of its correctness may cause violent resentment in the reader. Of course, everyone admits and knows, that causes other than pulmonary or bronchial may initiate a spell of coughing. We know of a stomach cough, a cough produced by some solid particle lodging somewhere in the pharynx or thereabouts and of some other coughs. But, in the main, we associate cough with "catching cold." If cough is produced by various agencies, as we know it is, then all such various agencies must have some one factor in common which elicits the cough. Since to produce coughing we must have an irritating agency and an irritated spot, and since we know that the various agencies which cause coughing are of entirely different physical construction, the alternative left us is, that all agencies irritate the same spot. Moreover, since we know that the coughing may be

caused by matter coming from without and by matters coming from the lungs or the stomach, the irritated spot must be located there, where both external and internal irritants can reach. Are there many anatomical spots which may cause the cough, or is there only one? In other words, is the cough producing area limited in extent, must internal and external causes concentrate on one spot, or is there a large surface which will respond by coughing to an irritation? I shall attempt to prove that all irritants, whether they come from without the body or from within it, do concentrate their action on one spot, that it is only one spot which is irritated and which, when irritated, causes coughing. If I succeed in this the reader will understand the cause of the asthmatic paroxysm. Inasmuch as I cannot prove my contention by affirmative evidence, I shall have to resort to reasoning by exclusion. My daily and routine practice with the stomach tube has proved to me in innumerable instances, that the patient gets a violent fit of coughing when the stomach tube reaches the pharynx. A hair lodged on the pharyngeal wall will cause coughing, which will continue until the hair is removed. The nose and throat specialist is well acquainted with the coughing spells he causes by his applications to the pharynx. These illustrations will suffice to prove that an irritation of the pharynx will cause coughing.

In the following illustrations it is evident that the cough did not come from the lungs or bronchi. A patient came to me for his asthma. His history was, that he got up every morning with a severe spell of coughing followed by vomiting. The examination proved that he had a sacculated esophagus, where the food remained over night and began to decompose and that the irritation proceeding from the decomposing food brought about the coughing; the coughing stopped with the emptying of the sac. This diagnosis was subsequently confirmed by the *x*-ray. In another case it was the great distention of the stomach, due to decomposing food, which caused incessant coughing. A colleague who was in attendance on this patient insisted on the administration of opiates, which however failed to stop the coughing. Immediately after the washing of the stomach the cough stopped. Against my advice my friend insisted on giving food to the patient, which invariably caused great distention of the stomach with the accompanying incessant cough and which cough instantly stopped after lavage.

Another illustration: A young man came to me with the history of having coughed for some three and a half years. He consulted various physicians without avail and was finally told that, most likely, his cough was caused by some stomach trouble and, therefore, he came to consult me. I treated his digestive disorder and his cough stopped definitely and finally after the sixth day. Was the stomach the seat of the cough, or, as in the first illustration, was the esophageal sac the seat of the cough? If these structures were the seat of the cough, then invariably whenever there would be irritation of these structures cough would have to result. But we know that this is not the case; irritation of these parts does not necessarily cause coughing. On the other hand, irritating, volatile substances from below the pharynx are forced to ascend and in this way reach the same spot, which is reached when the irritating substances come from without the body, that is, in both instances the pharynx is reached. Can we focus upon the pharynx irritations emanating from within the lungs? That it is not every pathological lesion of the lungs which evokes coughing is sufficiently attested clinically. Only such processes are accompanied by cough which are undergoing active chemical changes, such as mucus and pus. These decompose or otherwise undergo chemical changes, one phase of which is the production of volatile irritating substances which reach the pharynx and cause the coughing. There cannot be any question that the irritation of the pharynx does cause coughing. Would it make any difference whether the pharynx is intentionally irritated by instrumentation or applications, or whether it is involuntarily irritated by some noxious agency issuing from some neighboring structure or some neighboring organ, or even from some distant organ with which the pharynx may directly communicate? Assuming my proposition to be correct, we can understand how pathological conditions remotely situated as, for instance, in the intestines, may produce coughing when the volatile substances finally reach the pharynx. Of course, matters of an irritating nature, whether solid or gaseous or liquid, if they reach the pharynx through eructation or vomiting may also cause coughing. While the cough is called forth by irritating matter the object of the cough is to remove the offending substance. This is effected by what I may call the pneumatic piston. This is created by the air column which is shut in by the closed pharynx and the closed glottis. This is axiomatic, that the irritation of the mucosa of any muscular structure causes the contraction of such muscle. And so the irritation of the mucosa of the pharyngeal vault causes the responsive contraction of the regional muscles, especially of the middle and superior pharyngeal constrictors and of the geniohyoglossus. The result of the combined action of these muscles is to draw the root of the tongue backward and downward and the pharyngeal muscles forward and downward. The conjoint action of all these muscles seals the pharyngeal opening and also seals the larynx, which by the action of the geniohyoglossus is brought forward and upward beneath the tongue, the tongue effectively closing the larynx. Preceding the action of these muscles the patient takes a deep breath and the escape of the inspired air is prevented by the violent contraction of the muscles, just mentioned. Now the abdominal muscles and the diaphragm are violently contracted, exerting pressure upon the air, inclosed and shut in in the bronchial tubes, trachea, and esophagus. The air column so inclosed and compressed acts like a piston in its attempt to force in front of it the irritating matter. In the case of the irritating matter in the esophagus the pneumatic piston is assisted by peristalsis and glandular secretion and gradually the offensive matter is loosened and expelled. Similarly, we proceed with expelling offensive matter from the nose. A deep breath is taken and the nostrils are occluded with our fingers; the inclosed air under pressure acts like a piston and the irritant is expelled from the nose.

After these preliminary remarks I wish to carry the reader through the successive stages of my accidental discovery of the cause and the cure of asthma. I, surely, never had any design to discover anything about asthma; I knew asthma was incurable, although a long list of remedies is given for the relief of the asthmatic spasm. But it happened in the following way: A woman about 43 years of age came to consult me some 14 or 15 years ago; I was recommended to her for her stomach trouble. She was in great dsypnea when I saw her. "Doctor," she said, "I came to find out whether my digestion could be improved somewhat, and, by the way, I have suffered from asthma for a number of years and doctor J. is treating me for it; never mind my asthma, I shall be happy if you can make my digestion better." I felt very happy that she relieved me of any responsibility regarding her asthma and proceeded to examine her. The result of the examination was that I found that she suffered from insufficientia pylori. This disease I described for the first time in the *Philadelphia Medical Journal* May 24, 1902, and since then I have contributed a number of articles on this disease in the various journals. As insufficientia pylori I have described the condition of the weakening of the pylorus, which, if unchecked, results in complete relaxation of the pyloric sphincter; insufficientia pylori being the natural sequel of the long-continued pyloritis, *i.e.* spastic contraction of the pylorus. In insufficientia pylori the ingested food does not remain in the stomach, but passes on into the duodenum without having previously been acted on by the gastric juices. This latter happens only when complete relaxation of the sphincter has set in. Having found that the patient did suffer from insufficiency of the pylorus I assured her that, as far as the stomach trouble was concerned, I could promise her recovery. The treatment required daily administrations. Some ten days, after treatment was begun, the patient told me that she felt not only better in her stomach, but that also her asthma was better. I certainly was pleased to know that she was getting better, but I paid little attention to her remark about the asthma. A mere accident, I thought, and so I dismissed it from my mind. After a few weeks the patient surprised me with the information that her asthma was entirely gone. However, I thought of it in no other light than that the asthma cure was a mere accident.

Some time later another patient came with insufficientia pylori complicated by asthma and in a few weeks both the insufficiency and the asthma were cured. Another accident, I thought. In the course of time another patient came in whom the insufficiency of the pylorus was complicated by asthma. And again cure of both resulted in a few weeks. This third and consecutive accident began to puzzle me, but even now I believed it a mere accident and that it was, purely, good luck of mine. I resolved to take advantage of my apparent good luck and thought that, when the next case of asthma came, I would cautiously hold out the hope for a possible cure of the asthma. I had nothing to lose, since all my patients came to consult me only for their stomach trouble and, if I had not succeeded in curing the asthma—well they did not come to me for an asthma cure. I was therefore quite safe. The fourth asthma case came and I acted as I had resolved. Again the asthma was cured. I now began to think seriously over the matter. What was it that happened? My diagnosis of insufficiency of the pylorus was absolutely correct. So was also the fact that all four patients had asthma and that all four patients were cured of their long standing asthma. Since the cure of the asthma was a fact, I had to conclude that there must be some sort of a connection between it and the insufficiency of the pylorus. What was the connection? In pondering over this problem, the following theory appealed to me as the most plausible.

In insufficientia pylori, according to the degree of the insufficiency, the food leaves the stomach either not at all digested or only partly so. The books teach us that there is a vicarious action and that the food which is not digested by the stomach will be vicariously digested in the intestine. But such an hypothesis cannot be admitted. The stomach digestion is acid and the intestinal digestion is alkaline. To assume that the food, which merely represents a chemical compound, can be equally digested by an acid and an alkali, that is, that the same identical chemical compound will be acted on and react equally with an acid and alkali, shows lack of knowledge of chemical principles. If there is such a thing as vicarious action elsewhere, it is not in the gastrointestinal tract. Therefore, the food which must be digested by an acid and is not so digested, will and does undergo chemical changes in the intestine, which changes do not work for the health of the individual. In my experience on hundreds of cases I have found that insufficiency of the pylorus causes excessive acidity within the intestines and, very often, irritating gases. Let us first discuss the question of excessive gas formation in the intestines. We must bear in mind that gas formation is a natural process which accompanies digestion. It is the overproduction of gases which becomes pathological. I dare say that every reader has experienced the sensation of overdistention of the intestines with gases. Not only do we feel uncomfortable, but very often we have to loosen our clothing because of the overdistention of the intestines. If there is sufficient pressure outwardly upon the abdominal wall which compels us to open our clothing, we can safely assume that there is like pressure in all other directions, wherever the intestines are lodged, that is, all over in the abdominal cavity. This gas pressure is at times so great that it dislodges even the liver and forces it upward. This condition has been seen many times by the surgeon, who has found the liver being pushed into the thoracic cavity because of the gas distention of the intestine. We are therefore fully justified in asserting that, whenever there is great distention of the abdominal wall by gases within the intestine, there is like great pressure upward against the diaphragm, and, therefore, against the lungs. Thus, the normal respiratory excursions of the lungs are very much interfered with; the lungs are prevented from fully expanding. I am sure that the reader is familiar with the frequent history of indigestion, fullness in the stomach and

painful breathing, the pain being located in the left side, which is most often, and unfortunately, diagnosed as a 'touch" of pleurisy. As the normal rate of respiration is 18 times a minute, it is 18 times in a minute that the lungs are prevented from performing their natural function. This interference with the respiratory expansion of the lungs continues not for a minute, nor for an hour, nor for a week, nor for a month, but for months and years. Can the physician admit that such interference with the respiratory expansions will go on for such length of time without impressing the lungs pathologically? Must we not, under such circumstances, expect that, sooner or later, the lungs will give manifestations of a pathological condition? And the pathological condition of the lungs which manifests itself here we have named asthma. Having reached this reasoning I could clearly understand how my four successive cases of asthma were cured. With the cessation of the excessive gas formation the lungs were no more crowded and could therefore fully expand. This chronic overdistention of the intestines constitutes the asthmatic constitution. The asthmatic attack is ordinarily called forth by the organacidia enterica, the excessive acidity of the intestines, this acidity being caused by irritating, volatile organic acids, which are forced up through the open pylorus and cardia into the esophagus and pharynx when its irritation initiates the spasm and cough. But, given the asthmatic condition, other irritants may precipitate the asthmatic paroxysm, whether the irritants be of a solid nature, such as dust, flour, hairs from fur, pollens, or whether the irritant be of gaseous nature. The irritants just cited do not produce asthma unless there is underlying an asthmatic constitution. The more I thought of this foregoing theory as explanatory of the cause of asthma the more likely it appeared to me, and my success in nearly four hundred cases confirmed the correctness of this theory.

Etiology.—The foregoing sufficiently sets forth my view as to the etiology of asthma. A few remarks on the erroneousness of the assumed causes, as at present being taught, may be in place. Asthma appears either in winter or in summer. Some patients suffer only in the winter and others only in summer. The fact that it comes in summer excludes the correctness of the hypothesis that asthma is due to the inhalation of cold air, a view expressed by some authors. That asthma comes in the winter, and this is in most of the cases, will at once exclude the inhalations of pollens or of other plant substances from playing any rôle in the etiology of the disease. Neither seashore, nor inland, nor mountain, nor valley is exempt; asthma is found everywhere and therefore these cannot be looked upon as inducing asthma. Cardiac and renal disease is often alleged as the excitor of asthma. But I have had these cases in my practice; the asthma got better and the cardiac or renal trouble remained. Nor is age a determining factor; my youngest patient was six months old and my oldest 84 years. So far I have been unable to see that one or the other sex is more prone to asthma; both sexes suffer alike. That asthma is not due to nervousness, the following history will serve as an illustration. The six months old baby, which I just mentioned, was brought to me by its mother, to whom I had been recommended by a cured asthma patient. I treated the mother and the baby got well, and now, over four years after, I heard from a patient, whom the child's mother sent me, that the child is now a healthy little girl and has not had asthma since I cured the mother; the mother nursed the baby.

We constantly hear of some pathological nasal condition being the cause of asthma. This is not borne out by my experience. Surely one-third of my patients have come to me after they had had one or more operations on the nose; the fact that they came to me proves that the nasal trouble was not responsible for the asthma.

Symptoms.—In the first years of the disease the asthmatic attacks come either in winter or summer. But after the persistence of the asthma for several years the suffering continues, with greater or lesser severity, throughout the year, although there may be some slight intermissions for short periods.

The asthmatic attacks are ushered in mostly very suddenly. But occasionally there are premonitory symptoms, well known to the patient himself. The usual run of an attack is as follows: Towards 3 or 4 o'clock in the morning, and while the patient is still asleep, the respiration becomes labored, accompanied by wheezing. This naturally is observed not by the patient himself, but by his family. Suddenly he wakes, sits up in bed and assumes a posture most favorable for forced respiration. The thighs are drawn up towards the abdomen and the legs flexed upon the thighs. The body flexes forward to meet the thighs. The forearms are flexed upon the arms and the elbows rest upon the knees, the hands supporting the chin. All the auxiliary muscles of respiration are brought into play. Soon the mucous membranes of the lips become livid and the patient's body is bathed in cold perspiration. The mouth is open and the chin drops; the eyes bulge out, he gasps and labors for air. Suddenly he jumps out of bed and runs to the window, which he tears open. In the severer cases the patient is unable to stay in bed and for weeks and months he gets his sleep sitting in a chair, never going to bed at all. When he is seized with a paroxysm while sleeping in his chair, the patient jumps up and gets hold of some piece of furniture against which he braces with body bent forward and head thrown back. No matter how many attacks the patient has gone through, he always thinks this present attack will end his life. The duration of the paroxysm is not always the same and may last from half an hour to several hours. At the end of the paroxysm gas and mucous are expelled from the mouth.

What is the explanation for the paroxysm; what causes it? Taking note first of the time at which the paroxysms usually are initiated, we see that they occur at a time when the ingested food has left the stomach and has already reached the intestine, where the particular chemical changes take place which create the irritating gases. The attack occurs from six to eight hours after the last meal. The esophagus and pharynx, already in a pathological condition, receive now additional irritation. This irritation the patient attempts to re-

move by the only means at his disposal, by coughing. But also the peristalsis of the esophagus comes into play. The pharyngeal and glossal muscles contract, thus closing the passage of air and gas from the esophagus and the trachea, thus forming the pneumatic piston, and the concussions of this pneumatic piston against the occlusion begin by the act of coughing. Meanwhile the irritant in the intestine continues to be generated and to be forced up so that it augments the irritation which provokes greater coughing concussion. To each inspiration there is a series of cough concussions in rapid succession, and if the irritant is solid it will be removed in a short time, unless it is imbedded in the structures. But if the irritant is of a chemical nature, not one introduced from without, but one constantly being formed and reformed in the intestines, the irritation will naturally continue, until the formation of such irritating volatile substances has ceased, or until the chemical irritants have become attenuated or neutralized. The peristaltic action of the esophagus not only milks the glands but stimulates their secretions, which help to counteract the chemical irritants. As full an inspiration is taken as is possible, and the air cells become fully distended. The abdominal muscles and the diaphragm are violently, rapidly, and in a concussive manner contracted, the concussions being exerted against the fully inflated air vesicles. The longer the irritation continues, the greater are the efforts to overcome the irritation, and, involuntarily, the aid of the auxiliary muscles of expiration is peremptorily requisitioned. But as the irritation lasts for several hours and the muscular contractions of the auxiliary muscles of respiration gradually give way, their force against the distended air vesicles diminishes. Thus the distended walls of the air vesicles are put under greater strain, and in the course of time lose much, if not all, of their elasticity; the air vesicles are or remain distended. Under normal conditions the air cells and the bronchioles are adapted in size to each other and produce the sound which we call vesicular breathing. Any modification of this relation between the lumen of the bronchiole and of the vesicle will necessarily have an effect upon the pitch of the sound. When the air vesicle is distended, the lumen of the bronchiole, by comparison, is now less than before, the pitch of the sound is relatively raised, and the quality of the tone is changed to musical. That the distention of the air vesicles is not hypothetical but an actual fact is seen in the enlargement of the chest and in the bulging out of the intercostal spaces. It is true that the lumen of the bronchial tubes is inadequate during an asthmatic attack. But this diminution is not caused by a spasm of the bronchial tubes, but, because of the distention of the vesicles the caliber of the bronchial tubes becomes relatively smaller. When, after a variable length of time, the irritation has finally been overcome the spasm ceases and the pent-up gases are expelled together with some mucus.

Between the attacks the patient feels more or less comfortable, but he is always careful of any exertion; he cannot climb stairs and cannot walk any distances. Palpitation of the heart, especially on climbing or going up stairs is a very frequent symptom. The patient complains of belching, fulness in the region of the stomach, and fulness in the abdomen. Deficiency of teeth is the rule, although there are many exceptions. I mention this because I have already, in my first monograph on insufficientia pylori, called attention to this state as being intimately connected with the causation of insufficiency of the pylorus. Pain in the precordial space, of which very many patients complain, may unquestionably be occasionally due to actual heart trouble. But, I found heart disease a very rare complication in my practice. I believe the tendency to be, that the physician will give the patient the benefit of the doubt, whenever the latter complains constantly of pain in the region of the heart, and call it heart disease even when there are no physical signs whatsoever to permit of such a diagnosis. This I have seen innumerable times, and the physician then treats a non-existent heart disease with very unpleasant results as a consequence. Based upon my experience in numbers of instances, I believe that the physician should think of the heart last, whenever fluttering, palpitation, and pain in the region of the heart are complained of, and never should the physician make the diagnosis of heart trouble, unless there are absolute physical signs present for the diagnosis. The reason for these constant errors is the following: There is gas accumulation in the stomach, duodenum, and the jejunum. The gas presses upward against the diaphragm and through it against the heart. The normal, unconscious heart action is interfered with by the encroachment of the distended intestines upon the excursions of the heart. The fact present is, that the heart is beating against a resistant body and the rhythmical shocks of the heart against the gas distended body calls forth the sensation of pain. One can easily ascertain this fact by sharply striking, even if very lightly, upon a distended portion of his own intestine or upon a patient's intestine; pain will be elicited. Besides this there is the distention of the fundus of the stomach against the ribs and also the pressure of the heart forward against the ribs and the consequent compression of the coronary artery. All these elements enter into the causation of uneasiness and pain in the region of the heart and also of the painful breathing of which the patients complain.

The appetite varies. The usual history is that they have appetite, except during the attack. This depends upon the acid condition of the intestine. If there is excessive acidity, there is appetite, for the acidity causes the contractions which cause hunger. But, as during the attacks there is gas distention, there is absence of appetite so long as there is distention. Those who are interested in the question of the appetite I would refer to my articles: "Organacidia gastrica" (MEDICAL RECORD, Sept. 6, 1902), "Additional Notes on Organacidia Gastrica" (*Phila. Med. Jour.*, March 28, 1903), and "The Nature and Cause of Appetite, Hunger, and Anorexia" (*Amer. Medicine*, Aug. 26, 1905). These articles where I have described the nature and the cause of appetite have been made the cause of investigation by several experimental physiologists, prominently amongst whom is W. B. Cannon, why fully confirmed my deductions. Contractions of the stomach and duodenum up to a certain degree give the

sensation of hunger. Distention of these parts, being the opposite of contraction, also produces the opposite sensation from hunger, that is, distention has as consequence loss of appetite. And since during the asthmatic attacks there is distention of the stomach and intestine, it follows that loss of appetite must be the consequence. Constipation is the most frequent symptom.

Diagnosis.—Very often the patient comes to consult about asthma, and the chest examination fails to reveal anything abnormal. The physician should then be on his guard. On auscultation we may not hear any of the well-known rales, yet the patient may be an asthmatic; the patient simply came at a time when his chest showed no evidence of asthma. Under such circumstances it is best to explain the true facts and urge the patient to return after a short while. If necessary, one may give him some placebo until he comes again. When a patient comes to the physician complaining of asthma, it is the safer rule to treat him on the theory that he has asthma, even if the characteristic auscultatory signs are, for the time being, absent. Ordinarily the diagnosis of asthma can be made when the patient is in an adjoining room, without even seeing him, so characteristic is the rhythm of the breathing. It is the short, free inspiration followed by the labored and prolonged expiration which is associated with the wheezing. The only other disease which gives the same rhythm is pneumonia. But in pneumonia the respirations are increased in number. Not so in asthma; also, in asthma the expiration is much deeper and more prolonged. Then, although not always, the wheezing can be heard from a distance. However, every patient must be stripped and examined. But not always can we hear the wheezzing when the patient is erect, sitting or standing. The patient is then put in the dorsal position, and if auscultation in this position should not bring out the wheezing, the examining chair should be inclined to an angle of about 40 degrees, so that the head of the patient comes down and the feet up. This inclined position is most excellent not only for the examination of the heart and lungs, but especially for the palpation of the abdominal organs. In this posture the wheezing will be heard when it could not be heard in the other positions. It is heard in expiration. One must learn to distinguish and to recognize a coexistent bronchitis. The physician will always elicit the history of a digestive disturbance, and, upon inspection of the abdomen, the gastric region will show its evidence. Over this region we may see a wavy tremulation, indicating the presence of gas, and which is being produced by the propagation of the pulsations of the abdominal aorta. Of course, the gastric condition must not be guessed at; the diagnosis must be made, after a test meal examination. The examination of the test meal in insufficientia pylori is described in my article in the *Philadelphia Med. Journ.* of May 24, 1902, and the ordinary test meal examination, in the article on organacidia gastrica in the MEDICAL RECORD for September 6, 1902.

Prognosis.—Contrary to what we have been taught, the prognosis is excellent. It is more than this. The affiicted begin to feel better almost the very day the proper treatment is instituted. Usually within 36 to 48 hours the difficulty with breathing begins to abate and after months of sleeping in the chair the patient can now go to bed. This alone makes him feel very happy. The attacks begin to lessen in severity and in frequency. But the patient requires a great deal of encouragement. He begins to feel better and believes that the attacks must stop right then and there, and just as soon as an attack comes again he is discouraged. Notwithstanding the fact that each patient is told that he must expect more attacks after the treatment has been begun, he, nevertheless, loses heart with each succeeding attack. We must then learn to exercise extreme patience and forbearance and must, in most positive terms, reassure our patients of success. Very often they will report progressive improvement the first eight or ten days and then begin to complain. My stereotyped question always is, what did you eat? The patient, usually will first deny, but after a while will admit his digression from the dietary rules. As an illustration I will cite the following two cases: A man 53 was being treated with excellent result the first ten days. Then he began to complain of not feeling well and of slight attacks. He denied that he varied from the rules as laid down. One day after this patient had left, the patient following him told me that in the waiting room this man had said that he was absolutely disregarding my advice as to the diet and that he ate and drank as he pleased. The following day I gave the disobedient patient a severe lecture, and he promised to mind me, which he did and he then got well. The other illustration is of an old lady, 71, who had suffered from asthma for very many years. She soon enough began to feel well, but after a while she began to complain again. As in all other cases she at first denied infringing upon the dietary rules, but, conscience stricken, she subsequently admitted her sins. So she went on for quite a while, but, finding that she continued to disobey, I finally gave her up. This seemed to have had a salutary effect upon her. She gave up her experimenting with forbidden food and I infer that she is well from the fact that she has repeatedly sent me patients. The treatment takes from three to four months, and after this the patient must continue on a moderately restricted diet for a period of about a year or so.

The question always comes up whether asthma, once cured, will remain cured. Asthma will remain cured, if the patient will abstain from again abusing his stomach. If deliberately and with utter disregard of injunctions he eats and drinks things which he should not, he will always have to pay the penalty. The advantage which the patient has is that he knows his enemy, he knows what he should not take and he must not take it. Asthma is just as curable as every other curable disease; the permanency of the cure depends upon the patient himself. The patient must be impressed with the knowledge that after he has been cured it becomes a question of his diet, which is not at all very restricted. Asthma originally developed because of the faulty diet, which caused the gastrointestinal condition, and, as often as the patient wishes to revert to his old bad habits, he will have to suffer for it. On an average the cure requires treatment for about four months.

Treatment.—For the successful treatment of

asthma we must take cognizance of all accompanying complications. Where the teeth are deficient, absent, decayed, or otherwise requïre care, such care must be given them. Nasal obstructions, adenoids, antrum or sinus disease must be overcome. To use an illustration: Supposing we find big cracks appearing in a wall and some pieces of ceiling falling down and we call the architect, whose opinion it is, that the foundation of the house requires repairs and that such repairs to the foundation are made. These stop the house from going to final collapse. But the mere attention to the foundation will not at the same time cure the cracks in the wall or the fallen-down ceiling. The cracks and the ceiling will also have to be repaired to make the house perfect. The mere curing of the asthma will not cure the other complicating conditions.

With almost no exceptions, all patients suffer from insufficientia pylori, the degree of which must be ascertained. I will give here a very brief summary of insufficiency of the pylorus. The patient is given a full and mixed meal the night before the examination and is told not to eat or drink anything after this meal until the following morning, and to come to the physician on an empty stomach. The patient must be specifically warned not to eat or drink anything after this meal until he comes for the examination. My routine is to give the patient the first examination with the stomach tube on the fasting stomach, in order to ascertain whether or not the stomach is empty, and if found not empty what is the nature of the contents. Next the patient is given 35 grams of plain white bread and 300 c.c. of water, after which he waits in the office of the physician one hour, during which he is not permitted any exercise. After one hour the stomach is aspirated. If no contents are found, the diagnosis is insufficiency of the pylorus. Its degree is ascertained, by giving the patient repeated test meals, one day after the other, but aspirating each day one-quarter of an hour earlier. The object of this is to find out how soon the stomach is empty of its contents so that the patient may get the medicine in proper time. The setting in of the insufficiency is recognized, when only a very small quantity of chyme is aspirated which has a spongy appearance. The treatment of insufficiency of the pylorus is alkaline, not acid. That is, taking cognizance of the fact that the food does not remain in the stomach, but passes into the intestine too soon, our object must be to increase the efficiency of the intestinal digestion, which requires alkalies. This advice is based upon experience. I had given acids first, but after a thorough trial got no results. I then determined to experiment with the alkalies, and this proved successful. Most often I use the sodium, magnesium, and calcium salts; but the potassium and ammonium salts are also very frequently of great benefit. Which particular salt is to be used and in what combinations is largely a matter of experience. The plain rhubarb and soda mixture with magnesium and the salicylate of sodium is a very good combination. In addition, cascara, nux vomica, strychnine, and the mydriatics may have to be employed. For the constipation which is almost invariably present I have found of excellent service the following combination: Podophyllin and aloin, each one-quarter grain, phenolphthalein one to one and a half grains, and atropine one hundred and twentieth of a grain, to be made into pills; one pill every night. In many cases the addition of colchicum to the alkalies proves very beneficial. Of the iodides I prefer the ammonium. Of the saturated solution of ammonium iodide we begin with a few drops and gradually increase the dose. For adrenalin I have no great admiration; I have long ago given it up in routine treatment. The general rule should be to use as few drugs as possible. Morphine I never use in the treatment of asthma, alhough I do use it in the treatment of an intercurrent attack of bronchitis.

Our chief reliance must be in the diet. Unfortunately no set rule can be given; what may be meat in one case may prove poison in the other. Each case must be studied by itself. As a general rule vegetables are not tolerated; but neither are all kinds of meat. Whilst this seems to be the rule, there are many exceptions. Many patients get along splendidly on one kind of vegetable or on one kind of meat and others get acute attacks after the same kind of diet. Our experience is our only guide. We must never lose sight of the fact that asthma is a disease of digestion and the digestion depends upon the diet we take. The diet should be extremely limited and restricted for the first week or two, after which we may gradually increase the list. Every physician should learn the art of cooking. And when I speak of cooking, I have in mind only scientific cooking, which not only should please the eye and taste but, especially, should have regard for the chemical composition of the food itself and of the mode of its preparation. Having studied this subject and experimented in it for many years, I have long ago come to the conclusion that the printed diet lists, so frequently used by the physicians, are not only useless but very often quite harmful. It is of no use to prescribe a diet for an Irishman which is well suited for the Italian or vice versa. The food of one nation may differ wholly from the food of another nation. Nay, even in the same nation the food and customs of one locality may differ entirely from those of another locality. The physician must bear all this in mind. My usual procedure is this: I have the patient submit to me a list of the foods which he has been wont to take, and he must tell me, if he can, how each and every dish is prepared. We then go through this list and make whatever changes I find necessary. In this way the patient retains more or less his accustomed food and is well satisfied. Tea, coffee, cocoa, beer, wine, greasy foods, spices, and acid foods should be absolutely interdicted; also such as contain or produce gases—beans, peas, cabbages, and radishes. When the patient manifests a desire for sour milk, we will find that a prescription calling for dilute lactic acid with nux vomica or strychnine will be well tolerated and do good.

The diet rules just mentioned must be looked upon as being merely in the nature of a sketch, as stating only the principles. In our big city we come across all nationalities and therefore meet all kinds of foods and dishes. But in the smaller localities, where the same dishes are used by nearly all the inhabitants, the problem of the selection of the suitable diet will be markedly simplified and the physician may soon adopt a certain diet rule which

will be most excellent in his locality although perhaps not so suitable in another. Common salt is not tolerated by asthmatics and very little only should be permitted. It would seem that it is the chlorine which acts badly, as by substituting the sodium bromide for the sodium chloride the patient gets along better. In this case the sodium bromide is to be used exactly in the same way as the ordinary salt, without regard to dosage.

Concerning the treatment of the constipation, the physician should bear in mind that, barring adhesions or other mechanical impediments to the lumen of the intestines, constipation is caused by the absence of peristalsis. Peristalsis is produced by the contraction of the muscular coats of the intestines. When the muscularis does not contract there cannot be peristalsis and therefore no bowel movement. When, instead of the contractions which produce the peristalsis the intestines are distended by gas, the absence of the muscular contractions is responsible for the constipation. It follows, therefore, that the gas distention of the intestines has constipation as a necessary consequence. A very quick means to relieve the intestines from gas is the enema. I have employed this thousands of times and have demonstrated its efficacy ever since I got into practice. All that is necessary is a fountain syringe with a small rectal nozzle and warm water. The position of the patient must be such as to favor gravitation of the water up to the ileocecal valve. This is accomplished by posture. By preference, the patient is put on the floor on his back with the pelvis suitably elevated about six inches. The nozzle is then lubricated and introduced into the rectum and the water is allowed to flow. No colon tube is ever necessary or called for and its use betrays a lack of the most rudimentary knowledge of physics. If there is room for a colon tube, there surely is room for the water; the colon tube might do harm, the water never. There is no such thing as a definite quantity of water which is to be permitted to flow into the intestine; the patient gets as much water as he can stand, be that quantity more or less. In the administration of enemas to the child we simply wait until the water is shot back.

The patient should be told not to go to bed early. Rather, he should go to bed about 11, or perhaps a little later. If he goes to bed early he may sleep 5 or 6 hours and then wake around 2 o'clock in the morning and the chances then are that he will remain awake as he already has had sleep enough. The remaining awake the rest of the night has a depressing influence upon the patient, who is so easily disheartened.

Of the various complications which may coexist with asthma I wish to mention edema of the legs, which becomes ascending, involving the genitals, pelvis, and then abdomen. I have seen this several times. The patients recovered under treatment with calomel and the compound jalap powder, together with bicarbonate of soda every few days. In one case, a man 71 years old, the edema took on alarming proportions. His legs became livid, cold, and so swollen and heavy that they had to be raised for him and only with difficulty could he raise them himself with his hands. Also his genitals became very edematous and fluid began to accumulate in the abdomen. Notwithstanding this, under the calomel mixture alternating with a mixture of potassium citrate and magnesium sulphate with the fluid extract of digitalis the edema disappeared.

The Treatment of the Asthmatic Attack.—A long list of drugs has been advocated to check the attack. I know of nothing better than the emptying of the stomach and of the bowels. Not always, however, can we get the consent of the patient or of his friends, who look upon these procedures as being too heroic. The stomach may be emptied by the stomach tube or by an emetic, and the tube is to be given preference. To those who are not used to the handling of the tube, I would recommend the employment of my stomach tube director, which was described in the MEDICAL RECORD August 9, 1896. The bowels are emptied the quickest by an enema.

To check the spasm many drugs are used, but the relief is only temporary. The next commonly employed are: Inhalations of the smoke of stramonium either from the ignited pulverized leaves or the leaves made in the form of a cigarette. Also nitre paper is burned and the fumes are inhaled. This nitre paper can be made by saturating blotting paper in a saturated solution of potassium nitrate and then drying the paper. Some use chloroform inhalations and some amyl nitrite. Hypodermically adrenalin and morphine are used. None of the drugs here enumerated, and there are a good many more proprietary compounds, gives anything else than temporary relief, and their use should be discouraged.

Summary.—The centuries' old conception of asthma as being due to a spasm of the bronchial tubes has been based entirely upon a speculation and not upon actually ascertained facts. That erroneous understanding has been passed from generation to generation. Comparing the clinical picture of the behavior of the chest in cases of known and demonstrated obstruction to the ingress of air, with the clinical picture of the behavior of the chest in an attack of asthma, we find a most marked and highly contrasting condition. In cases of known and demonstrable obstruction the supraclavicular fossæ and the intercostal spaces are drawn in; in asthma these are bulging. In true obstructions the inspiration is prolonged and labored; in asthma it is the expiration which is prolonged and labored. There is no reason why asthma may not be complicated by any other pathological condition, among others also by cardiac, renal, or nasal diseases. But the mere association of these diseases does neither justify nor permit the assumption that asthma is the result of such pathological conditions; the mere fact of their association does not justify the assumption that they are the cause of asthma. The underlying cause of asthma is the overproduction of irritating gases in the gastrointestinal canal, which, operating physically and chemically, produce the asthmatic paroxysm. Physically, by overdistention of abdomen and of the pressure upward of the diaphragm against the lungs, whose expansion is violently interfered with. Chemically, by irritating the esophagus and pharynx, which irritation the patient attempts to clear away by the act of coughing. So long as the irritation continues, so long continues the ineffective coughing. The longer the irritation continues, the more violent becomes the act of coughing, the consequence of which is dilata-

tion of the pulmonary air vesicles, which may and often enough does terminate in emphysema of the lungs. The asthmatic paroxysm ends when the irritation in the esophagus and pharynx have been removed, partly by neutralization of the irritation and partly by its dilution with pharyngo-esophageal secretions. Asthma is curable in about four months. This cure must be taken in the sense of the cure of any other conditon; an organ once cured will remain cured if it is not again subjected to the causes which originally caused its disease. Asthma will remain cured if the patient will not again abuse his digestive organs. Thus the prognosis of asthma is excellent, no matter how long the condition has existed. In the curing of asthma both the patient and the physician must be very patient and persevering. The physician must be conscious of the fact and must so inform his patient, that the attacks are not going to stay away immediately after our treatment has begun, but the attacks will gradually lessen in severity and frequency until they entirely die out.

616 Madison Avenue.

POST-INFLUENZAL ALOPECIA*

By C. AUGUSTUS SIMPSON, M.D.,

WASHINGTON, D. C., AND NEWPORT, R. I.

DERMATOLOGIST TO THE EPISCOPAL EYE AND THROAT, GEORGE WASHINGTON, AND WASHINGTON ASYLUM HOSPITALS, WASHINGTON CITY, AND ST. ANN ORPHAN ASYLUMS.

The three dermatologists who have contributed most to our knowledge of scalp lesions are Sabouraud, Unna, and F. Pincus. Most of Jackson's and McMurtry's book is taken from Sabouraud's works. The author fully quotes the above, especially F. Pincus, in whose office and laboratory he spent several months.

Following the recent epidemic of influenza, the dermatologist has had a splendid opportunity to note what a fearfully destructive effect it had on the skin appendages, hair and nails. The individual cases can be compared only with profound and long drawn-out typhoid infections. Besides the anemia, nervous exhaustion, and general weakness from which the majority of these patients suffered, and with which you are quite familiar, the enormous number of cases of alopecia gives one a good index of the intense virulence and tenacity of the disease.

To be of benefit to those who come into contact with these patients, to prevent some misconceptions of the past, and to give some useful hints on the hygiene of the hair, are the sole excuse for this paper.

The average physician should be in a position to give useful advice on dermatological lesions with the same familiarity as on other branches of medicine. Failure to meet these just obligations is a prime cause for the perfect deluge of beauty parlors and hair restorers which assail one's eyes and nostrils in every city. A little of such advice to your convalscent patients will be highly appreciated. I have known ungrateful patients to be most indignant with their doctors because they treated the loss of their hair as a joke, they admitting at the same time that the physician's skill had saved the lives of one or more members of their families. For a physician to advise having the head shaved or hair clipped a number of instances of which I have known, is to gain the lasting enmity of his patient. Only a few weeks have passed since this city was shocked by the suicide of a beautiful and wealthy woman who had a mild case of seborrhoic dermatitis of the scalp for which someone insisted she must sacrifice her hair. I will agree with you that such unreasonableness is absurd but these very particular patients retain their views just the same.

Happily the prognosis in uncomplicated post-influenzal alopecia is very good, as it is in all sympathetic alopecias, but it is a mistake to suppose that these cases will return to normal without any attention. The probabilities are that many will never have the quality and quantity of hair they once had. How many of your female patients trace their thin hair to a previous attack of typhoid? Yet everyone knows that the hair is quickly regenerated after this illness. However, these uncomplicated cases as a rule quickly respond to a mildly stimulating lotion massaged into the scalp once a day.

It is with the prophylactic and curative treatment of post-influenzal alopecia complicated with pityriasis and seborrhoic dermatitis that this article is chiefly concerned. I speak of prophylactic treatment because my clinical experience leads me to believe that this tremendous loss of hair following acute infections can be prevented in many instances. I believe the condition is primarily one of nutrition of the hair dependent on the circulation.

Unna claims that the loosening and shedding of the hair oftentimes is due to the character of the blood supply. He explains this by showing that the middle region of the rair follicle is supplied by arterial twigs from the subpapillary circulation, and the papilla of the hair is nourished by little arteries from the deeper arterial circulation of the cutis. Therefore the middle follicle region must participate in the disturbances of the subpapillary circulation while the papilla is relatively free from this influence. Thus any lessening of the nutritive supply of the papilla or any increase in that from the subpapillary circulation to the middle follicle region must cause a preponderance of nutrition in the middle over the lower follicle region. This would necessarily cause an increased growth of the prickle cell layer of the middle follicle region and an increased pressure upon the hair. Then either the circumference of the hair cylinder would be lessened or the hair itself would be pressed out of the follicle and raised from the papilla. The latter is what actually takes place. The bed hair is shoved higher and higher up so long as it remains in the middle third of the follicle; that is, just below the mouth of the sebaceous gland—the circulation becomes again equalized and the hair ceasing to grow, and being separated from its bed in time falls out.

Apropos of these remarks on the pathology and prophylactic measures I will say that I know of

*Read before the District of Columbia Medical Society, January 29, 1919.

at least six patients who were and are applying a preparation of sulphur, salicylic acid, and pilocarpine for seborrhoic dermatitis of the scalp. All of them were victims of severe influenza infections and today, more than two months since their recovery, their hair fall has not been excessive.

Pilocarpine is the only drug that is known to promote the growth of hair, naturally, in the presence of a hair follicles. It is quite possible that the specific action of the pilocarpine combined with daily massage so stabilized the scalp circulation that the majority of the hairs did not suffer a separation from the papilla. Certainly if it is possible to get such a result in six cases the method at least calls for a more thorough trial as the trouble is negligible. One recognizes the difficulty of carrying out any treatment other than that directed toward the influenza, although it is safe to say that while the doctor is using his skill and energy to save the patient's health, she is many times worrying about her hair. This statement may be ridiculed by those who have not come in contact with such patients but I have often wondered if the average woman's soul is not bound up in her hair. For her to be even threatened with baldness will often turn an apparently normal woman into a hysterical, weeping, neurasthenic creature without a bright prospect in the world.

In patients with post-influenzal aloecia complicated by pityriasis steatoides or seborrhoic dermatitis, we are confronted by a condition that demands energetic treatment if we expect the woman to retain her normal quantity and quality of hair.

Here we have a scalp lesion which is slowly destroying the hair follicle, transforming root hairs into bed hairs and leading to atrophy, after which all forms of treatment are useless. If the disease is of some duration noticeable hair fall will have already become evident. The patient sees that her hair has become finer, shorter, thinner, possibly with split ends and maybe very oily. Add to this the tremendous constitutional disturbance and hair fall resulting from a virulent infection, such as the past epidemic of influenza, and the result is to be foreseen. Under such a severe added handicap it is a mistake to suppose that an already damaged hair follicle will produce a strong, vigorous, normal hair.

Perhaps the patient already has incurable seborrhea for which our remedies are only palliative. She is usually, however, fortunate enough to have one of the other scalp lesions which we can successfully combat.

It takes a careful examination to differentiate between the two and here a snap-shot diagnosis will lead to grief as in any other branch of medicine.

The patient must take down her hair and be seated in a good light in order to make an intelligent examination and diagnosis possible.

The following diseases are to be sought for: hyperidrosis, seborrhea, pityriasis simplex, pityraisis steatoides, and dermatitis seborrhoica.

If the patient is an adult ringworm can be excluded, while alopecia areata can be diagnosed at a glance.

Hyperidrosis capitis is closely allied to hyperidrosis of the palms. It usually occurs in neurotic individuals who are anemic and whose bodily vigor is below par. It does not cause baldness and is not associated with dry or greasy scales, crusts, or seborrhoic filaments. The excessive production of sweat and moisture of the hair are the most troublesome features of this disease. The treatment is most satisfactory in those cases that can be built up by general tonics and attention to the hygiene. Ergot and atropine act only temporarily. The *x*-ray, our best treatment for hyperidrosis, cannot be used as it destroys the hair follicles along with the sweat glands; locally some such astringent as zinc and alum in alcohol and other lotions are helpful.

Seborrhea is an oily condition of the scalp due to hypersecretion by the sebaceous glands and the formation of minute, white, vermicelli-like masses which can be squeezed out of the dilated follicles. The disease is caused by an infection of the sebaceous glands the nature of which is unsettled. Sabouraud claims his microbacillus is the organism.

In uncomplicated cases there is an absence of desquamation and the hair is free from dandruff. The scalp may share in a general over-activity of the sebaceous glands when the nose and middle forehead will also be greasy. As to be expected, it is a disease of young people under thirty years of age as a rule. When seen in older persons it seems to be of a milder type and more localized to the scalp. The hair is very oily, shiny, and sticks together as though it were buttered. Itching is very often a most troublesome symptom. Hyperidrosis may add to the unpleasantness.

The pathology shows an hyperthrophy of the sebaceous glands with no signs of degeneration, but at the same time progressive atrophy of the hair follicle and destruction of the papilla. Plugs of sebaceous material fill the orifices of the sebaceous gland.

The disease is incurable and leads to baldness if not treated. Continuous treatment will hold it in check but, according to Sabouraud, if this is stopped the disease is sure to reappear.

While a cure is impossible in these cases, it is remarkable how much we can relieve the symptoms and limit the hair fall. For this we have two agents that are far superior to anything that has ever been placed in the hands of the profession, viz.: the Kromayer lamp and colloidal sulphur.

With the lamp we can often stop the itching in one treatment, while all dermatologists agree that sulphur is the best drug we have in dealing with seborrhoic lesions in any location. Unfortunately, the usual forms of sulphur are insoluble which necessitates our incorporating them in cold cream, lanolin, or other greasy basis, which means that a patient whose hair is already reeking with oil and grease pays the physician perfectly good money to have more salve and grease applied to her head.

Colloidal sulphur is soluble in water and diluted alcohol. I prescribe it in concentrated solution, to be applied with a dropper. In this manner the patient gets the benefit of our best drug and in

stead of adding to the pathological quantity of oil on the scalp the lotion rather decreases it.

Once the condition is under control the patient is given a pleasant alcohol or ether lotion of 3 per cent. salicylic acid and resercin which she is requested to use at intervals for a long time.

Another scalp lesion that complicates post-influenza is pityriasis or scaling. Pityriasis may be the simple variety, more often it changes into pityriasis steatoides. Pityriasis simplex is a non-inflammatory, powdery exfoliation of the horny layer of the scalp—dandruff. Should this condition become excessive it becomes a disease and requires treatment. The scalp is dry and the hair is dry, lustreless, and dead looking.

The scaling is the result of increased development and exfoliation of the horny cells and has nothing to do with the sebaceous glands which were the seat of the pathology of the proceding scalp lesion, seborrhea. The entire scalp is usually involved yet a close examination shows no signs of inflammation, only a ceaseless scaling.

Two great predisposing causes of this lesion are general malnutrition of the patient caused by bad hygienic surroundings, some such constitutional disease as gout or nephritis, and direct irritation of the scalp by a patent hair dye or restorer, which contains an excess of free alkalies or other irritants. Many of these patients have been overtreated and require a rest. Jackson and McMurtry say that this lesion may persist in this uncomplicated form throughout the life of the patient and in this case will not cause alopecia. A bland oil like oil of sweet almonds is usually indicated. Frequently, however, the simple pityriasis becomes pityriasis steatoides which results in alopecia.

The great majority of cases of influenza alopecia are complicated with pityriasis steatoides. Only by close attention to the history and a careful scalp examination can one tell which condition is at fault. To expect full regeneration of the hair from a follicle already damaged by pityriasis steatoides is to subscribe to Eddyism. Are the ravages of one disease to be compensated for by the destruction caused by another?

In pityriasis steatoides the scalp is covered with yellow, adherent, coarse and fine, greasy crusts. The underlying skin usually shows signs of inflammation and redness, but never vesiculation or exudation as in eczema. The disease usually involves the top of the scalp first, later attacking the temporal areas. The history of these patients usually reveals that this scalp infection follows a visit to some unclean beauty or hair parlor. Many patients complain of severe itching. The hair becomes oily yet, unlike the condition in seborrhea, the sebaceous glands are not hypertrophied. The follicles are filled with a plug of cornified cells shaped like a nail with the point downward. The papillæ atrophy and alopecia is the result.

One must realize that one is most often dealing with a very particular woman who while wishing relief does not expect to forego her pleasures or social activities in the process. Rather than be greased and perfumed up with nauseating tar, mercury, and sulphur ointments, which are more suitable for dispensary patients, she will many times bear the loss in silence and buy more hair to take the place of that lost.

The Kromayer lamp will often clear up these lesions without the aid of drugs or salves. Itching ceases after one or two treatments—hair fall decreases almost as quickly and it is only a short time (an average of four treatments) before we have the disease under control. To deny our patients the benefit of the Kromayer lamp is to retard their cure and add to their unhappiness and misery.

Five years experience with the lamp has convinced me of its real value in these cases of pityriasis steatoides associated with alarming hair fall. I have had good results with it in patients who have failed to get relief from salves and lotions not only in my hands, but in those of some of the best-known and most skilful dermatologists of America and Europe.

For patients whose hair continues to be oily even after the hair fall has ceased, I once more rely on the colloidal sulphur in concentrated solutions. In fact I often prescribe the sulphur which the patients use at the same time the lamp exposures are given. For this reason, some patients have the combination rather than each individual agent to thank for their relief.

I first saw the good effects of colloidal sulphur in Max Joseph's clinic and it has always been a surprise to me that American dermatologists have not more frequently availed themselves of its real advantages.

1219 Connecticut Avenue.

A SIMPLE URINE TEST FOR ACIDOSIS.

By CLIFFORD MITCHELL, M.D.,

CHICAGO, ILL.

While it is true that, in some cases of acidosis, we find a high titration acidity of the urine, this acidity cannot be solely depended upon as a sure diagnostic sign of the condition. In proof of this it is merely necessary to draw attention to the fact that after drinking lemon phosphate or other popular acid drink, or after taking acid solutions as medicines, the titration acidity of urine may be greatly increased. Conversely the fact that the urine may happen to have a low titration acidity is no proof of the absence of acidosis. Hence sole reliance upon the determination of urine acidity should not be placed.

It is true that the presence of acidosis may in some cases be revealed by the detection of the acetone bodies in the urine, but of these the only one readily found by simple chemical tests is diacetic acid. And when it comes to the detection of diacetic acid there are fallacies in the test which may lead to errors of diagnosis on the part of the clinician. For example, unless the physician uses the ferric chloride solution in sufficient percentage strength, Gerhardt's test, the one usually employed, may fail to give a decisive reaction. Again in the presence of the products of coal tar derivatives in the urine, as, for example, saccharin, used so frequently by diabetics as a sweetener, the red color observed, when the ferric chloride solution is added,

may be due to drugs and not to diacetic acid. Moreover alkaline urine turns red when ferric chloride solution is added to it, which if not known by the clinician may give rise to a serious error in the diagnosis. Lastly for making the ferric chloride solution it is necessary to procure the so-called iron chloride in lumps, which is to be had only from dealers in chemicals.

In cases where the clinical features suggest the presence of acidosis but when the acetone bodies are absent, and also as a diagnostic measure in any suspected cases, it is the custom of some clinicians to make use of the determination of the carbon dioxide content of the alveolar air. Without discussing the merits or demerits of this procedure it may be remarked that special apparatus is necessary for making this test, and that this special apparatus is to be had only from dealers in scientific instruments and apparatus, hence may not be available in smaller communities.

Lastly, it is held by modern authorities that the diagnosis is best accomplished by the conjoint examination of the blood and urine. Without denying the scientific truth of this statement, it may be remarked that this conjoint examination can be made only under especially favorable circumstances, and is rather a matter for consultations than for the routine practice of medicine.

What is wanted by the busy practitioner is a simple urine test which shall be trustworthy, inexpensive, thoroughly practical and readily accomplished without the need of special apparatus, special skill, or chemicals difficult to obtain. In other words a test which can be made with materials procurable from the average drug store. Such a test the writer has devised and used successfully in the case of two types of acidosis, namely in that of diabetes mellitus, and in that of the pernicious vomiting of pregnancy. Without waiting for trial of the test in cases of the food intoxication of children, in uremia, and in other conditions in which acidosis has been thought, claimed, or asserted to be present the writer offers his new urine test to the profession, having by two years' study and trial of it proved to his own satisfaction that it is practical in diabetes and in pregnancy.

The foundation of the test rests upon the fact that urine has the property of decolorizing iodine in aqueous solution, that is iodine in solution in potassium idodide solution, for example, the so-called Lugol's solution. The truth of this can easily be ascertained by the following simple experiment: to one liter of water add 3 c.c. of Lugol's solution and mix thoroughly. A yellow liquid results which has a peculiar reddish tint, and a bright color. Pour 10 c.c. of this liquid into a small white dish, and with the aid of a medicine dropper add urine drop by drop, with stirring, to the liquid in the dish. After 5 or 10 drops of urine have been added it will be seen that the color of the yellow liquid begins to fade, and that after some 20 or 30 drops have been added the color is discharged entirely. The decolorization is not due to dilution with urine, as can be proved by performing the experiment with water instead of urine.

After several years of experiment with the urines of various diseases the writer found that the urine of diabetic coma, and of the pernicious vomiting of pregnancy, had a greater decolorizing power, so far as iodine was concerned, than that of other conditions. In other words the urine in the acidosis of diabetes and of pregnancy contains a substance which is particularly well able to destroy the yellow color of iodine.

Hence an iodine test for acidosis has been devised which can be used quantitatively, and by use of which can be entered day by day on the case record the figures indicating the degree of acidosis of the patient, as shown by the toxine output in the urine. The writer is aware that the claim he is making is no small one, but fortunately the process is so simple that the truth of the matter can be very easily verified without expenditure of much time or money. The best way to apply the test, so far discovered, is the following: to 145 c.c. of water (hydrant water will do) are added 3 c.c. of Lugol's solution and 2 c.c. of a saturated solution of picric acid, the whole being thoroughly mixed. The result is a fine clear reddish liquid of bright color. Pour this liquid into a white dish and heat it. The writer heats it on the water bath to a temperature of 180° F., but if a water bath is not available it may be heated over the flame until fumes are abundantly given off, boiling being avoided by turning down the flame sufficiently. When thus heated, the urine is added as quickly as possible but in small amounts at a time, the writer using for this purpose a graduated burette. If, however, a burette is not available, a small graduate or graduated bottle may be used from which to pour the urine into the hot liquid. It will be found that in acidosis the amount of urine needed to turn the bright red color to a bright yellow color is small, and the smaller the worse the case. In severe cases 2 or 3 c.c. of urine will almost immediately discharge the red color. In cases of moderate severity 8 or 10 c.c. may be required. Normal urines do not usually affect the color in smaller amounts than 15 c.c., except possibly in unusual conditions of concentration, where the amount of urine in 24 hours may be but a few hundred cubic centimeters. In most cases of normal urine, of specific gravity ranging from 1,015 to 1,020, the amount of urine required to effect change from red to yellow is around 20 c.c. or even higher, as high as 50 c.c. in some cases.

There is no trouble about the end reaction in this process as the mixture remains fairly clear, sometimes entirely clear. If the change from red to yellow is not easily recognized, it will be of avail to have near by in another white dish about 150 c.c. of a saturated picric acid solution for purposes of comparison. With practice the titration can be made so closely as to repeat within a fraction of a c.c., provided a constant temperature is kept and if the process is rapidly performed.

If from day to day the color is discharged by less and less urine, the case is growing worse. If, on the other hand, more and more urine is daily required to turn the red to yellow, the patient is improving.

The test can be made in the cold by timing. That is to say, to a given amount of the liquid is added a smaller amount of the urine to be tested, and the time in seconds, minutes, or hours required for the change of color is compared with the time required for an equal amount of normal urine to effect the

change of color. The writer, however, prefers the method in which the urine is heated as more rapid and more trustworthy.

It is true that picric acid is to be had, as a rule, only from dealers in chemicals, but it is also true that it is not absolutely necessary for use in the test. Omitting picric acid entirely, the end reaction may be obtained closely enough for clinical purposes. The writer uses picric acid because it enables him to obtain the end reaction more closely. In other words the general practitioner for his own purposes needs only a small white granite-ware dish which will stand the naked flame, a graduated bottle which is now easily had or a small graduate the past few years, the author of the article regists, Lugol's solution, which is easily obtainable, and something to stir with, a spoon sufficing if a glass rod is not available.

25 East Washington Street.

Medicolegal Notes.

Malpractice—Damages—Privileged Communications—Waiver.—In an action for damages by a patient against a physician for injuries for alleged negligent treatment, it appeared that the defendant maintained an office in the city of Rochester, and styled himself an "osteopathic physician." In May, 1917, plaintiff had a severe headache and went to defendant's office for treatment, and defendant treated him, receiving pay for his services. The entire treatment did not last over five minutes, and consisted in defendant having plaintiff get on a table and relax his muscles, whereupon defendant took hold of plaintiff's head and gave it a wrench sidewise, also giving it a rotary motion, using great force in the operation. Immediately everything became blurred to the plaintiff, and he felt dizzy, but as soon as the treatment was concluded, and he had paid defendant he left the office and returned to his own place of business, where he stayed for a short time. The same condition of dizziness that had developed in defendant's office continued, and plaintiff had pains down the back of his neck and down his spine. After obtaining a lunch in a restaurant, plaintiff went to his home, arriving there about a quarter of 8 in the evening. A short time after plaintiff arrived home he went to bed, was sick at his stomach, and went into an unconscious condition, and remained so for a considerable time.

Medical attendance was obtained, which continued for some weeks, but he was never restored to the same condition of health he enjoyed before defendant treated him. On the contrary, there was evidence in the case that he lost a great deal of flesh, that the seventh cervical vertebra had been fractured by defendant's treatment, which resulted in plaintiff's partial paralysis and subsequent condition as described by the witnesses, and that it was doubtful whether he would ever fully recover his health. In fact, medical experts called by the plaintiff gave it as their opinion that he would not fully recover. Of course experts called in behalf of defendant denied that plaintiff's condition was attributable to defendant's treatment, and stated that his injuries were not permanent in their character.

There was ample evidence in the case upon which the jury could base a finding that the condition of plaintiff's health was good, excepting for an occasional headache, right up to the time defendant treated him, but immediately following that treatment the condition of dizziness, pain in the back of his head and down the spine, and partial paralysis followed. The questions whether or not this condition was the result of defendant's treatment, whether or not his treatment of plaintiff was too severe, and he was negligent therein, and whether or not defendant exercised ordinary skill and reasonable care in the treatment of plaintiff, were all questions of fact for the jury, and their findings in favor of plaintiff were held supported by sufficient evidence. Likewise, the question of damages was clearly within the province of the jury. It having been found as a fact that patient's condition was attributable to defendant's improper and negligent treatment, and that plaintiff was entitled to some damages, the amount to be awarded was for the jury, and in this case, in view of the evidence, it was held that the amount awarded was not excessive.

Defendant urged that a new trial should be granted on the ground that the testimony of Dr. Woodruff, a physician called by defendant, was erroneously excluded. It was held there was no error in excluding that testimony. When plaintiff was on the stand for his direct examination, not one word of testimony was given by him as to any professional services that had been rendered to him by Dr. Woodruff, but on his cross-examination defendant brought out that in 1909, and also in the fall of 1917, plaintiff had been treated by Dr. Woodruff, going into some detail as to the nature of his ailment. Then on redirect examination plaintiff was asked to explain further with reference to the treatment given him by Dr. Woodruff, and which had been pried out of him on his cross-examination.

The defendant called Dr. Woodruff to give testimony as to the treatment he gave plaintiff, and as to what ailed him. It will be understood that these treatments were not at the time, or anywhere near the time, he was treated by defendant, and were wholly disconnected with the transaction in question. The plaintiff had consulted Dr. Woodruff on these occasions for some other difficulty, and the relation of patient and physician had been established between them.

Any statements or communications to Dr. Woodruff at that time were held clearly privileged under section 834 of the Code of Civil Procedure.—Gunn v. Robinson, 103 Misc. (N. Y.) 547, 171 N. Y. Supp. 692.

Fee for Operation.—A physician and surgeon sued for medical and surgical services rendered by him, with the assistance of another physician and surgeon and two internes, in performing an operation upon the defendant's wife, whose throat had been cut practically straight through, severing the trachea, hyoid muscle, external jugular vein, and fascia and trachea between the larynx and hyoid bone. The operation consisted of cleansing the wound and sewing together the various structures severed, and required a degree of skill not possessed by the regular physician and surgeon. It was held that a judgment for $100 was not excessive.—Eddy v. Healy, 209 Ill. App. 270.

Care for Child After Birth—Expert Testimony.—Action was brought against a general practitioner and a hospital to recover for the alleged negligent care of the plaintiff's mother and of the plaintiff at the plaintiff's birth, whereby the plaintiff's eyes became infected and the infection through the negligence of the defendant physician was allowed to spread, etc. It appeared that upon the discovery of the infection, which arose some time after the plaintiff's birth, an expert was, upon the defendant physician's advice and with the consent of the plaintiff's parents, placed in charge of the case. The expert evidence showed that this was the proper and best practice for a general practitioner. The Illinois Appellate Division held the evidence insufficient to go to the jury as to the alleged negligence of the defendant physician. Whether a physician has treated a case skilfully is a question of science which must be determined, not by lay evidence, but by the testimony of skilful physicians and surgeons. Judgment for the plaintiff was therefore reversed.—O'Connell v. West Side Hospital, 209 Ill. App. 233.

Expert Evidence—Colle's Fracture.—To recover under an accident insurance policy for the loss of a hand through sustaining a Colle's fracture in falling, the plaintiff must show that the injury resulted in a total loss of the usual functions of the hand. The defendant in such an action may introduce expert evidence to show the nature of such a fracture and the effect of it.—Nashelman v. Grand Lodge, etc., 209 Ill. App. 636.

Medical Opinion Invading Province of Jury.—The answer of a medical witness to a hypothetical question and as to his opinion whether or not a connection existed between the supposed accident and the plaintiff's appendicitis several months later, that "this was a traumatic appendicitis due to this accident," was held erroneously admitted over objection, as invading the province of the jury.—Moffett v. Calumet, etc., R. Co., 209 Ill. App. 243.

Military Medicine.

Medical Officers Cited for Bravery.—Among the officers and men of the Twenty-seventh Division formerly the New York National Guard who have received divisional citation for meritorious conduct during engagements in France and Belgium are Lieut. Col. Walter C. Montgomery, Division Surgeon, and Lieut. Lee A. Hadley Medical Corps, 106th Infantry.

Ambulance for Red Cross.—An ambulance purchased by the councils and members of the Royal Arcanum in New York State was presented to the Atlantic Division of the American Red Cross in the Armory of the First Field Hospital, on March 1, and received by Dr. D. C. Smyley, associate director for the Medical Corps Service of the Atlantic Division.

Surgical Operations at Sea.—The United States Transport *President Grant*, which arrived in the Port of New York, on February 26, with a large contingent of returning officers and men, has a record of having had two major surgical operations performed during the voyage. The first operation was performed by Dr. C. D. Langhorn, the ship's surgeon, who removed the appendix from a fireman, on February 18. Dr. Charles A. Nassau of Philadelphia, attached to the Army Medical Corps, performed the second operation, amputating the left leg of a private. The engines were stopped during the operations. Both patients are doing well.

Illness in American Expeditionary Forces.—Illness among the American Expeditionary Forces showed a considerable increase for the week ended February 6. During this week there were 132 new cases of typhoid fever, which sets a new record for this disease during the present war. The total number of sick reported on February 6 was 79,069, of whom 59,325 were being treated for disease and the rest for injuries. Sick and injured returned from France from the beginning of the war to February 14 totalled 69,574, of whom 59,456 have been sent home since the armistice was signed.

New York Clinics Open to Military Surgeons.—The Society for the Advancement of Clinical Study in New York is making a particular effort to show courtesies to these military surgeons who are temporarily staying in New York and is sending bulletins of operations in the various hospitals of the city daily to these surgeons upon request. Application for such bulletins may be made by visiting military surgeons at the headquarters of the Society, the New York Academy of Medicine, 17 West 43rd Street.

Recent Report on War Deaths.—The War Department now announces that deaths in the American Expeditionary Forces and among troops in the United States from all causes numbered 107,444. In the Expeditionary Forces the total was 72,951. Of these, 20,829 resulted from disease, 48,768 from injuries received in battle, and 3,354 from all other causes. The deaths from disease among troops in the United States totalled 32,737 and from other causes 1,756, giving a total of 34,493. The deaths from disease exceeded the total battle casualties by 5,000.

Work of Development Units.—During the six months that the army development battalions were in operation nearly 250,000 men received physical and educational training. These development battalions relieved our fighting forces of over 200,000 unfit men, and for every unfit man discharged by the battalions there were three men returned to useful duty in the army. Of the men sent to the development battalions, of which there were 31 in this country, 38,466 were placed in the first class on re-examination, 42,738 in the second class, and 38,468 in the third class. Of men sent to the development battalions more than 34 per cent. were unfit for immediate duty because of contagious diseases, nearly 13 per cent. were disqualified because of foot conditions, and five per cent. because of heart trouble.

Turkish Casualties.—A report from Constantinople states that the losses of the Turkish army in the war are estimated at 948,477, including dead, wounded, prisoners and missing. The dead number 5,550 officers, and 431,424 men; the wounded 407,772, and the remainder are accounted prisoners and missing.

Deaths in the Service.—Major John Ravenswood Hicks, M. C., U. S. Army, of Staten Island, N. Y., a graduate of the University of Maryland, Baltimore, in 1893, died while on duty with the 302d Tank Corps, American Expeditionary Forces, on January 3, aged 46 years. Before entering the service he was ophthalmic surgeon to St. Vincent's Hospital, New Brighton, Staten Island. From 1902 to 1906 he was acting assistant surgeon of the United States Army, serving in the Philippines.

Lieut. William Shorter Bull, M. C., U. S. Army, of Irvington, N. J., a graduate of the New York Homeopathic Medical College, in 1914, aged 32, on duty with the 114th Infantry, Twenty-ninth Division, American Expeditionary Forces, was instantly killed, while crossing the River Meuse under fire, on October 11, 1918.

Capt. Alba Gustavus Walker, M. C., U. S. Army, of Houlton, Me., a graduate of the College of Physicians and Surgeons, Boston, in 1902, honorably discharged from the service in November, died in Edmundston, N. B., on February 4, at the age of 48 years.

Lieut. Martin Maximilian Holzman, M. C., U. S. Army, of New York City, a graduate of the College of Physicians and Surgeons, in 1915, aged 27 years, on duty at Fort Oglethorpe, Ga., died on October 28, 1918, from acute bronchopneumonia.

Lieut. Arthur Henderson, M. C., U. S. Army, of Kokomo, Ind., a graduate of Jefferson Medical College, in 1912, on duty at Fort Benjamin Harrison, and later at Camp Zachary Taylor, died in Fort Bayard, N. M., on November 30, from pulmonary tuberculosis, aged 32 years.

Asst. Surg. Guy Benjamin Taylor, Lieut. J. G., U. S. Navy, of Lexington, S. C., a graduate of the Medical College of the State of South Carolina, Charleston, in 1917, aged 25 years, who served in France until December last, when he was assigned to duty at the U. S. Naval Hospital, Brooklyn, died in that institution on January 21 from pneumonia following influenza.

Lieut. Bradford Ripley Alden Scott, M. C., U. S. Army, of San Antonio, Texas, a graduate of

the University of Texas, Galveston, in 1916, formerly a member of the staff of the Southwestern Insane Asylum, San Antonio, on duty at Brooksfield, Texas, died at his home on November 12, of pneumonia following influenza.

Major Theophilus Parvin Calpinger, M. C., U. S. Army, of Wallace, Ind., a graduate of the Indiana Medical College, Indianapolis, in 1907, assistant medical chief at the base hospital, Camp Logan, Houston, Texas, died at that post on January 10, four days after an operation for appendicitis, at the age of 38 years.

Lieut. Ralph Edwin Schrom, Asst. Surg., U. S. N. R. F., of Philadelphia, a graduate of Jefferson Medical College, in 1904, died from pneumonia following influenza, at his home, on January 26, aged 36 years. He was assistant surgeon to the Philadelphia Polyclinic and Strittmatter's Private Hospital, Philadelphia.

Lieut. Zack Jackson Moore, M. C., U. S. Army, of San Antonio, Texas, a graduate of the University of Texas, Galveston, in 1915, aged 32 years, on duty with the Expeditionary Forces in France, was wounded on March 24, 1918, and died from pneumonia at Woolrich, England, on October 26, 1918.

Lieut. James Andrew McQuillan, M. C., U. S. Army, of Jackson, Mich., a graduate of St. Louis University, in 1912, aged 30 years, while on duty with the American Expeditionary Forces in France was killed by a shell, near Valenciennes, on October 23, 1918.

Lieut. Henry Blender, M. C., U. S. Army, of Okeene, Okla., a graduate of the Keokuk (Iowa) Medical College, in 1907, stationed at Camp Greenleaf, Ga., died at that place from lobar pneumonia following influenza, aged 34.

Medical Director Aaron S. Oberly, U. S. N., retired, died at his home in Avon, Conn., on January 15, aged 82 years. He was a graduate of Yale University in 1860. In 1861 he was appointed assistant surgeon in the navy, and served with the He was fleet surgeon of the Asiatic Station in 1884. West Gulf blockading squadron in the Civil War.

Lieut. John Groat Corson, M. C., U. S. Army, of Binghamton, N. Y., a graduate of the University of Syracuse, N. Y., in 1915, aged 27 years, on duty with a medical detachment of the British Expeditionary Forces in France, from whence he was invalided to England, died in a hospital in London on October 23, 1918, from lobar pneumonia.

Lieut. Noah Norman McFarland, M. C., U. S. Army, of Memphis, Tenn., a graduate of the University of Tennessee, Nashville, in 1913, aged 28 years, died in Camp Greene, Charlotte, N. C., on December 16, 1918, from lacerated wounds on both sides of the neck, severing the jugular veins.

Lieut. Knight William Field, M. C., U. S. Army, of Dallas, Texas, a graduate of Tulane University, New Orleans, in 1900, died while on duty with the American Expeditionary Forces in France, on October 11, aged 42 years.

Lieut. Burton Paul Bradley, M. C., U. S. Army, of Rome, Ga., a graduate of Emory University, Atlanta, Ga., on duty at Camp Pike, Little Rock, Ark., died on October 16, aged 26.

Lieut. Harry Robinson Parker, M. C., U. S. Army, of Williamstown, W. Va., a graduate of the University of Vermont, Burlington, in 1907, aged 34 years, on duty at Hazelhurst Field, Mineola, L. I., died of lobar pneumonia on December 21, 1918.

Lieut. Stephen James Hawkes, M. C., U. S. Army, of Dover, N. C., a graduate of the University College of Medicine, Richmond, Va., in 1911, on duty at Camp Jackson, Columbia, S. C., died from bronchial pneumonia on December 14, aged 32 years.

Lieut. Bryant Carr Rudder, M. C., U. S. Army, of Walker Springs, Ala., a graduate of the University of Nashville, Tenn., in 1911, aged 32 years, died from bronchopneumonia while on duty at Fort Oglethorpe, Ga., on October 14, 1918.

Lieut. Hugh Zollicoffer Browne, M. C., U. S. Army, of Kosciusco, Miss., a graduate of Tulane University, New Orleans, in 1911, on duty at Fort Oglethorpe, Ga., died from acute bronchial pneumonia on Oct. 22, 1918.

Lieut. Glenn Elbert Haughey, M. C., U. S. Army, of Wakeeney, Kan., a graduate of the Kansas Medical College, Topeka, in 1908, died from acute bronchopneumonia, while on duty at Fort Oglethorpe, Ga., on October 24, 1918, aged 34 years.

Lieut. Matthew Joseph Foley, M. C., U. S. Army, of New Haven, Conn., a graduate of the Eclectic Medical School, Cincinanti, in 1917, died from bronchopneumonia at Camp Meade, Md., on October 10, aged 27 years.

Capt. John Hamlin Traylor, M. C., U. S. Army, of Cureo, Texas, a graduate of Vanderbilt University, Nashville, Tenn., in 1909, on duty at Camp McArthur, Texas, died from acute meningitis on October 26, aged 31 years.

Major James Harvey Todd, C. A. M. C., Toronto, Ont., a graduate of the University of Toronto in 1905, on duty at Quebec, died from pneumonia following influenza, on October 17, aged 35 years.

Lieut. John Richard Fischer, M. C., U. S. Army, of Utica, N. Y., a graduate of the Unviersity and Bellevue Hospital Medical College in 1917, aged 26 years, died from chronic pulmonary tuberculosis on October 31, 1918.

Lieut. Charles Francis Cropp, M. C., U. S. Army, of Independence, Ore., a graduate of Willamette University, Salem, Ore., in 1913, died from bronchopneumonia following influenza, on January 6, aged 33 years.

Capt. Orin Worrett Robe, M. C., U. S. Army, of Portsmouth, Ohio, a graduate of Starling Medical College, Columbus, Ohio, in 1891, died from chronic myocarditis, on October 25, 1918, aged 50 years.

Lieut. Murat Halstead Scott, M. C., U. S. Army, of Harrison, Ohio, a graduate of the University of Cincinnati, in 1914, died from lobar pneumonia, while on duty at Fort Oglethorpe, Ga., on October 19, 1918, aged 28 years.

Capt. Elton Bane Rogers, M. C., U. S. Army, of Winchester, Idaho, aged 38 years, a graduate of the Northwestern Medical School, Chicago, in 1907, died recently in France, where he had been in service since May 25, 1918.

Lieut. Harold William Brown, M. C., U. S. Army, of Jersey City, N. J., a graduate of Cornell University, in 1908, died while on duty at Camp Leach, Washington, D. C., on Nov. 3, 1918, aged 32 years.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, March 8, 1919.

DEATH FOLLOWING AN INTRAVENOUS INJECTION.

COURTOIS-SUFFIT and Giroux relate the following in the *Gazette des Hôpitaux* for January 23: A married woman, aged 30, having recently contracted syphilis, asked her physician for energetic treatment. The diagnosis having been placed beyond doubt, a colleague was called in and a course of intravenous injections of novarsenobenzol begun. The product used was guaranteed, and seven injections were made without accident, but 10 minutes after the eighth injection the patient went into coma and died in the office. A judicial autopsy made by the authors 48 hours after death revealed absolutely nothing to account for the sudden demise. The report of the circumstances of death brought out that the seventh injection had been without any warning symptom, so that the fatal eighth was undertaken with complacency. Only the first and second injections caused respectively slight general and local reactions. The benefits of the treatment had been conspicuous, and especially the mental state was satisfactory, the patient being in constant euphoria. In making the eighth injection, the left arm having shown too slight prominence of veins, the operation was performed on the right arm and the fluid was thrown in very slowly. After 4 or 5 minutes the patient rose from her reclining position and dressed. She appeared normal throughout. Upon stepping up to the physician in order to pay him, she suddenly staggered forward, and while saying that she was ill fell in a faint. Her eyes were wide open and staring and pupils dilated as she was seized with a general convulsion. She had numerous seizures at brief intervals, and vomited. The pulse was rapid and fine, and adrenalin was injected, but although the pulse improved the patient passed into coma, and her convulsive seizures continued to the end, death occurring two hours after the first symptoms. All drugs and manipulations used in reanimation did not apparently cause a rally. As the medical man was proved to have been blameless, one could only attack the treatment.

At last accounts, considerably more than 300 deaths of all kinds have followed injections of the salvarsans. The great majority of these followed the first and second injections, and in very many there was a period of latency which excluded them from comparison. In the majority, however, ill consequences were immediate. The injections cause a prompt vasomotor reaction like that produced by the nitrites, which is succeeded by the opposite or syncopal phase. As a rule, this behavior is benign. An analysis of 211 deaths which supervened soon after injection shows, as already stated, that the great majority occurred after the first and second. Only eight occurred after the fourth, and one each after the fifth, six, and seventh. The authors' case, therefore, establishes a record. No data are quoted for the very late cases, but for those which supervened after the third and fourth injections leptomeningitis, with or without other endocranial mischief, was present. In the authors' case the encephalon was absolutely intact. The clinical phenomena have a suggestion of anaphylactic shock, and may come under the head of anaphylactoid behavior. Ordinary anaphylaxis and arsenical intoxication may be excluded, but anaphylactoid behavior is a vague expression of conditions of very different kinds concerning which we know but little. Danysz has an hypothesis which in part covers the authors' case. It is the supposed property of arsenic to combine with calcium in the plasma and form insoluble particles which finally cause embolism. This phenomenon, however, is of rather early development, and the eighth injection would be too remote. To avert it one should, in theory, begin with small doses in the interest of acquired tolerance.

THE LABORATORY TYPE OF PHYSICIAN.

THE entire extent of the ramifications which connect physical and mental disease has not been explored, but as new facts are brought to light unsuspected relations crop up. For example, if we take the two common diseases of pulmonary tuberculosis and dementia precox we find a certain number of common factors. While no one would go so far as to place dementia precox among the causes of pulmonary tuberculosis, or vice versa, still we may venture to say that there is a peculiar type of mental make-up which on the one hand may develop dementia precox as the result of stress, and which on the other hand favors a mode of living which renders the individual susceptible to invasion by the tubercle bacilli.

Those of us whose lives have been lived in close contact with hospitals are familiar with a type of individual who goes through the following phases: He enters a hospital, and soon manifests a distaste for the society of the other members of the staff. He comes to meals late, and, retiring to his room immediately after supper, shuts himself up with his books for the evening. Soon he develops a taste for laboratory work, and gradually assumes charge of that department of the hospital, where he is able to isolate himself almost entirely from personal contact. Soon he exhibits peculiarities of conduct in his chosen domain. He complains that

persons disarrange his specimens and steal his laboratory fluids. He devises elaborate systems of concealment and disguises his materials by changing the labels on bottles, etc. He shuts himself in as completely as possible by closing all windows and doors and by keeping the room overheated he manages to secure a replica of the intrauterine life, as a certain school of psychologists would say.

Now all this, as we know, is very suggestive of the mental make-up and beginning symptoms of dementia precox, while at the same time the mode of living described is often found preceding pulmonary tuberculosis. The connection is easy to see. The type of person who tends to avoid society, to shut himself up in enclosed places, to neglect exercise and fresh air, is mentally a precox type and physically a tuberculous one. We have chosen our paradigm from the medical profession simply because it is the most familiar to us, but the members of other professions will be able readily to cite examples from their own professions of the type of thing meant. We do not, of course, have any reference to the sort of physician who is attracted to laboratory work by a natural gift for scientific inquiry, who chooses that line of work as another man might choose ophthalmology, gynecology, or whatnot. But we refer to the type which chooses hospital life first of all because it obviates contact with the public, and laboratory work next because it enables him to withdraw from his own conferees.

As psychiatry becomes more and more a part of general medicine, it may be that the early manifestations of abnormal traits and peculiarities of make-up likely to lead to social maladjustments or to modes of living incompatible with personal hygiene will be referred to neurologists and psychiatrists, and the mental conflicts, repressions, and inadequacies responsible for them pointed out so that they can be corrected before they become fixed.

SYPHILIS AND ITS RELATION TO INFANT MORTALITY.

While statistics are by no means infallible and sometimes even misleading, they are at least suggestive and afford an index of the progress or decline of any one disease. However, figures with regard to the prevalence of syphilis are not so alarming as they ought to be. Judging from statistics tuberculosis causes more mortality and sickness by far than syphilis and yet the medical man in his heart of hearts knows that syphilis even as a cause of death is almost as destructive as tuberculosis, and that, on the whole, it is a greater menace to the human race than any disease. With regard to infant mortality and syphilis, Dr. P. C. Jeans of St. Louis, writing in the *American Journal of Syphilis* for January, 1919, shows how deadly syphilis is to infant life. From statistics he gathers the following facts: Between 10 and 20 per cent. of adult males and about 10 per cent. of married women are syphilitic and a minimum of 10 per cent. of marriages involve a syphilitic individual. Seventy-five per cent. of all the offspring in a syphilitic family are infected. In a syphilitic family 30 per cent. of the pregnancies terminate in death at or before term, a waste three times greater than is found in non-syphilitic families. Thirty per cent. of all the children born in a syphilitic family die in infancy as compared to a normal rate of 15 per cent. Probably 25 to 30 per cent. of clinically syphilitic infants die as a result of syphilis. Only 17 per cent. of all the pregnancies in syphilitic families result in living non-syphilitic children who survive the period of infancy. About 5 per cent. of our infant population is syphilitic. According to St. Louis vital statistics, 3.5 per cent. of all infant deaths are ascribed to lues.

Syphilis is a potent cause not only of infant mortality but of ill health, and at the present time is the most important public health problem. Jeans is of the opinion that for the proper control of syphilis it is necessary to consider the problem from the standpoint that it is a communicable disease, rather than as a social or moral problem and that the primary point of attack in the prophylaxis of infantile or any other variety of syphilis is the adult carrier. Next in importance is the syphilitic mother. Finally, Jeans holds that there is no reasonable hope of preventing syphilis, consequently our greatest effort must be directed toward treating the disease early and well. In the case of infants the management must be in the hands of one who is not only skilled in the diagnosis and treatment of this disease but one expert in the science of infant feeding.

EUGENIC AND SOCIAL INFLUENCE OF THE WAR.

Professor J. A. Lindsay, writing in *Eugenics Review* for October, 1918, says in part that the most fundamental question of all is what will be the wastage. Dr. Louis C. Parkes reckoned the number of males in all the combatant nations, to the end of the year 1915, killed or unable to support a family, at nine millions. It would hardly be rash to assume that this figure has been doubled since the above date. A more detailed calculation is that of F. Savorgnan contributed to a recent issue of *Scientia*. In this article he calculates the number of males of military age in the belligerent nations, the average annual increase of this class in normal times, the probable losses in war, and the time which the various nations will require to recoup their losses. These figures work out as follows:

A—Germany. Men of military age, 13 millions. Annual increment of this class, 168,000. Probable losses in war, 15 per cent. Period necessary for recoupment, 12 years.

B—France. Men of military age, 7½ millions. Annual increment of this class, 19,000. Probable losses in the war, 17 per cent. Period necessary for recoupment, 66 years.

C—England. Men of military age, 9 millions. Annual increment of this class, 83,000. Probable losses in the war, 9 per cent. Period necessary for recoupment, 10 years.

D—Italy. Men of military age, 5½ millions. Annual increment of this class, 13,000. Probable losses in the war, 9 per cent. Period necessary for recoupment, 38 years.

The loss of life in war is a question not only of quantity but of quality. The casualties among officers have been exceptionally heavy. One of the most obvious results of the slaughter of young men in the war will be an accentuation of the disproportion between the sexes, which was already marked in the prewar period. Closely related to the question of man power, as affected by the war, are the questions of marriage rates, birth rates, and death rates. As for birth rates, a rapid and progressive fall has been in operation in most civilized countries during the past fifty years. The decline began first in France in the early days of the nineteenth century, but was not manifest in England and Germany until the last quarter of the century. War for obvious reasons tends to depress the birth rates. In invaded and devastated regions the whole machinery of family life is disorganized and the birth rate has fallen to one-half or even less of the normal figure. As regards venereal disease, an increase in the prevalence of these affections seems an inevitable concomitant of war and constitutes one of its most serious dysgenic factors.

Medical Men and Their Cars.

C. W. Brett, writing in *Medical Press* of January 29, 1919, points out that with so large a proportion of the medical profession of Great Britain actively engaged in the numerous theaters of war no light task has been thrown upon those who remained in civil life. In the country districts, where the population is spread over extensive, straggling areas, the difficulties have been enormous, and it has sometimes been impossible for medical men to get through the day's work. The time taken in transit in normal periods is always considerable, and the conditions that have prevailed within the last two or three years have been such as to make the question of transport one of a complex character. Like the medical man, the motor machine has been severely overtaxed, and in thousands of cases both have been more or less broken down. How professional men have prevailed over temperamental and physical disabilities no one knows, but the story of the motor machine is clear and well defined. Like the human system, metal machinery of all kinds can be made the victim of overwork, and it frequently breaks down under the stresses of modern usage. Volumes have been written upon the subject of metals and their diseases, but the field is a very wide one, and metallurgists are fully aware that the subjects of their study have by no means yielded up all their secrets. Indeed, at this moment an influential body of scientists in America is busily engaged in investigating the question of metal fatigue, and there is little doubt that in years to come much progress will be made along this line in metallurgical science. The abnormal use of vehicular and industrial machinery during the war naturally led to serious mechanical troubles, and one London company engaged in the art of metal fusion has recreated and brought back into commission over 50,000 derelict machines engaged on work of national urgency. The medical man, especially in rural districts, urgently needs transport facilities, and in case of motor breakdowns a speedy repair by a reliable process is of prime importance. Thanks to the studies made in the art of metal fusion within the past few years, the author of the article referred to says, it is now possible to reconstitute or recreate fractured parts, no matter of what kind of metal they are made.

Noma in the Adult.

This affection is so rare with us, and so little is known of its nature, that the idea of an autonomous affection might be dispensed with, and even the name might be withdrawn in favor of the generic term spontaneous gangrene of unknown nature. It is by no means peculiar to the mouth, for a similar affection occurs on the external genitals and anus. However, if we look upon it as a tropical and exotic disease, which rarely is seen in temperate climates, the idea of a special affection may be justified. As seen in temperate zones, it is a disease almost peculiar to children, which chiefly follows one of the eruptive fevers. In an article by Canuyt in the *Revue de laryngologie* for January 15, a case in an adult is described, the patient being an Annamite. The statement is made that noma is considerably more common in hot countries like Annam than outside the tropics, but perhaps it would be more correct to say that in the tropics spontaneous gangrene is apt to follow not only the eruptive fevers but typhoid, pneumonia, diphtheria, etc., and to attack adults as well. It is nearly 100 per cent. fatal. In France we see thrush develop under the same conditions as noma, especially in connection with poverty and physiological misery. The patient was brought to Bordeaux and entered the Indo-Chinese Hospital with paratyphoid fever. Even in the early days of the malady, gangrenous spots were seen on the gums. From these points the affection steadily spread until it involved a large area on the face. Within the mouth the gums only are mentioned as largely destroyed by the process, although the mucosa of the cheeks must have participated. The *B. paratyphosus* A was cultivated from the blood. The secretion of the gangrenous process swarmed with different kinds of microorganisms, but none of them was of a known gangrene-producing type. Anthrax and Vincent's disease could be definitely excluded. The disease progressed irresistibly and there was no response to treatment of any sort. Salvarsan, which has cured a few cases, was inert. The extension of the gangrene was notable in comparison with the average case. On the left side it extended to the root of the nose, having destroyed the entire cheek, while on the right side its area of destruction was more like that in the average patient. The age of the victim was 37 years.

News of the Week.

Influenza in Britain and Spain.—Deaths from influenza increased to an alarming extent in England during the week ending February 22. In ninety-six great towns of England and Wales the deaths from this disease totalled 3,046, compared with 1,363 the preceding week. In Greater London 974 died from influenza, compared with 451 the previous week. A report to the State Department at Washington announces that another epidemic of influenza has broken out in Barcelona, Spain, and is spreading to as great an extent as that of last fall.

Railroad Casualties.—The Interstate Commerce Commission reports that casualties on American Railroads during 1917 resulted in the death of 9,567 persons and the injury of 70,970.

Diphtheria Increases in New York City.—During the month of February there were in this city 1,130 cases of diphtheria reported to the Health Department and 150 deaths from the disease, as against 663 cases and 95 deaths during the same period of 1917. There are about 15,000 cases of diphtheria with 1,400 deaths annually in New York City. In view of these facts the Health Department has issued an announcement stating that it is prepared upon request to apply the Schick test to children and to immunize those found to be susceptible to diphtheria. The tests and injections are made at the various baby health stations throughout the city.

New York Doctors Oppose Health Insurance.—At a mass meeting of physicians, dentists and pharmacists, held under the auspices of the Kings County Medical Society, on February 24, resolutions were passed unanimously opposing the Donohue Bill, providing for compulsory health insurance, which is now before the New York State Legislature. The Bronx County Medical Society has also repudiated the bill. The Medical Society of the County of New York has been no less vigorous in its protests, and has voted certain amendments to the bill as it stands which it insists must be incorporated into this or any other bill, if legislation providing for compulsory health insurance is inevitable. A number of other county societies throughout the State have also voiced their protests.

Rush for Drugs to Meet Dry Situation.—According to a statement recently made by Health Commissioner Royal S. Copeland before the New York State Department of Narcotic Drug Control investigations being made by the Health Department show that the sales of narcotic drugs have been increasing at an alarming rate. One firm, he states, sold more such drugs during January than it sold during the entire twelve months of 1918. The demand during the month of February has been so great that this firm has been compelled to limit the amount sold to one person. It is believed that the enforcement of prohibition will bring a great demand for narcotics and that it is necessary to prepare to meet the situation. Dr. Copeland advocates the establishment of official narcotic drug stations where persons known to be addicts will be obliged to go and register in order to buy. Arrangements are being made to receive addicts, both men and women, on North Brother Island.

Endowment Fund as Memorial to Dr. Cragin.—An organization has been formed to raise an endowment fund of $100,000 to perpetuate the method of after care for maternity cases evolved by Dr. Edwin Bradford Cragin in connection with the work of the Sloane Hospital for Women. Dr. Cragin was so impressed with the value of "follow-up" work in maternity cases that he contributed largely of his own means to make the work possible. To continue and extend this work a committee has been organized composed of many conspicuous workers in behalf of social service and charity. Henry K. McHarg, at 40 Wall Street, has been put in charge of the contributions.

Brockton Medical Society Revises Fee Table.—The Brockton Medical Society, at its meeting on February 14, adopted a new schedule of fees in accordance with which ordinary house calls will henceforth be $3 instead of $2 and night calls between 7 p. m. and 7 a. m. will be $5 instead of $3. Ordinary office calls will be $2 instead of $1. Other figures on this schedule are as follows: Consultations, $5; telephone consultation, $1; ordinary obstetrical case, $25; operative obstetrical case, $30 to $50; etherization, $5 to $10; office vaccination, $2.

Medical Inspectors Organize.—The Medical Inspectors of the New York Health Department have taken preliminary steps toward the organization of a Council of the New York Civil Service Society by holding a meeting in the County Court House, Manhattan, on February 21. Representatives of the New York Civil Service Society made addresses showing the advantages of organization and a temporary organization was formed of which Dr. Maria M. Vinton is chairman, Dr. Maude Glasgow, secretary, and Dr. Theodore Lehman, treasurer.

Dr. Edward Wadsworth Peterson, having completed his service in the United States Army, has resumed his practice at 525 Park Avenue, New York City.

Dr. John A. Ferguson of Brooklyn has been appointed by Mayor Hylan to the position of Medical Examiner with the Municipal Civil Service Commission of New York.

Dr. Howard Lilienthal has received an honorable discharge from the Medical Corps, U. S. A., and has resumed practice at 52 East 82d Street, New York City.

Dr. James Alexander Miller, who assisted Dr. Livingston Farrand in the organization and prosecution of the anti-tuberculosis campaign in France, has received the decoration of a Chevalier of the Legion of Honor.

Dr. Samuel Lambert has tendered his resignation as professor of clinical medicine and dean of the medical faculty of Columbia University, to take effect June 30.

Child Welfare Work Resumed.—Dr. S. Josephine Baker, Director of the Division of Child Hygiene of the New York Department of Health, announces that the work of the New York Children's Committee, which was interrupted three months ago to release physicians and nurses for the fight

against influenza, will now be resumed. At the time of the influenza outbreak nearly 200,000 children were registered in the fifty centers of this city and about 50,000 children had been examined, and the mothers of these children were receiving advice and information. While the effect of the influenza epidemic on the death rate of children under five years of age is not as yet definitely known the increase is large. In 1917 the mortality rate among children under one year of age was 88 per each 1,000 births and in 1918 this had increased to 91.7.

The Cost of State Charity.—The New York State Board of Charities in its fifty-second annual report just made public shows that a total of $38,000,000 annually is being spent for maintenance alone. The report makes an urgent plea to communities to try to reduce these expenditures by "getting at the cause of poverty, crime and sickness." Communities are urged to action in the matter of child welfare, protection of children from immoral and deleterious physical influences, playground, and further progress in child labor laws. The report recommends that the problem of the feebleminded be handled more systematically and gives its support to health insurance, since the experts of the board have reached the conclusion that 78 per cent. of poverty in the State is due to sickness, and this results in an annual loss to the bread winners of the State of $500,000,000. During the influenza epidemic, the report states, there have been 27,296 cases of influenza in the 280 charitable institutions of the State and 4,105 deaths.

Drink Abstinence Believed to Lessen Insanity.—A report from the Health Office of Vienna reveals a considerable decline in mental disease which is attributed to the lessening consumption of alcolohic beverages, which are extremely high in price. The inebriates' ward in the Vienna Lunatic Asylum is closed for lack of patients.

February Traffic Deaths.—The report of the National Highways Protective Society, for February shows that 32 persons were killed by automobiles, two by trolleys, and six by wagons in the streets of New York in February. In New York State, outside of the city of New York, automobiles caused 23 deaths, trolleys four, and a wagon one. In February 9 persons were killed by automobile, two by trolleys and one by wagon in New Jersey. Ten persons were killed at railroad grade crossings in New York State and three in New Jersey during the month.

Funds Needed for Paralysis Victims.—The New York Committee on After Care of Infantile Paralysis, with headquarters at 289 Fourth Avenue, has issued an appeal for $75,000 so that children who have not recovered may continue to receive regular treatment. Since the epidemic of infantile paralysis 8,720 children have been cared for and 2,913 braces furnished. The entire receipts of the Committee have been $280,852, of which $278,321 was disbursed.

The Clinical Society of the Hospital and Dispensary for Deformities and Joint Diseases will hold a stated meeting at the dispensary, 41 East 123d Street, on Tuesday, March 11, at 8.30 P. M. The papers of the evening will be read by Dr. Seymour Oppenheimer on "The Importance of Blood Examination in the Surgery of the Nose and Throat," and by Dr. John Guttman on "Orientation and Equilibration."

Medical Society Elections.—The LOWNDES COUNTY MEDICAL ASSOCIATION, at its annual meeting, held at Valdosta, Ga., February 14, elected the following officers for the ensuing year: *President*, Dr. D. W. Freeman; *Vice-President*, Dr. Frank Thomas; *Secretary*, Dr. J. F. Mixon.

National Crusade against Venereal Diseases.—The Division of Venereal Diseases of the United States Public Health Service is starting a vigorous campaign against venereal diseases. Surgeon General Rupert Blue has sent out a letter to the physicians of the country directing attention to the danger of an alarming spread of venereal disease during the reconstruction period, and urging that prompt measures be taken to meet the situation. Among the striking things disclosed by the army statistics is the value of proper methods of control as developed in the treatment of venereal cases in the service. It is pointed out that the same methods of control will prove equally as effective when applied to venereal cases among civilians. Each physician is asked to give assurance of his support by signing and returning an enclosed card which will ensure his receiving a copy of the revised "Manual of Treatment of Venereal Disease," prepared by the United States Public Health Service in accordance with the latest methods of treating venereal disease in the army. An appeal is also made by the Public Health Service to all advertising media to cooperate in the fight against venereal disease. This appeal states that venereal diseases have been the greatest cause of disability in the army, the service having lost more days from disability due to venereal disease than from any other cause. From the time the United States entered the war in April, 1917, to September, 1918, such loss represented 2,295,000 days of service. Statistics show that approximately five-sixths of this burden was brought into the army from civilian life, and that only one-sixth was contracted after enlistment. Therefore the problem is to bring the source of venereal infection among the civilian population under control. This is important because it involves the industrial efficiency of the nation. Short decisive methods of attack must be used. Newspapers, magazines, and medical journals are therefore requested to give the subject as much publicity as possible. Since industry does not have a nation-wide medical organization similar to that of the army to cope with this problem, the responsibility rests on the individual physician. It is important that each member of the medical profession should understand the seriousness of the statements frequently made that a majority of physicians refuse to treat venereal diseases and that many of those who do treat them are careless in their methods. The United States Public Health Service finds that thousands of druggists are responding to the request of the Government that they discontinue the sale of remedies for the self-treatment of venereal disease. They have agreed to direct customers to competent physicians or venereal

clinics. Physicians are asked to cooperate by agreeing to have their prescriptions for venereal cases filled at high-class drug stores. This, it is pointed out, will result in a cooperative interchange, whereby druggists will not attempt to treat these cases and physicians will not enter into competition with druggists in selling the medicines.

Find Carelessness Cause of Accidents.—The Steel Corporation Bulletin publishes an analysis of 185,490 accidents occurring in its plants, from which it appears that carelessness is largely to blame for these industrial accidents. Of these 185,490 accidents only 4.36 per cent. were due to hot metal, fluedust, or flames which might be considered entirely distinctive of the steel industry. Nearly one-half, or 44.78 per cent. of these accidents were attributed to hand labor, and one-third of those were due to falling material. In carefully analyzing the cause of any 100 accidents it was found that 90 per cent. of them might have been prevented if a little more care had been used. It was found that mechanical safeguards did not play as important a part in accident prevention work as was supposed, though the guarding of machinery was nevertheless essential.

Obituary Notes.—Dr. Myron L. Chamberlain died suddenly at his home in Boston on February 17, aged 75 years. He was a graduate of Bellevue Hospital Medical College in 1867. He served as a medical cadet during the Civil War, and was the last cadet to be discharged in 1866.

Dr. D. L. Smythe, a graduate of the Memphis Hospital Medical College in 1901, died after a prolonged illness, at his home in Kosciusco, Miss., on February 10, aged 50 years.

Dr. Frederick Mathews, a graduate of the College of Physicians and Surgeons, New York, in 1882, visiting surgeon to the German Polyclinic Hospital, died at his home in New York on February 28, aged 58 years.

Dr. Henry Wilson, a non-practicing physician, City Manager of Newburgh, N. Y., died in that city on February 28, aged 54 years.

Dr. Bromwell Andrew, who had practised for twenty years in Jersey City, but now retired, was found dead in his residence in that city on February 25. He was 70 years old.

Dr. James Valentine Kern, a graduate of Cornell University Medical College, in 1902, died at his home in New York City on February 23.

Obituary.

THOMAS ADDIS EMMET, M.D., LL.D.,

NEW YORK CITY.

Dr. Thomas Addis Emmet, who died at his home in this city on March 1, was born in Charlottesville, Va., May 29, 1828, a son of Professor John Patten Emmet of the University of Virginia and a great nephew of Robert Emmet, the Irish patriot. He studied at St. Thomas' Hall in Flushing, L. I., and at the University of Virginia, and received his medical degree from Jefferson Medical College, Philadelphia, in 1850, soon thereafter entering upon practice in New York City. The following year he was appointed visiting physician to the Emigrant Refuge Hospital on Ward's Island. In 1885 he became assistant surgeon to the Woman's Hospital and in 1861 surgeon in chief, a position which he occupied until 1872. He was the author of a treatise entitled "The Principles and Practice of Gynecology" and also was a contributor on gynecological subjects to various medical periodicals. He was, during his active professional life, a member and often an officer of many local and national medical societies, particularly those devoted to obstetrics and gynecology. In addition to his many contributions to the medical literature, Dr. Emmet was one of the foremost collectors of American prints and autographs and extra-illustrated some 150 books. Dr. Emmet was an ardent advocate of Irish home rule, devoting much time to that cause throughout his busy professional life. In 1906 he was made a Knight Commander of St. Gregory the Great by Pope Pius X.

TIMOTHY MATLACK CHEESMAN, M.D.,

NEW YORK CITY.

Dr. T. M. Cheesman, who died at his home in Garrison-on-the-Hudson on February 25, was long prominent in the medical life of this city, but retired five years ago after suffering an attack of cerebral apoplexy. He was born in New York in 1853 and was graduated from the College of Physicians and Surgeons of Columbia University in 1878. After a period of internship in Bellevue Hospital, he began practice and was first appointed surgeon to the New York Dispensary and later physician to the Colored Home and Hospital and St. Andrew's Convalescent Hospital. He was at one time professor of bacteriology at Columbia University. He was a member of the Medical Societies of the County and State of New York, of the American Medical Association, the American Bacteriological Society, the American Society for the Advancement of Science, the New York Academy of Medicine, and the New York Pathological Society.

Correspondence.

A SQUARE LOOK AT COMPULSORY HEALTH INSURANCE AS PROPOSED IN NEW YORK STATE.

To the Editor of the Medical Record:

Sir:—The following estimates are based upon the Davenport-Donohue bill which is now before the New York Legislature and which has been endorsed by the New York State Federation of Labor with the object of "conserving human resources by establishing mutual health insurance funds under state supervision." This bill provides for all employees:

"Cash benefit of not more than $8 weekly during temporary sickness or accident disability not covered by workmen's compensation, such cash benefit to begin on the fourth day of disability.

"Medical and surgical treatment, supplies and nursing attendance for the insured employee and family, together with hospital or sanatorium treatment and maintenance, and dental care for the worker.

"Special maternity benefit for working mothers and wives of insured men.

"Burial benefit of $100."

The bill proposes an equal division of cost between workers and employers. All employees are to be insured without physical examination. The bill provides for free choice of physician and specifies that both medical and cash benefits shall be provided for a period of twenty-six weeks in any year.

The writer is in favor of the principle of compulsory health insurance for reasons which have been stated elsewhere; he believes that the medical provisions of the Davenport-Donohue bill can be greatly improved. The purpose of the present paper is not to consider arguments for or against health insurance or for or against the bill, but to take a square look at compulsory health insurance under the bill actually before the New York State Legislature.

Critics of this measure have stated that the enactment of such a bill would mean the ruination of the medical profession. The spokesmen of the American Federation of Labor have declared their belief that the worker's share of the cost of the proposed scheme will not in any case exceed 24 cents per week. The figures which follow, if measurably correct, show that if even the modest rates are allowed for professional service, there is little ground for believing either that the enactment of the Davenport-Donohue bill would involve the physicians of the State in financial ruin, or that adequate medical benefits can be provided for anything like the sum which the workers of the State have been told that they would be called upon to pay. Health insurance in New York State, under the law proposed, would necessitate, I believe, a volume of work and an expenditure per million insured persons (workers and dependents) approximately as follows:

ESTIMATE OF WORK AND COSTS PER MILLION INSURED

1.	1,000,000 x 9 days acute illness equals 9,000,000 days.	
2.	Hospital days, 300,000 at $2.50 per day (maintenance), for workers only	$750,000
3.	Hospital days, 300,000 at $1.00 (medical care).	300,000
4.	Hospital service (7,000 surgical operations at $25.00 each)	175,000
5.	Non-hospital days, 8,700,000; home visits, 4,350,000 at $1.00 per visit	4,350,000
6.	Non-hospital days includes 870,000 days of nursing care, at $4.00	3,480,000
7.	Office or dispensary visits, 3 per insured person (per annum) equals 3,000,000 at $.50	1,500,000
8.	Drugs and medical appliances, $2 00 per person per annum	2,000,000
9.	Maternity care, 21,000 home cases at $10.00	210,000
10.	Maternity care, 4,000 hospital cases at $25.00 for maintenance	100,000
11.	Maternity care, 4,000 hospital cases at $10.00 for medical care	40,000
12.	Dental care, $3.00 per worker	900,000
13.	Deaths, 15,000; 5,000 insured at $100	500,000
14.	Administration of Funds, 10,000 members to each fund; 100 funds at $15,000 each	1,500,000
15.	Cash benefits, 300,000 workers at $10	3,000 000
16.	State expenses (administration) ¼ of $480,000	60,000
17.	Various items (consultations, laboratory expenses, *x*-ray examination, special treatments, anesthesia, cash maternity benefit, dispensary charges apart from physicians' fees)	1,635,000
18	Contingencies	500,000
		$21,000,000

Comment.—1. Many estimates of the number of days of sickness under health insurance have been made. Rubinow says that "an average of ten days seems quite conservative and safe."

2. Payment is here assumed for all hospital service, but service of ward grade only is allowed for. Fees for special or individual nursing, in some cases, would have to come out of the sum allotted for nursing care (6). For other hospital "extras" see "Various Items" (17).

3. See note under 5.

4. Out of 14,000 or 15,000 hospital cases per annum there would not be less than 7,000 operative cases.

5. An estimate of 4,350,000 home visits for 8,700,000 sick days is believed to be reasonable. In many instances two or more sick persons would be seen during one visit; and daily home visits during incapacity are not always necessary. The amount of "$1 per visit" is not suggested as proper compensation, but is adopted solely for convenience in computation. To clarify discussion, the system is worked out on this basis. No special allowance is made here for consultations with specialists nor for any form of group or cooperative practice, nor for dispensary maintenance, nor for *x*-ray or laboratory work; these are covered under "Various Items" (No. 17). According to Rubinow, Leipzig reports only six office visits and two-thirds of a home visit per insured person per annum, or eight office calls and two home visits with the entire family covered. American families will hardly content themselves with this kind of medical attendance. At the rate of a visit every second day during incapacitating sickness it will require, say, 10,000 panel physicians in New York State to make 34,800,000 home visits per annum; each physician would make 3,480 home visits (average).

6. This might take the form of full nursing for one case in ten, or for one day in ten, or for part time or visiting nursing widely distributed. The rate suggested is less than that charged to-day by registered nurses in New York City, but some of this service would be rendered by attendants, whose legal recognition and regulation has recently been proposed by the registered nurses themselves.

7. About eight hospital, home, and office visits combined are allowed for each insured person (worker and dependents). This is above the number of visits reported by many British panel physicians working under the capitation system. The British records, however, do not include hospital or dispensary service.

8. The suggested allowance is somewhat greater than actual expenditures for these purposes abroad.

9. A birth rate of 25 per 1,000 is issumed.

10. It is estimated that one maternity case out of six might reasonably claim hospital care, either for medical reasons or on account of unfavorable home conditions.

11. The rate of $10 per case is presented as a basis for discussion. Many of the maternity cases that would be cared for under compulsory health insurance, especially in New York State, are today receiving hospital treatment gratuitously; on the other hand, some are paying more than the sum named in the schedule.

12. Dental treatment would presumably be limited to necessary extractions and fillings, and is promised only to workers (not to dependents).

13. Estimated death rate, 15 per 1,000. This is slightly above the death rate in the State, but is probably a fair estimate for the industrial group.

14. Includes salaries of lay officials and medical officer of the fund, office expenses, and the cost of official investigations. The Leipzig funds devote to administration about 8.6 per cent. of their total expenditures. This is a larger percentage, but represents a smaller sum than the 7.4 allotted in the present estimate.

15. Includes cash allowances to workers and to dependents of hospitalized workers.

16. Taxes in New York State will be increased not only by the cost of administration, but by about $5,000,000, representing the employers' contribution for 170 000 civic employees.

17. The estimate for these purposes is low; foreign experience is useless as a guide in relation to these items.

18. This item is intended to cover any expense not specifically provided, as well as all deficiencies in classified expenditures.

ADDENDA.

a. Estimated annual expense for New York State, $168,000,000. This includes no allowance for hospital or sanatorium construction.

b. The individual worker's contribution would be $28 per annum; the employer's contribution for each person employed would be the same.

c. Classification of payees:

		Per cent. of total payments.	Compare with Leipzig, 1917. Per cent.
To insured persons, cash benefits....	$3,000,000	14.3	45.1
To hospitals	850,000	4.	9.6
To physicians (midwives included).	6,575,000	31.3	23.5
To dentists	900,000	4.3	...
To nurses	3,480,000	16.6	...
To druggists and appliance makers.	2,000,000	9.5	11.
To undertakers	500,000	2.4	2.2
To officials (lay and medical).....	1,560,000	7.4	8.6
Various items	1,635,000	7.8	...
Contingencies	500,000	2.4	...
	$21,000,000	100.	100.

d. On the estimated basis of $1 per home visit and 50 cents per office visit, the total income of 10,000 physicians working as panel physicians in New York State, from health insurance sources only, would be $52,600,000, or $5,260 for each physician. To this add fees for consultations and special treatment. These figures are stated merely as an aid to the funds and the physicians in negotiating for suitable rates. It will be helpful to compare them with English figures. In order to facilitate the comparison, let us imagine that the work to be done will be distributed uniformly among the entire group of 10,000 physicians, representing two-thirds of the physicians practising in the State (with free choice of physician granted, there will, of course, be no such even distribution of panel practice). Each physician would then care for 800 insured persons (workers and dependents), and his annual income from the funds would be equivalent to a flat capitation allowance of $6.57, or about 27 shillings per person. In England physicians are today *asking* for 10 shillings and are receiving considerably less; but medical benefits in England do not include hospital care, and, apart from this, England has always had a smaller number of physicians relative to the population, and the people are not accustomed to as much medical attention as the people of this country demand.

e. Workers in New York State are today receiving gratuitously from public or private hospitals maintenance costing about $10,000,000 per annum and medical services (calculated at rates in this schedule) worth not less than $12,000,000 per annum.

S. S. Goldwater, M.D.,
Director Mount Sinai Hospital.

New York.

CONFERENCE ON REHABILITATION OF THE DISABLED.

To the Editor of the Medical Record:

Sir:—I should like to call to the attention of your readers a conference on the rehabilitation of the disabled which is to be held in New York City from March 18 to March 22 inclusive. This conference, which will be international in its representation and the scope of subjects to be discussed, should have a special interest for the members of the medical profession, and for all those who play a part in the restoration of the disabled to the best possible physical condition. The experience of America and that of the allied governments in occupational therapy, functional restoration, the fitting of artificial limbs, compensation, vocational reeducation, and kindred subjects, will be reported upon by experts in those fields.

The conference will be held under the auspices of the Red Cross Institute for Crippled and Disabled Men, and that part of the program related to the work for blinded soldiers will be directed by the Red Cross Institute for the Blind. Two of the evening meetings will be held in Carnegie Hall and will be open to the public. Representatives of practically all the governmental agencies in the allied countries dealing with disabled soldiers will attend, acceptances having already been received. Among the authorities to be represented are the British Ministry of Pensions, the French National Institute for War Cripples, the Belgian Military Institute for Crippled Soldiers, the Italian Ministry of Pensions, the Canadian Invalided Soldiers Commission, the Australian Department of Repatriation, and the Bureau of Reeducation and Reconstruction of the American Red Cross in Paris, in addition to other individual organizations in the respective countries.

Among the authorities in the United States which have promised representation are the Federal Board for Vocational Education, which is providing for American disabled soldiers training for self-support; the Division of Physical Reconstruction of the Office of the Surgeon General of the Army, which is providing restorative treatment and education during the convalescent period; the Bureau of War Risk Insurance, which furnishes artificial limbs to amputated soldiers of the American Expeditionary Force, and pays disability compensation; and the American Red Cross Department of Civilian Relief, which, through its home service section, provides social after-care for disabled men.

The gathering will be unofficial in the governmental sense, but scientifically of great authority, as many of the leaders in the rehabilitation work abroad will come to the United States for the first time to attend its sessions. Their presence here will afford opportunity to American workers in the same field to draw upon the experience of the foreign delegates for the solution of local problems.

While activities in behalf of the disabled soldier will figure largely in the program of both popular and scientific sessions, the interests of the disabled industrial worker will come in for a considerable share of attention. The invitations to the conference designate it as a "conference on the rehabilitation of the disabled man," civilian as well as military. Although the concentration of interest on the injured soldier has been responsible for the revolutionary change in national policies toward the disabled—whereby chief dependence is placed no longer on pensions but rather on the training of men to earn their own living—it is being generally recognized that many more men are disabled annually in industry than have been incapacitated by military service. It is the present aim of authorities having an interest in the cripple in general to apply to the treatment of the disabled civilian the same methods as have been developed to meet the needs of the invalided soldier.

One of the aims of the conference will be to direct public attention to the economy of putting disabled men back on the pay roll rather than permitting them to exist in idleness, supported by war pension or workmen's compensation. The plans of the various allied governments for the supply of artificial limbs to amputated soldiers is one of the subjects slated for consideration. The advantages of the adoption of a standard type of leg and arm will be reported upon in detail.

Douglas C. McMurtrie,
Director American Red Cross Institute for Crippled and Disabled Men.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, February 6, 1919.

The Medical Profession and Trades Union Tactics.—A curious meeting of the medical profession took place at the Wigmore Hall, Wigmore Street, London, on Sunday last. The Wigmore Hall is the great music salon which used to be attached to the business premises of Bechstein, the well-known piano manufacturers; and at the Bechstein Hall, as it then was called, some of the best modern music was regularly given to large audiences. The Bechstein Hall, now known under its British name, is situated in the very heart of consulting London, crossing the bottoms of Harley, Wimpole, and Welbeck Streets, and joining Cavendish Square and Cavendish Place with Portman Square. It is, therefore, an ideal place to hold a meeting of the medical profession, from the point of view of the convenience of the heads of that profession; but when a mass meeting is called at the Wigmore Hall it must be conceded that outlying medical men do not find the *locale* particularly convenient, while for the provinces it has the objection that it is not adjacent to any railway terminus. The meeting had its origin in the very natural feeling of anxiety as to what the prospects of the medical profession were to be under the new Ministry of Health. The questions at the bottom of professional unrest are something like the following: Will a State Service of Medicine be constituted under the Ministry of Health, and, if so, what will be the prospects of the general practitioner? Will the obvious State Services (that is to say, the medical services of the Local Government Board, the Board of Education, the Foreign Office, the Statistical Bureau at Somerset House, and so on) be coordinated into one homogeneous service, leaving the hospitals and their medical officers on one side and the general practitioners of the country on the other, free to pursue individual careers? Or will the State Service also undertake to nationalize the hospitals and affiliate general practice to the nationalized hospitals? In the case of the State taking part in the direct conduct and payment of the medical profession as a whole, what guarantees have the medical profession that the conditions of service and the payment thereof will be satisfactory? This is where, particularly, the shoe pinches, because, under the National Insurance Act, a third of the medical profession in England and Scotland, comprising probably more than half the general practitioners of these districts, did become, as panel doctors, more or less State servants, and have not expressed themselves universally satisfied with their new plight. Some general practitioners frankly own that their incomes are larger and more secure than they ever were under the old club system, where every man dispensed his own charity and selected for himself what cases he would see at low rates. Other medical men declare that as medical officers to their own clubs, choosing their own patients with some regard as to who should and who should not be an object of charity, their lives were easier and their balance sheets handsomer. These two divisions of general practitioners are in sharp opposition on matters of fact. The position of the British Medical Association somewhat complicates matters. The Association represents one-half of the medical practitioners of the country, and includes within that half men of all ways of thinking, though for the most part those who are opposed to panel practice are opposed to the policy of the Association, which at the time of the passing of the act made panel practice a possibility.

The meeting at Wigmore Hall was primarily called by practitioners opposed to panel practice, but it was made the occasion of a general debate, with all the circumstances just sketched present to the minds of the speakers. There were two resolutions only, and the first ran as follows: "In view of the prospective legislation and the proposed establishment of a Ministry of Health, and having regard to the experience of the medical profession at the time of the passing of the National Insurance Acts, the time has arrived when a body representative of the whole profession should be established to watch its interests and be prepared to act in an advisory capacity as occasion demands."

This resolution was powerfully opposed, not by any amendment, but by a demand for a directly contrary vote, the demand coming from the British Medical Association. The representatives of the association declared that in the association exactly such a representative body could be found, and that it would be waste of time to institute a new representative body, the better policy being for all medical men to sink their differences, and, by joining the British Medical Association, make it the center from whence the common decisions of the profession would emerge. Most of the speeches were destructive of the claim of the British Medical Association to be representative, and in the end the resolution was carried by 182 votes to 93.

A second resolution was then proposed in the following terms: "That a provisional committee be now formed with the object of securing the election of such a body," and, having been duly seconded, was made the subject of two directly varying amendments. The first amendment ran as follows: "That the meeting of the medical profession, in view of the urgency arising from contemplated legislation, approves the recognition of the Medical Parliamentary Committee as the provisional committee to be entrusted with the task of drawing up the constitution of a body to develop along the lines indicated by the first resolution."

This amendment received considerable support, but on going to division was negatived by 105 to 87. The weak spot in the advocacy of the Parliamentary Medical Committee was that that committee had had a non-democratic origin, while the avowed object of the meeting was to institute a body which should be representative on democratic lines of every shade of opinion and feeling in the profession. The Medical Parliamentary Committee has come far nearer representing all shades of opinion than any other body that has ever been created within the profession, but its constitution was criticised from the beginning as though it were a self-selected body. The criticism is not fair, because the meeting which called the committee into being had originally the support of the British Medical Association, as well as numerous other medical bodies, the representatives of those bodies being them-

selves for the most part members of the Royal Colleges. The authorities of the Royal Colleges, however, stood aloof, and later on the British Medical Association took up a policy of frank opposition to the Medical Parliamentary Committee, on the ground that that committee was trespassing on the domain which had already been chalked out for its own activities by the association. Those advocating the adoption of the Medical Parliamentary Committee as just such a body as was postulated by the first resolution, admitted that the committee was not yet representative, but gave to the audience good reasons for supposing that amendments in all the desired directions could be achieved and would be welcomed. The probability is that the amendment would have met with success if it had come on earlier in the afternoon, but the proceedings were very lengthy, and tea time was passed before the voting was taken. It was cynically suggested that the Wigmore Hall was in close juxtaposition to the houses of many practitioners who would inevitably have voted for the amendment, but that the call of tea proved too strong for them.

After the failure of an amendment proposing to erect the Medical Parliamentary Committee into a representative body of the profession a second amendment to the second resolution was proposed in the following terms: "That in the opinion of this meeting no committee or organization is capable of effectively representing the interests of the profession unless it is a registered medical trade union."

This resolution was supported by some extraordinarily vigorous speaking, in the course of which it was pointed out that the most effective weapon of the trades union is the strike, and that no medical man could contemplate with equanimity the public circumstances in the event of a medical strike. Even this, however, was contradicted by one section of the meeting, who replied with a whole-hearted determination to strike should that be the only way to obtain the terms which they considered just. The second amendment to the second resolution was lost by 2 votes, the numbers being 73 to 71, when the losers immediately insisted upon a recount. This placed the chairman of the meeting in an embarrassing situation, because already some who had voted had left the hall. He came to the decision—which was strongly supported by many in the room—that the recount would be impossible. But the losers of the amendment refused to pay any attention to his ruling as chairman, whereupon the meeting broke up in disorder. If the object of the meeting was to impress the Government, now on the point of initiating medical legislation, that the medical profession would be unanimous on state questions, the object failed in a lamentable manner. The meeting by a substantial majority declared itself in favor of the institution of a representative body, but failed to pass a second resolution defining that body.

An Attempt at Unanimity.—In view of the failure to achieve unanimity at the Wigmore Hall meeting, the following story is not without its point. Two eminent alienists met, and found that they were both called to give expert evidence in the same case and on the same side. The elder inquired what fee the younger was going to charge, when the reply was "Forty guineas." "I shall charge fifty," replied the senior man. They met some days after the hearing of the case, when the elder man said: "I took your advice, and charged forty." To which the junior responded: "And I took yours, and charged fifty." Medical unanimity on any point is difficult to obtain.

The Extension of Institutional Facilities for Medical and Surgical Treatment.—Up to a comparatively recent time the provision of treatment for those who could not afford to pay private practitioners was left to the Poor Law authorities and to the voluntary efforts of the charitable. Under these latter efforts have arisen the excellent general and special hospitals which now adorn every city in the United Kingdom. Lately these voluntary hospitals have had very respectable rivals in the infirmaries attached to the workhouses and under the ægis of the Poor-Law Guardians. Not so very long ago these infirmaries, being the sick-bay of the workhouses, as sailors would have called them, were simply filled with helpless, senile, chronic cases, many of them on the verge of imbecility, and most of them awaiting a death that would be merciful to themselves and economical to the State. But the character of these institutions and the work done in them have radically changed of late, and in the admirable buildings recently provided by the Poor Law Guardians clinical treatment of the highest sort is carried out. But the facilities for institutional treatment are inadequately distributed, nor do they provide in a general way for the needs of the community. Reform has not yet gone far enough, and this is the more regrettable in that the position is particularly acute at the present moment owing to the large number of sick soldiers returning for demobilization.

The Strike of Railway Men.—London has been severely inconvenienced this week by the closing of the tube and district railways owing to the strike of a group of the drivers. The strike is said to have been sympathetic in origin; that is to say, it was not due to personal grievances in London, but to the fact that alleged grievances in Glasgow have not been redressed. It is the working men of London whom this group of working men has treated most cruelly by compelling some of them to walk ten, and many thousands of them to walk five miles, to their work. The weather, it happens, has been singularly atrocious, severe frosts being followed by southeast winds, snow, sleet, and fog. Through the cold steaming mist, ankle deep in congealing slush, thousands upon thousands of London working men and women have been compelled to tramp morning and night for hours before beginning and after ending their work, and it is inevitable that the labor and exposure should tell upon them. It is a bad start for the day to be tired and wet through, but it is particularly dangerous for hard-worked people to walk miles after the day's toil is over, and from a medical point of view the strikers have assumed a heavy responsibility.

Medical Men in Parliament.—Parliament began to sit yesterday, and 11 medical men will find a place there during the coming sesssion. Sixteen medical men were elected to Parliament out of 37 who were candidates, but 5 of the successful men were Sinn Feiners, and will presumably not take

their seats. Medicine comes off very badly in comparison with law, for there are 92 members of the legal profession in the new Parliament. The proportion will have to be altered in the near future. A plethora of lawyers has been submitted to hitherto on the ground that they ought to be the best people to handle laws; it is now seen that the motive behind the measure is immeasurably more important than its details, and that preventive medicine is going to be the grand motive force of enlightened statutes.

The Closure of the Belgian Doctors' and Pharmacists' Relief Fund.—At the last meeting of the executive committee of this fund a letter was received by the committee from Dr. V. Pechère, the president of the Comité National de Secours et d'Alimentation. This national committee is the body sitting in Brussels to which the dispensation of the contributions of the funds in behalf of the suffering Belgian doctors and pharmacists in Belgium has been entrusted. The Belgian Doctors' and Pharmacists' Relief Fund has raised upward of £25,000 during its life of a little over four years. The greater part of this money has been received directly from British doctors and pharmacists at home, in the colonies, and in India, though during the closing stages of the war substantial grants have come from the American Red Cross, to the enormous benefit of the charges of the fund. After the immediate wants of Belgian doctors and pharmacists and their families arriving in this country as refugees had been met by the fund the bulk of the money was duly distributed in monthly donations varying from £800 to £400, among Belgian doctors and pharmacists remaining in Belgium, the organization of which Dr. Pechère is the head undertaking the difficult and delicate task of distribution. Dr. Pechère's committee has wisely husbanded the contributions sent to them, so that a certain amount of money should remain in hand for the succor and rehabilitation of Belgian doctors and pharmacists after the war; and it goes without saying that the extraordinarily generous suggestion of Dr. Pechère, which will be found in his eloquent letter of gratitude—that this money should be returned to the fund—has been disregarded by the committee of the fund. It was definitely stated in the original program of those who organized the fund that it would be impossible for British doctors and pharmacists to give too much money, because when the immediate needs had been met those of rehabilitation must remain, and be very heavy. Many doctors and pharmacists in Belgium were materially ruined, and would not be able to return to work without pecuniary grants. All readers of the medical and pharmaceutical journals who have kept the objects of the fund in recollection will approve of the decision of the committee of the fund.

The Belgian Doctors' and Pharmacists' Relief Fund is closed as from Monday next, February 10, the small sum remaining in the hands of the honorary treasurer being probably sufficient to meet any remaing calls from Belgian refugees in this country. The fund has disbursed the whole of the sum collected—over £25,000—save £90; and the cost of collection and distribution has been under £200, including the printing and postage of circulars and reports at war rates. The secretarial work and that of the treasurer have been done gratuitously both by the officers named and by their assistants; a large proportion of the postage has been defrayed by *The Lancet;* the auditors made their inspections of and reports on the books of the fund for a nominal fee; and the bank treated the fund with special courtesy. These are the things that account for the economical administration of the fund's resources.

Progress of Medical Science.

New York Medical Journal.

February 22, 1919.

1. The "Higher Up" Theory of Sterility in Women and Its Relation to the Endocrines. S. W. Bandler.
2. Psychic Hydrophobia. John D. Quackenbos.
3. Successful Therapy of Exophthalmic Goitre. Israel Bram.
4. Pertussis Vaccine as Routine Treatment in Whooping Cough. Paul Luttinger.
5. Rolls before Breakfast. William Brady.
6. Essentials of the Barany Tests. Some Indications for Its Employment. Samuel Cohen.
7. American Women's Hospitals in France. Their Activities During Hostilities. Barbara Hunt.
8. Enuresis Nocturnal. Jere A Allis.
9. Sterile Pocket Instrument Case. F. Griffith.
10. Recent Gleanings Relative to the Prophylaxis and Treatment of Influenza. Louis T. de M. Sajous.

2. Psychic Hydrophobia.—John D. Quackenbos points out that apart from the hydrophobia associated with rabies, this condition may be a true phobia of purely psychic nature and origin, taking class with mysophobia, acrophobia, and agoraphobia, and is to be further distinguished from hydrophobophobia, or morbid dread of hydrophobia as transmitted by rabid brutes. He reports the case of a woman in whom, as in rabies, a spasm of the pharyngeal constrictors and muscles of the larynx suddenly occurred, closing the epiglottis with a strangling sensation. The first attack was precipitated by her marriage to a man she detested and occurred as she stood before the altar. Gradually a difficulty in swallowing developed; the spasm returned with every attempt to quench her thirst, and finally at the very thought or sight of water. When seen by the author, she was accustomed to occupy four hours every morning fighting with the water in the basin to get her face washed, and an effort to force a teaspoonful of water into her stomach was accompanied by an agonizing struggle to drive air through the constricted larynx into her lungs. An extension of the obsessive idea terminated in the delusional conviction that there was water in everything she ate or touched, and she spent hours in wiping articles of food and chinaware to remove suspected moisture therefrom. The suffering connected with the use of water had become so intense that she had lapsed into a state of melancholia and prayed for death. The patient was put into a receptive sleep and cogent destructive suggestions were given. After the second treatment she called eagerly for water, of which she drank nine tumblerfuls; the backbone of the phobia was broken. The author reports other cases of a similar nature: That of a youth of twenty-five who had witnessed a drowning accident. In this case there was no difficulty in swallowing water but an aversion to entering it, so that it became impossible for him to take a bath. Another case was that of a college instructor in athletics who became obsessed after a cat scratch with the belief that he had hydrophobia. It transpired that his mother before his birth was tortured with a fear that a dog would bite her and his susceptibility to the specific idea was hereditary. A further case quoted was that of a professional man. One of his foxhounds ran mad through his pastures, whereupon he developed an obsession and a horror of salivary pollution. He refused to drink the milk of his cows for fear it had been contaminated by saliva from the mouth of the rabid dog; he would burn clothing, furniture, books, and even valuable papers for fear they had been touched by the dog's spittle. In all these cases a cure was effected by means of psychotherapy coupled with persistent elimination of toxins and supplemented by forced feeding for the impoverished cells. This, in the author's opinion, is the only rational means of treatment.

Journal of the American Medical Association.

February 22, 1919.

1. Generalized Interstitial Emphysema and Spontaneous Pneumothorax as Complications of Bronchopneumonia. Hugh K. Berkley and T. Homer Coffen.
2. Prevention of Relapses in Cases of Arrested Tuberculosis Among Soldiers. S. Adolphus Knopf.
3. Mastoidectomies Under Local Anesthesia: A Brief Report on Nine Mastoidectomies (One Double), Under Local Anesthesia at the Base Hospital, Camp Upton, N. Y. C. T. Porter.
4. Camptocormia (Bent Back). George W. Hall.
5. Antalgic Spinal Distortion. John Saliba.
6. The Value of the Wassermann Reaction in Pregnancy. Edward L. Cornell and A. W. Stillians.
7. A New Treatment for the Morphine Habit. C. S. Bluemel.
8. Pneumonia Following Influenza (at Camp Pike, Ark.): A Report to the Surgeon-General. Eugene L. Opie, Allen W. Freeman, Francis G. Blake, James C. Small, and Thomas M. Rivers.
9. Feigned Amnesia as a Defense Reaction. George E. Price and William B. Terhune.
10. A New Nematode Infection of Man. Charles A. Kofoid and A. W. White.
11. Beriberi at U. S. Army Base Hospital, San Juan, Porto Rico: Laboratory Investigations and Clinical Manifestations of Sixty Cases. John D. Riddell, Charles H. Smith, and Pedro Gutierrez Igaravidez.

7. A New Treatment for the Morphine Habit.—C. S. Bluemel reports the results obtained in two series of cases of morphine addicts treated by intravenous infusions of physiologic sodium chloride solution. The method was suggested to him by the fact that elimination appears to be nature's way of counteracting the drug, as evidenced by the withdrawal symptoms of sweating, vomiting, and diarrhea, and, moreover, plays an important part in the methods of treatment usually followed. It appeared to him that the process of elimination could be greatly augmented by the administration of intravenous infusions, for the solution would be eliminated by the kidneys and intestine and should carry the toxines with it; furthermore, the toxines of the blood stream would be diluted. These theoretical considerations led him to attempt the treatment of chronic morphinism solely by elimination, supplementing a catharsis of the intestinal tract with a catharsis of the blood stream brought about by repeated intravenous infusions. The patient was put to bed and morphine stopped entirely. He was put on a semisolid or liquid diet and given cathartics as prescribed in the Towns-Lambert treatment, receiving three or four courses consisting of five grains of blue mass with five compound cathartic pills at intervals of approximately 18 hours. Some hours after the last of these courses castor oil is given. The patient receives from two to four intravenous infusions a day, according to his condition, the standard infusion consisting of 1000 c.c. of 0.9 per cent. sodium chloride in sterile freshly distilled water. During the first few days of treatment about 30 grains of chloral is given at bedtime to ensure a night's rest. Hypnotics are an important element in the treatment for they insure rest and the sleep they induce blots out large periods of discomfort; moreover, they fortify the patient mentally and physically. Patient is kept in bed until all acute discomfort from the withdrawal of the morphine has ceased. Should he complain unduly of withdrawal symptoms, a saline infusion is given. No harmful effects have been observed from the administration of saline infusions; on the other hand, the condition of patients has improved. In one case infusions amounting to 50 per cent. of patient's body weight were given in thirteen days and resulted in great improvement in the physical condition. The procedure does not produce marked increase of arterial tension or anemia—there is slight decrease in the red cell count and in the hemoglobin owing to the increase of the fluid element of the blood, but no destruction of cells. There is marked decrease in the viscosity of the blood which lessens capillary resistance and reduces the normal heart load. This in turn reduces the tendency to heart weakness and permits of the administration of large doses of chloral. Cardiac stimulants were not found necessary in any of the cases under consideration. Of the six patients so treated, the average age was 34, average period of addiction was 12 years, and the average daily dose of morphine taken 7 or 8 grains. Three used cocaine occasionally, and three had positive Wassermanns. The average length of stay in the sanatorium was 14 days and the average amount of saline administered to each patient was 15,600 c.c. Discomfort was experienced for two or three days but was not marked at any time. A period of nervousness and sleeplessness followed but, as a rule, hypnotics were taken only for four nights. During this period of restlessness two patients who had been addicts for more than twenty years were given the Towns-Lambert treatment without morphine. The nervousness diminished considerably and their improvement seemed to point to some specific potency in the belladonna mixture which forms part of this treatment. The author, however, is inclined to attribute the success in part to suggestion, since the Towns-Lambert was known as an accredited treatment to the patients whereas the infusions were known to be simply experimental. A second series of six cases was then given the Towns-Lambert treatment (with the gradually decreasing doses of morphine) together with the infusions. In this series the cases were milder than in the former cases; the average age was 40, the average period of addiction 9 years, and the average daily dose of morphine previously taken 3½ grains. Four of these patients occasionally used cocaine and three had positive Wassermanns. The first two patients received infusions only when they manifested discomfort under the Towns-Lambert treatment; the remaining four received them from the commencement of treatment. On the average five infusions were given and as a rule they were not continued beyond the third or fourth day. The average day of discharge was the seventh. In this series the discomfort suffered was about the same as in the former series in which no morphine was given, but the patients recovered more rapidly from the subsequent period of nervousness. It would appear, therefore, that the combined treatment is superior to the infusion treatment alone, but in order to determine this satisfactorily two equivalent series of cases would have to be compared. The authors give a report of each case in each of the series. Commenting on morphinism in general, they suggest that since 75 per cent. of addicts are the result of careless administration of morphine on the part of physicians and are therefore by-products from the practice of the medical profession, and the majority of the remaining 25 per cent. owe their habit largely to government negligence, they are entitled to a square deal. The Harrison Narcotic Drug Act, in 1915, automatically stopped the available supply of morphine but did not stop the physiological need of the morphinist, simply throwing him into the hands of the illicit dealer. It would seem, therefore, that the least that could be done would be to license the addict. It would be still better to cure him, however.

The Lancet.

February 1, 1919.

1. A Plea for Medical Unanimity and Public Spirit: The State and the Doctor. Sir Henry Morris, Bart.
2. Significance of an Inverted "T" in the First Lead of the Cardiogram. I. Harris.
3. Preliminary Report on the Presence of a Filter-passing Virus in Certain Diseases, with Especial Reference to Trench Fever, Influenza and Nephritis. Major General Sir John Rose Bradford, Captain E. F. Bashford, and Captain J. A. Wilson.
4. A Study of the Suspension Treatment of Fractures of the Thigh. William H. Johnston.
5. An Interesting Case of Ectopic Gestation. B. T. Ross, with Pathological Description by Ernest H. Shaw.
6. The Eradication of Latent Sepsis Preparatory to Bone Transplantation in Non-union Fractures of the Limbs. Harry Platt.
7. Some Advances in Polygraphic Technique. Captain H. L. Flint.
8. On Repair of the Male Urethra. E. D. Telford and F. G. Norbury.

3. Preliminary Report on the Presence of a Filter-passing Virus in Certain Diseases, with Especial Reference to Trench Fever, Influenza, and Nephritis.—Major General Sir John Rose Bradford, Captain E. F. Bashford, and Captain J. A. Wilson, as a result of observations on the pathology of acute infective polyneuritis, carried out during the autumn of 1917 and the spring and summer of 1918, succeeded in isolating an organism that reproduced the disease when inoculated into animals, and, further, was recovered by culture, by the Noguchi method, from such experimental animals. Full details of the work will be published in the *Quarterly Journal of Medicine*. The organism isolated belongs to the group known as "filter-passers", in that the virus

will pass through certain filters but does not pass through those with very fine pores. In view of the satisfactory results obtained in the study of polyneuritis, an investigation was undertaken into the cause of other diseases, particularly trench fever, influenza, and nephritis. In trench fever the virus isolated consists of minute coccus-like bodies, grouped in pairs, with the opposing surfaces flattened, and varying in size from 0.3 μ to 0.5 μ. It is Gram-positive and stains readily if the film preparations are first washed in ether. It passes through Berkefeld N. and V. filters and through Massen porcelain filters, and can be cultivated from such filtrates. It resists heating to a temperature of 56° C. for 30 minutes and it is an anaerobe. This organism has been recovered by culture from the blood in 11 out of 15 cases of trench fever examined during the pyretic stage, and in 3 out of 8 cases examined when apyretic. It was not found in over 40 control cases where blood culture with the same technique was carried out. A similar organism was recovered from four separate supplies of infected louse excreta, but it was not found in 31 specimens of excreta from batches of clean lice. The culture obtained either from the blood of man or from louse excreta, when inoculated by scarification into man, produces a mild illness, and the organism can be recovered from the blood by culture during such illness, and also from clean lice fed on the patient during the illness. The virus isolated in cases of influenza consists of very minute rounded coccus-like bodies, varying from 0.15 μ to 0.5 μ. It is Gram-positive and passes through Berkefeld N. and V. filters and Massen porcelain filter. It is an anaerobe, and resists heating to 56° C. for 30 minutes. It has been isolated by culture from the blood in 6 out of 9 cases examined, from the sputum in 6 out of 6 examined, from pleural fluid in 4 out of 4 examined, and from the cerebrospinal fluid in the only case so examined. It has also been isolated from the lymphatic glands post mortem in the only two cases examined. This organism cannot only be grown from the blood, and from exudates, but it can also be seen in stained films prepared from exudates, *e.g.* sputum, pleural fluid, cerebrospinal fluid. The culture (second generation) when inoculated into animals subdurally, or intravenously, produces illness in guinea-pigs and monkeys, and on post-mortem examination the following lesions have been found: extensive lobular pneumonia with hemorrhages, some nephritis, myocardial and hepatic lesions, such as extreme congestion, interstitial hemorrhages of small size, and fatty degeneration. Passage experiments done from such animals when slightly ill, by injecting their blood, bile, etc., into healthy animals, causes in these more severe and even fatal illness, and post mortem the same lesions are found. The organism has been recovered by culture from the tissues of such experimental animals. Up to January, 1919, only one variety of nephritis had been investigated, *i.e.* that characterized by the presence of pyrexia and hematuria at the onset. The virus isolated in such cases consists of a round coccus-like body varying from 0.3 μ to 0.6 μ in size, and in culture often occurring in the form of short chains of four individuals. The same organism may be seen in urinary sediments either singly or in pairs. It is Gram-positive and passes through Berkefeld N. and V. filters, and also through the Massen porcelain filter. It is an anaerobe and resists heating to 56° for 30 minutes. It has been isolated from the blood in 6 out of 9 cases examined and from the urine in 7 cases. The culture (second generation) when inoculated into animals produces nephritis in monkeys and guinea-pigs. In monkeys this can be determined not only by post-mortem examination, but also clinically, since the urine contains blood, albumin, and casts. In both guinea-pigs and monkeys extensive lesions, glomerular and tubular, are found on microscopic examination. In severe cases pulmonary lesions are also present. The organism has been recovered by culture from the tissues of the animals experimentally inoculated. Organisms of the same group, although differing from one another, have been isolated from a number of other diseases of obscure etiology, of which the more important are: mumps, measles, rose measles, and typhus. An organism apparently allied to that of polyneuritis has also been isolated from brain tissue in cases of encephalitis lethargica, both from material obtained in England and from cases observed in the Army in France. Excluding the organisms found in polyneuritis and encephalitis lethargica, all the organisms isolated have many points in common and possibly belong to one group. Although exceedingly small, they present individual differences in their morphology and in their mode of growth in culture. Details, however, will be published later.

The Canadian Medical Association Journal.

February, 1919.

1. A Clinical Study of Four Hundred Patients with Bronchial Asthma. I. Chandler Walker.
2. Some Aspects of Military Ophthalmology. S. Hanford McKee.
3. Administration of Arsenic in Syphilis. W. T. Lockhart and J. R. Atkinson.
4. Venereal Diseases: Their Treatment and Cure. Omar Wilson.
5. Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis. Eugene Grenier.
6. The Eyesight of the Negroes of Africa. J. N. Roy.
7. Clinical Notes on the Influenza Epidemic Occurring in the Quebec Garrison. E. A. Robertson.
8. Pleurisy, Experimental and Clinical. Robert C. Paterson.

1. A Clinical Study of Four Hundred Patients with Bronchial Asthma.—I. Chandler Walker discusses the protein causation of asthma and points out that proteins are most widely distributed in nature and that as patients may be sensitive or anaphylactic to proteins, these may be the cause of all varieties of asthma, including the bronchial variety. There are several ways of testing a patient in order to determine whether or not he may be sensitive to proteins. The test which has proven to be safe and reliable as regards hay fever and asthma is performed as follows: A number of small cuts, each about one-eighth of an inch long, are made on the flexor surfaces of the forearm. These cuts are made with a sharp scalpel, not deep enough to draw blood, although they do penetrate the skin. On each cut is placed a protein and to it is added a drop of tenth-normal sodium hydroxide solution to dissolve the protein and to permit of its rapid absorption. At the end of a half hour the proteins are washed off and the reactions are noted, always comparing the inoculated cuts with normal controls on which no protein has been placed. A positive reaction consists of a raised white elevation or urticarial wheal surrounding the cut. The smallest reaction which can be termed positive must measure 0.5 cm. in diameter, and any smaller reactions are called doubtful. Negative skin tests with proteins rule out these proteins as a cause of asthma, and all proteins which give a positive skin test should be suspected as a cause of asthma. In the case of bacteria, however, the skin test has only to do with the protein element, so that even though bacteria give a negative test they may still be a cause of asthma though their infectious nature and the patient need not be sensitized to bacterial protein. Of the 400 cases studied by Chandler, 191, or 48 per cent., gave a positive skin test, and were therefore sensitive to some protein. According to sex, 53 per cent. of the sensitive cases were males and 47 per cent. were females, and of the total number of males studied 51 per cent. were sensitive, and of the total number of females 44 per cent. were sensitive. The author also emphasizes the fact that the relationship between the age of onset of bronchial asthma and the sensitization of the individual is important. Stated briefly, four-fifths of the patients who began asthma during infancy were sensitive, two-thirds who began during childhood were sensitive; one-half of those beginning asthma during young adult life were sensitive, and none was sensitive that began asthma after the age of fifty; as the age of onset of asthma increases, the frequency of sensitization decreases, and the knowledge of this is a great help in practice. A positive skin test with several different proteins may mean that all of them are causing asthma or that only some of them are causing asthma at present, and that the others have been or may be in the future the cause; or even it may mean that none of the proteins is at present the cause, but they have been and that now secondary infection is the chief cause of asthma. Suffice it to say that positive skin tests by proteins, which seem to have no

hearing on the cause of asthma, should be considered as danger signals and not as false reactions; such positive tests should not be disregarded. The treatment of sensitive cases is largely a matter of judgment in deciding which positive tests should be first investigated. If the patient is sensitive to food proteins, such foods should be omitted from the patient's diet for at least a month in order to see what effect they have on the asthmatic condition. In Chandler's series of cases nearly all such patients have been relieved of asthma. In a few instances, however, because of the associated bronchitis, autogenous sputum vaccines have been required in conjunction with the restricted diet. Attempts to desensitize the patient against offending food protein by the subcutaneous injection of, or by feeding gradually increasing amounts of the protein have failed. There are, however, reasons for believing that total abstinence from the offending protein for a long interval automatically desensitizes the patient for that protein. Patients who are sensitive to bacterial proteins may be successfully desensitized against such by treatment with vaccines of these organisms, but great care must be exercised not to give too large and too rapid an increase in the amount of vaccine. The first dose of vaccine should not be larger than one hundred million bacteria, and each succeeding dose should not be more than fifty million over the preceding dose.

3. Administration of Arsenic in Syphilis.—Lockhart and Atkinson point out that the methods of administering the organic arsenic preparations are almost invariably of a too elaborate character. Moreover, the drug is too unstable to retain its therapeutic properties when given in the form of capsules to be administered per os or introduced into the rectum. The authors have adopted in their clinic at the Canadian Special Hospital, Whitley, England, the intravenous method of injecting arsenic introduced by Professor Thibierge. The method of administration is as follows: A 30 c.c. burette containing the sterile water is held upright by a stand and is continued at the bottom by a short piece of rubber tubing terminating in a glass nozzle and closed by a pinch cock. One of the orderlies flames the outside of an ampoule of the drug with a small alcohol lamp, files off the tapering end, runs in 2 c.c. of water from the burette and inserts a piece of small glass tubing with rubber connection at one end and a few filaments of wood at the construction near the center, such as is supplied with the galyl ampoules. The ampoule is then gently shaken. Solution is complete in a few seconds. The ampoule is placed upright in a small board which has had sufficient half-inch holes drilled in it to hold the required number of ampoules. The officer having picked a syringe out of a small basin of alcohol with dressing forceps, washes it in sterile saline solution, aspirates the contents of the ampoule by means of the rubber connection to the glass tube, picks out one of several needles which are boiling in a container beside him, and adjusts it to the syringe. Meanwhile the other orderly has prepared the patient by fastening a light rubber tube round his upper arm and painting below the bend of the elbow with iodine. The patient seats himself at a narrow table on the opposite side of the officer, his arm resting on the table, the officer steadying the skin with his left hand, introduces the needle into the vein, slightly withdraws the plunger to make certain that the needle is in the lumen of the vein, and, removing the tourniquet, completes the injection. The table should be so placed that the light falls freely on it. The needle puncture is so small that no bleeding takes place and no cotton or collodion is required to seal it. During the past three months 2,859 intravenous injections have been given in the above manner in the Whitley clinic. There has not been a solitary case of thrombosis of the vein. There have been no early reactions of an anaphylactic character such as used to be fairly frequent when injecting large quantities of distilled water, which was not above suspicion. There have been no reactions, late or early, which could be attributed to the method of administration. Owing to the small size of the needle the pain of introduction is less than where the larger needle required by the gravity apparatus is used, and much smaller veins may be successfully entered. A microscopic examination of blood withdrawn from the vein into the syringe containing the arsenic solution shows the blood cells apparently even some hours after withdrawal. The drugs used by the authors have been Novarsenobillon and Novarsenobenzol, which have been supplied in ampoules containing 0.6 gm. and 0.9 gm. It has seemed to the authors that the administration of arsenic in concentrated solution is more effective than when it is given diluted. It has been shown that intravenous arsenic as ordinarily administered is eliminated pretty rapidly by the kidneys so that a large part of the dose is disposed of in this way within a few hours after administration. The diuretic effect of the distilled water and saline solution introduced into the circulation along with the arsenic may have something to do with this, and it is reasonable to suppose that when the dose is given in concentrated form it is less rapidly eliminated. There are no means to estimate quantitatively the arsenic in the urine and therefore it has been impossible to verify the supposition. When arsenic is administered by a gravity apparatus it is customary, in large clinics, at any rate, to dissolve the doses for several patients at once, and as the solution is run out more is continuously added during the period of an hour or longer according to the number of patients. It is clear that in this way some portion of the drug will be exposed to the air for a considerable time, as the tube is never allowed to entirely empty itself, and some degree of oxidation is bound to occur. Where solution is effected in the ampoule immediately after it is opened and the contents injected within a minute or less, oxidation prior to administration must be very slight indeed. In default of support from estimation of the rapidity of arsenic exeretion it must be admitted that the number of cases is too few and the period of observation too short to establish the truth of the supposition that concentrated solution of arsenic is more effectual than dilute, but there is sufficient evidence to show that by their use syphilitic lesions undergo very rapid involution, and that their administration in suitable dosage is perfectly safe.

Berliner klinische Wochenschrift.

December 30, 1918.

Two Procedures of Cutaneous Plastic Work.—H. Neuhäuser describes, with figures, the following two techniques of plastic surgery for the repair of wound surfaces. The first consists in forming thin cutaneous flaps on the edges of the wound. They should be from six to ten centimeters long and pedunculated at one end. These are then brought over the wound surface and sutured. The advantage of this procedure resides in a very rapid epidermization on account of the considerable extent of the proliferating borders of the flaps. The second technique is more complicated and takes longer to carry out. For its understanding it requires to be illustrated, and consequently will not be described.

Radiotherapeutic Treatment of Local Hyperhidrosis with Hard Rays.—F. M. Meyer, after six years' work along these lines, believes that only hard radiations, greatly filtered, can surely cure hyperhidrosis. The dose of rays employed must vary with each case and it is well to proceed by repeated séances, each one of which should be made at a different area of the cutaneous surface under treatment. A cure requires considerable time, since destruction of the sudoriparous glands must be obtained. As to complications, an alopecia frequently results in the axilla and, besides, the skin offers a certain hardness with a tendency to fissuring. However, these untoward results are readily accepted by patients for the good results otherwise obtained.

Edema Disease and Bradycardia.—Bencke describes the well-known clinical picture of this affection, which results from inanition and excessive work. A diet of better quality, particularly richer in fats, will cause the symptoms to disappear rapidly.

Münchener medizinische Wochenschrift.

December 24, 1918.

Cutaneous Changes in the Nephritides.—G. Herxheimer and W. Roscher recall the fact that examination of the cutaneous vessels has been made recently

by a number of writers, either by direct visual examination or in serial histological sections, with the attempt to show that the changes found offer characteristic symptomatic evidence in various affections, such, for example, as trench nephritis, Weil's disease, recurrent typhus, Volhynia fever, etc. The writers have taken up this study and have been unable to discover that these various diseases can be differentiated by this means since the morbid changes in the vessels are practically identical in all and result from an ordinary inflammatory process. On the other hand, these changes have nothing in common with the characteristic lesions present in typhus fever as already described by Fraenkel. As to the identity of trench nephritis with typhus fever, it is absolutely refuted by the results of histological studies of the cutaneous vascular system.

Essays with Vaccination Against Typhus Fever.—H. da Rocha-Lima has utilized the well-known essential faculty possessed by the guinea-pig of becoming inoculated with typhus fever for the purpose of experimenting with vaccines of divers manufacture, such as the blood from patients, extracts of the viscera of diseased guinea-pigs, lice carriers of the virus, etc. The series of comparative experiments, with a control series, revealed the fact that a vaccine made from virulent lice was the most powerful. Repeated vaccinations, two to three being made during the lapse of one week, had a manifest immunizing effect, which a single vaccination did not possess. The writer's researches carried out in a considerable number of guinea-pigs showed a perfect innocuity of these subcutaneous injections of vaccine made from virulent lice and, according to his way of thinking, everything indicates that it should be employed in man. The only objection to the extensive use of this vaccine resides in the difficulty of procuring it in sufficient quantities. Therefore, the writer proposes to limit this vaccination for the time being to persons particularly exposed to contamination.

Deutsche medizinische Wochenschrift.

December 26, 1918.

Results Obtained in Tuberculous Patients Treated in 1913 with Friedmann's Serum.—F. Kraus treated eighty-five tuberculous patients with Friedmann's injections (tubercle bacilli of cold-blooded animals) in 1913, the lesions representing all degrees of the disease. After the lapse of five years (1918) the writer was able to examine twenty-five of these patients and found that, all things considered, the results were good. As to the remaining patients, the majority gave favorable data as to their condition by letter. As all these cases treated by the writer offered undoubted clinical evidence of tuberculosis in 1913, Kraus does not hesitate to recommend Friedmann's treatment on a large scale.

Psychic Disturbances During Influenza.—Weber records several cases of acute psychoses arising during defervescence or even during convalescence from the grippe. They were delirious states with motor agitation, hallucinations, obnubilation, etc. The evolution was completed within from four to ten days and the prognosis was good.

The Technique of Treatment with Silver-Salvarsan.—Mock has observed vasomotor disturbances in some cases following the use of silver-salvarsan, although such complications are uncommon. In sensitive subjects the writer consequently substitutes intravenous injections by diluted solutions, slowly injected subcutaneously, the dose being 200 c.c.

Wiener medizinische Wochenschrift.

December 14, 1918.

Bullet Wounds of the Optic Tract.—V. Hanke records two cases, one of which particularly represents a typical lesion with right homonymous hemianopsia. As to symptoms belonging to the localization in the optic tractus the writer gives: integrity of the macula, hemiopsic papillary reaction, and inequality of the pupils, the larger pupil being on the side of the hemianopsia.

The Potato Cure in Cardiac Hydropsy.—I. Lipiner states that, on account of the general dearth in all things resulting from the war, he has been led to substitute a diet more readily realizable for Karell's treatment. For this the writer has resorted to the potato cure, the effects of which have been excellent. After a lengthy dissertation on the means of diuresis, the duration of the disease, and the loss of weight, the writer shows the superiority of the potato cure over the diet recommended by Karell, as well as its usefulness in case of intolerance for digitalis, also its superiority, when carried out alone, over the treatment by rest and digitalis when given alone.

Annali d'Igiene.

November, 1918.

Influenza in Animals.—Lanfranchi considers this subject informally. A contemporary writer has stated that an epizootic has coexisted with an epidemic on five occasions without any claim that this number exhausts the list. Our exact knowledge of equine influenza does not go back very far owing to the backward state of scientific veterinary knowledge. Two independent observers in 1911 and 1913 were able to show that the affection is due to a filtrable virus and that apparently healthy animals act as carriers. This discovery abundantly explains the observations of prescientific veterinaries that influenza was conveyed to mares by the semen of the stallions. The theory of a filtrable virus as a cause of human influenza has therefore a sort of indirect corroboration. A sort of nasal infection in young dogs wrongly termed glanders has numerous analogies with influenza and extends down the respiratory tract. Only exceptionally does this become epizootic and then its correspondence with human influenza is very close. It is shown to be due to a filtrable virus. In hog cholera we see numerous analogies with influenza. There is a nasal catarrh accompanying the fever, although generally speaking all of the mucosae may suffer. There is a virulent septic form which can destroy the animal in a few days. The actual cause of the disease is a filtrable virus while complications arise from the pathogenicity of satellite germs.

La Presse Médicale.

December 23, 1918

The Hospital St. Louis.—Jeanselme devoted the opening lecture of the university course for the chair of skin diseases and syphilis to the history and activities of the clinic in question. He does not go very deeply into the past, although all the world should know that this institution anticipated all others of its kind in dealing with these cases. In syphilography he does not go before the activities of Fournier, who went from the Lourcine to the St. Louis many years ago and most of whose original research was performed at the latter institute. Fournier devoted twenty years of his life to the St. Louis and was succeeded by Gaucher, whose work is described at length. The author now takes up the succession of remarkable dermatologists who have shed luster on the St. Louis and begins with Alibert, whose teachings were continued by Biett and Cazenave. But an event of minor importance, which ultimately redounded to the credit of the hospital, yet was not connected with the activities of any clinician, was the discovery by the apothecary Gales that itch was the result of the parasitism of a tick, the acarus. Naturally Gales was ridiculed by the humoralists of the day, until in 1834 Renucci, a student, succeeded in convincing the great Alibert of the truth of the assertion. During the period 1841-44 Gruby, who made his researches in the hospital, demonstrated the analogous part played by fungi in disease of the scalp. Bazin, who assumed charge of the hospital in 1850, was a progressive type of man, who endorsed all of the alleged discoveries of the past, supported by an improved microscopic technique. Later the prestige of the St. Louis suffered an eclipse as a result of the labors of the Vienna School, which upset much of the Paris doctrine of diathesis as a cause of skin lesions. The somewhat ultrascientific movement in Vienna was met by the germane activities of French dermatologists, who followed scientific methods to the utmost. Since then there has been but one school of dermatology.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held April 23, 1918.

DR. WILBUR WARD IN THE CHAIR.

Large Pelvic Abscess Due to Foreign Body in the Posterior Vaginal Wall.—Dr. WILBUR WARD reported this case which illustrated another danger in the use of the stem pessary. He stated that the patient, a widow in the early thirties, consulted him in the absence of her own physician as she had been wearing a stem pessary for some time for the relief of dysmenorrhea, this being so severe that she was confined to bed for two days each month. With the pessary in place no discomfort whatever was experienced. Her physician had been in the habit of leaving the stem in for six months, then removing, cleansing, and replacing it. Her visit to the speaker was for this purpose. While he did not approve of the use of the pessary, he did not feel it incumbent upon him to say so, and treated the patient as she had been accustomed to being treated. Three years later, a stewardess of one of the coastline steamships called him up and said that she had on board a woman who was quite ill, who said that her physician was out of town, and that Dr. Ward was the only other physician she knew. From what the stewardess said it seemed that the condition was medical, the patient in common with a considerable number of the passengers suffering from nausea, vomiting, abdominal pain, and diarrhea, all of the cases being laid to the ingestion of some tainted food. Inasmuch as the cases did not seem to lie within his province he recommended the patient to an internist, who in the course of the next 36 hours sent her to a private room in one of our large hospitals, and put her under medical treatment. Seven days later the house surgeon called him up and said the condition seemed to be pelvic, and asked him to come to see her. He did so and found that for a week she had been treated along medical lines without a diagnosis having been arrived at. She was running a gradually increasing septic temperature, looked ill, and that morning they had first discovered a mass rising out of the pelvis, and appearing above the symphysis. He had the patient transferred to the Sloane Hospital and in making a complete vaginal examination the first thing he encountered was the collar of a stem pessary which had become dislodged from the cervix, the point being imbedded in the posterior vaginal wall almost in midline, at about the level of the external os. After removal with the speculum a ragged penetrating wound, one-half to three-quarters of an inch deep, was seen in the vaginal wall at this point. The other signs were those typical of a large pelvic abscess almost ready to rupture into the vagina. A dressing forceps was plunged through the wound and a large quantity of foul smelling colon pus was evacuated, about two quarts. Drainage was instituted and recovery was rapid and complete. This case was cited as illustrating another of the dangers of the long-continued use of a stem pessary of whatever type. This woman was still wearing a stem for the relief of the same dysmenorrhea. She understood distinctly that it was against his advice; yet she insisted upon it as without it she suffered intensely for two days each month. With the stem she was perfectly comfortable.

Dr. HAROLD BAILEY said he did not think Dr. Ward was justified in putting the stem pessary in that patient again. The woman should have an operation to relieve the anterior flexion.

Dr. WARD replied that he agreed with Dr. Bailey in principle. There were, however, certain cases in the practice of medicine in which one was forced to do what one really did not wish. In this particular case the circumstances were such that it seemed that the only thing to do was to treat her in the temporary absence of her physician as they both desired. She understood clearly that he did not approve of the method, but was entirely willing to assume all the risks.

Dr. S. WIENER supplemented Dr. Ward's case with a similar one which he had seen recently. This woman had also been wearing a perpetual pessary, one of the double-pronged uterine variety worn for the prevention of conception. She had worn it for some time and a large pelvic abscess had formed. The abscess was opened and a considerable amount of foul smelling pus evacuated. The wearing of the pessary had led to the infection and the formation of the abscess. This patient went home apparently well, but returned with a temperature of 102° F. and a mass on her right side above the umbilicus, and just about the middle of the upper right rectus muscle. There was a distinct round tender mass under the skin which proved to be an abscess. The finger could be passed back to the retroperitoneal tissue and undoubtedly this abscess traveled up from the cul-de-sac of Douglas retroperitoneally and pointed above the umbilicus on the right side.

Modern Obstetric Technique, Compared with the Teaching of Twenty Years Ago.—Dr. GEORGE L. BRODHEAD presented this paper, in which he stated that he had had the good fortune to spend two years, 1895 to 1897, as resident obstetrician at the Sloane Hospital, the best service to be had at that time in this country, the instruction being given by Dr. James W. McLane and Dr. E. A. Tucker. At that time there was no part of the daily routine more rigidly insisted upon or supervised than the careful, systematic examination of the pregnant woman. Increasing experience had completely justified these painstaking examinations, which included palpation, auscultation, and pelvimetry. There could be no question as to the value of thorough, antepartum examination. In the writer's early months in the hospital no sterile gowns were used in the conduct of normal labor and rubber gloves were unheard of. At the present time one wore both gown and rubber gloves, and many wore a cap and face mask as in general surgery. In his private work and his work at the Harlem Hospital, Dr. Brodhead said he used the rectal examination in all cases, unless there was a good reason for entering the vagina. He believed that more harm than good resulted from vaginal examinations. Presentation and position could usually be determined by external examination. For the rectal examination no preparation of the patient was necessary, the gloves need not be sterilized, and much time was saved thereby, and with a little experience much information could be obtained. In borderline cases in which cesarean section might be an ultimate operation the rectal examination was almost a necessity. It might be objected that vaginal examination was necessary in order to diagnose prolapse of the cord. In cases in which the membranes ruptured while the head was still unengaged, the vaginal examination should be made, but principally and practically only to ascertain if the cord had prolapsed. He believed with Hirst and others, that ergot, if given, should be administered at the moment of the birth of the child, and for many years he had given ergot in this way with only good results. In other words, the ergot must be given in time to control the hemorrhage by contracting the uterus before the bleeding was likely to occur, and therefore he gave it immediately after the child was born without waiting for the placenta to be expelled. It was their custom at Sloane to invade the uterus for retained membranes. During his last year the retained membranes were left in the uterus, and so satisfactory were the results that he had never explored the uterus for retained membranes since. During the puerperium, it was their custom to order the patient catheterized every eight hours, if she could not void spontaneously. They now knew that patients need not be catheterized if a longer time were allowed, or one c.c. of pituitrin might be given hypodermically, or the woman might be allowed to sit up on the bedpan or chamber. The patient might be allowed to wait eighteen to twenty-four hours with no discomfort and no bad results. Pituitrin was an invaluable addition to the armamentarium of the obstetrician. It was invaluable in postpartum hemorrhage, before cesarean section and as a substitute for forceps in properly selected cases. Personally, however, he believed that with the head at the outlet, the forceps, in skilful hands, was a safer procedure than the use of pituitrin. Pituitrin was also used with sat-

isfactory results in cases of inevitable and incomplete abortion. There was also merit in the suggestion of Furniss that pituitrin be given before curettage for incomplete abortion, with the idea of contracting the uterus and lessening the hemorrhage. The cleaner the surroundings and the greater the care taken by the accoucheur, the less frequently would sepsis be met. The patient who was infected would have a much better chance for life if treated conservatively, with good drainage, good food, and an abundance of fresh air. In speaking of operative procedures, Dr. Brodhead said that episiotomy had not received the attention it deserved. The operation was never performed during his service at Sloane, but a few years later he was impressed with its value and had been using it ever since. It was simple, devoid of danger, and so successful in its results that he believed it was performed far too infrequently. Among the indications for the operation were rigidity of the perineum; edematous soft parts; cases in which large fetal head must pass through small vulvar outlets; the passage of meconium in vertex presentation; a rapid failing fetal heart, necessitating a speedy delivery through a small outlet; where there was a large amount of cicatricial tissue in the perineum, and as a prophylactic measure in breech presentations. The writer confessed to a considerable number of complete lacerations of the perineum in breech cases, but he remembered no instance in which the sphincter was torn after episiotomy was done. With median perinectomy the writer had had only a limited experience, but men who had used the procedure claimed that it was far superior, in that the incision was single and more easily repaired, and there was less probability of tearing up into the vagina. The bilateral operation would naturally give more room in breech presentations and would be preferable. The low forceps operation had steadily increased in favor in recent years, while the high operation had been performed less and less, owing to the prominence that had been given to cesarean section. With the head low in the pelvis, the cervix completely dilated, and failure to advance within a reasonable time, the low forceps operation was safe, and would save the patient in some cases at least hours of unnecessary pain. No doubt the abdominal operation was performed needlessly at times, but there could be no question of the brilliant results obtained where formerly one was doomed to failure when using the high forceps operation. The instrumental rotation of persistent occipitoposterior positions of the vertex, scarcely known twenty years ago but insistently taught by Dr. Tucker, had become a recognized obstetrical procedure of the greatest value. Version still remained an exceedingly valuable and necessary operation. Craniotomy had been performed far less frequently than formerly because of the good results obtained in cesarean section, but it was the writer's belief that craniotomy should be performed much oftener than it was. Many deliveries were completed by high or median forceps operation, or by podalic version, in which craniotomy would have been a much safer operation of election. In placenta previa great advance had been made in the use of the DeRibes bags, followed by forceps or version, or in selected cases by cesarean section. Among the indications given for cesarean section were contracted pelvis, relative disproportion between the size of the head and the pelvis, placenta previa, toxemia of pregnancy, eclampsia, accidental hemorrhage, and contraction ring dystocia. There was one important field for cesarean section and that was in primaparæ at or near term with eclampsia. Vaginal section, unheard of twenty years ago, had been extensively performed and had been found invaluable in properly selected cases. From the third to the seventh month, when it was necessary to interrupt pregnancy for cardiac, renal, hepatic, pulmonary or other pathological conditions, it was frequently the easiest, quickest, and safest mode of delivery. In eclampsia it had not been conclusively proven, in the writer's opinion, to be the best form of treatment, but in many instances it had been used with very satisfactory results. Nitrous oxide to relieve the pain of the first stage of labor had become a great boon and marked a great advance in modern obstetrics.

Dr. HERMANN GRAD expressed the opinion that the paper had presented in a very definite way the great advances made in obstetrical art in recent years, and this was to be ascribed very largely to the fact that more attention had been given to the subject of late than ever before.

Dr. HAROLD BAILEY agreed with Dr. Brodhead that the chances of a complete tear in a median episiotomy were great, and he believed it was not an infrequent occurrence to have these tears in a large hospital service where this procedure was frequently performed. He never did an episiotomy for an oncoming head, but he thought episiotomy was a suitable procedure for an aftercoming head. It was a good plan to have the scissors directly at hand and in position to make the incision if it should be found necessary. Dr. Brodhead spoke of craniotomy as being justifiable in certain conditions even on the living child. He thought the question of doing a craniotomy on a living child was somewhat debatable, and that the cases in which it was justifiable were very few. Dr. Bailey said that it seemed to him that the few cases in which craniotomy might have been said to be justifiable were the ones which presented the opportunity for pubiotomy rather than craniotomy.

Dr. SAMUEL J. SCADRON said that after listening to Dr. Brodhead's paper one came to the conclusion that obstetrics had been taken from the medical man and given to the surgeon. As for the advantages of episiotomy, there was, in his opinion, no greater indication than in the occipitoposterior position where one could not rotate the head. While craniotomy on the living child did not compete with cesarean section and pubiotomy, nevertheless in those cases in which the forceps had been tried and then cesarean section done the mortality was so high that craniotomy in such cases should always be performed, and craniotomy was preferable to pubiotomy.

Dr. BRODHEAD, in closing, said Dr. Bailey had elicited the fact that there were more complete tears with median perinotomy than had been reported. He was undoubtedly correct in this statement, but he thought bilateral episiotomy was very valuable especially for breech and some vertex cases. The occasional case of persistent occipitoposterior presentation in which the head could not be rotated offered an ideal indication for episiotomy.

Placental Polyp.—Dr. Brodhead reported this case and presented the specimen, which he said he brought with the idea of contributing it as a part of the discussion on the cases of uterine polyp that Dr. Falk was to have presented. He stated that the patient was delivered normally about twelve years ago. About four-fifths of the chorion was retained and the amount of hemorrhage was not over eight ounces. The highest temperature in the puerperium was 99.4° F. There was no odor and no membrane in the lochia. About fifteen days post-partum the cervix showed a crescentic laceration, the uterus was anteflexed and fairly involuted but there was no bloody lochia. About eight days later it was found that she had a small tumor, one and one-half by three-quarters inches protruding from the external os with slight bleeding. The mass was found to be attached to the posterior wall by a small pedicle and was easily removed. Microscopically it was shown by Dr. Libman to be a typical mole with numerous chorionic villi. The patient made a good recovery. This was the only case of true placental mole that had come under the speaker's observation.

Dr. HAROLD BAILEY added a case of uterine polyp. He said this case occurred twenty-five days post partum. The woman had a free hemorrhage and became exsanguinated. A polypoid mass with a pedicle was found protruding through the external os. This was removed by pressure on the pedicle. It proved on microscopical examination to be entirely placental. He had had another experience just this month. A case ten days postpartum passed externally a large mass, and the doctor who first saw her thought she had an inversion of the uterus. She was taken to the Memorial Hospital, and at examination under anesthesia that mass was found to be a polyp with a very thick pedicle. This was removed by dissecting the pedicle from the uterine wall by finger pressure. Examination showed this tumor to be a submucous fibroid.

SECTION ON PEDIATRICS.

Stated Meeting, Held May 9, 1918.

DR. HERBERT B. WILCOX IN THE CHAIR.

Pulmonary and Cardiac Cases for Diagnosis.—From the Children's Medical Division of Bellevue Hospital.—Dr. L. E. LAFETRA presented a cardiac case, which he said was somewhat puzzling, the question being whether the boy had an acquired lesion, a congenital lesion of simple type, or one of complex type, or whether he had some disease of the aorta. The boy was 11 years of age, poorly nourished, and weighed 61 pounds. He had had measles and whooping cough at the age of 6 years; his tonsils were removed when he was 7 years of age, and for the past three years he had had something called "rheumatism." His temperature since coming under observation had been normal. The blood count showed 10,500 white cells, 72 per cent. polynuclears, and no abnormalities of the red cells. The urine was negative for albumen and sugar. There was a marked dullness for 2 inches to the right of the sternum, especially noticeable in the upper spaces. There was pulsation in the second and third right interspaces, so strong as to suggest the beat of a ventricle. It was very difficult to make out the maximum apex impulse. It seemed to be to the right of the sternum in the fourth interspace. There was a loud, rough systolic murmur at about the junction of the third left rib cartilage with the sternum, and there was also a faint presystolic and a late diastolic murmur. The murmurs were not heard in the back. There was no enlargement of the liver, no dyspnea, and no evidence of cardiac embarrassment. The *x*-ray showed marked bulging of the heart in the upper spaces of the right side. The aorta showed with a little more prominence than was usual and the heart was characterized by a circular outline. The maximum diameter was at the third rib on the right side and the fourth at the left side. A further point in the examination of this boy was that the Wassermann test was strongly positive. The electrocardiogram showed nothing abnormal aside from hypertrophy of the right side of the heart. The teeth in this case were very interesting. They showed a rather wide spacing between the upper incisors, and the cutting edges were notched. The teeth were badly decayed, so that the defects could not be made out distinctly, but there was a humpy molar on the left side in the upper jaw. As to the diagnosis—in the first place it did not seem that the physical signs were those of acquired heart disease. The shadow and the murmurs did not correspond to those of a child with endocarditis following rheumatism or any infectious disease. In the second place, the shape of the heart with the widening of the shadow suggested a possible transposition of the great vessels, and the location and character of the heart murmur over the sternum suggested a patent ventricular septum. In the third place, there was the possibility that the murmur was due to aortic dilatation from specific disease. Dr. LaFetra's opinion was that the boy had a congenital malformation, probably transposed vessels and patent ventricular septum.

Dr. LOUIS C. SCHROEDER presented this case, a boy, 9 years of age, whose family history had no bearing on his present condition. His birth was normal and he appeared to be normal in infancy except that his mother says he often turned black when he cried. He had had measles, pertussis, and diphtheria, from all of which he made uneventful recoveries. His developmental history was normal. He was brought to the outdoor department of Bellevue Hospital because he had a troublesome cough which was worse at night, and which he had had since the age of six months, and also because he suffered from frequent colds. Physical examination showed nothing of particular interest outside of the heart condition. The boy was offered for diagnosis not because there was any doubt of there being a congenital heart defect, but to determine whether or no the harsh, rough friction sound along the left border was a true friction rub. This murmur, taken by itself, was a very characteristic pericardial involvement, but taken in conjunction with the rest of the evidence, some doubt was thrown upon it. Against the diagnosis of adherent pericardium or pericardial roughening was the fact that there was no history of any rheumatic attacks, there being no characteristic left-sided hypertrophy at all comparable to that usually seen, though of course it might not have existed long enough to have developed sufficiently to be noticeable, nor was there any evidence of acute attacks of dilatation which were not an uncommon sequence of pericarditis. The *x*-ray showed a heart with hypertrophy of both auricles and a displacement of the aortic arch to the left, probably the dilated arch of a patent ductus Botallo. The electrocardiogram showed a left-sided preponderance which, Dr. Kelly had informed the speaker, as far as the congenital condition was concerned, spoke rather in favor of a patent ductus Botallo.

Dr. MAURICE KEMP presented this case, a boy 14 years of age, born in New York, of German-American parents. The father was luetic and died at the age of 39 years of paralysis. The mother was 41 years of age and healthy. She had received antiluetic treatment for thirteen years. She had three other living children besides the patient, and she had had three miscarriages. The patient's birth was normal. He had snuffles for twenty months after birth. His general health was good except for convulsions from the age of six months to eight years. He had had the ordinary diseases of childhood. He was brought to the clinic in April, 1916, for nervousness, and because he had a four plus Wassermann. He was treated with gray powder and seemed to improve. The latter part of July he had an attack of vomiting, followed by unconsciousness. In October, 1916, he sustained a fracture of the right parietal bone. In October, 1917, his mother again brought him to the clinic for his peculiar gait, stammering, peculiar actions (hiding pennies from his bank, etc.) and restlessness in school. When scolded he shook, though not excited. At night there was a back and forth movement of the right leg, whether he was awake or asleep. On returning from Sunday school, on April 21, he had an attack of vomiting and dizziness, and later became stuporous. Physical examination showed the lungs and heart negative, enlarged cervical and axillary glands, a spastic and somewhat ataxic gait, unsteady and occasionally staggering. His feet were rather widespread. His station was normal, with slight unsteadiness, hardly a Rhomberg. The patient showed apraxia, and the finger to nose test showed slight tremor. Speech was variable, hesitating, and at times explosive. The boy did not repeat test phrases. The deep reflexes were all very active. There was patellar clonus. The abdominals were normal; the cremasteric sluggish. There was a Babinsky on the right and left; Oppenheimer and Gordon on the right, and questionable on the left. There might be a slight paresis of the lower extremities. Touch, temperature, vibratory, and muscle tendon senses were normal. The eyes showed deficient convergence; the pupils did not react to light; they were equal and slightly irregular; both discs were pale. The upper temporal margins were somewhat indistinct. There was an absence of retinal pigment, and a slight hyperopic astigmatism. The patient showed two years' retardation and abnormal emotional status. He had a four plus Wassermann. The diagnosis was a probable multiple sclerosis and a beginning juvenile paresis.

Dr. G. PREVITALI presented this case, a boy 11 years of age. His family history was unimportant. His previous history showed that he had pneumonia at the age of 9 and 13 months, scarlet fever at 2 years, pneumonia again at 10 years. Three weeks after this, on October 28, 1917, he came under observation. At this time he complained of not feeling well and of coughing since the last pneumonia. His general condition was poor, heart overactive, pulse rate 108, and temperature normal. There was slight dullness at the right upper lobe and at the left lower lobe posteriorly, with crackling râles. The general condition of the patient improved slightly during the following three months, but the cough persisted. On February 1, 1918, three months later, the dullness of the right lobe was much more marked, and over the same area there were moist râles on inspiration and definite cavernous breathing in expiration. At several examinations since this time the patient had shown

dullness over the lower left lobe, and after expectoration the dullness would increase considerably and the cavernous breathing reappear. At present the expectoration was diminished, the cough was much less, and the physical signs were not so manifest. The patient felt well and had gained 5 pounds in the last five months, having the average weight for his age. Microscopical examination did not show tubercle bacilli in the sputum. The von Pirquet test was negative three times. The Wassermann was negative. Two *x*-ray pictures had failed to confirm their diagnosis of bronchiectatic cavity. They did not consider the case one of tuberculous origin.

Dr. CHARLES HENDEE SMITH presented this case, a child, 11½ years of age, whose family history was negative, save that the father was said to be tuberculous. She had had scarlet fever, diphtheria, pertussis, and pneumonia, and when 6 years of age had a tonsillectomy performed. She was referred from the Gouverneur Hospital with the statement that she had been tuberculous for three years. The mother said that the child had coughed for the past three years, never before. The physical examination showed the child pale but about normal in weight and height. Examination of the heart showed a double mitral murmur. The heart action was poor. The left border of the heart was 5 inches to the left of the midline. The lungs showed dullness and bronchial voice breathing at the left base. The patient was in the hospital or at the Pelham Summer Home from October until January. The lung signs noted on the Pelham chart showed that there were signs of fluid on the left base; by aspiration only 5 c.c. could be obtained. The *x*-ray of the chest showed the heart shadow of chronic valvular disease. On her return to Bellevue the patient gave a negative von Pirquet and a negative Wassermann test. On January 14 she returned to the outpatient department, at which time she had gained in weight and the cardiac condition was much improved, the apex being 4½ inches to the left. At the next visit there were signs of fluid on arriving and, after coughing, signs of cavity. There was an irregular area, 4 by 5 inches, at the left base, over which breathing varied from cavernous to broncho-cavernous, as if there were possibly a consolidated lung with several cavities. The change in signs could be obtained whenever the child came without having coughed for a few hours. The sputum had been examined repeatedly, and no tubercle bacilli found. A second von Pirquet was slightly positive on April 1. The tuberculosis complement fixation test was negative. The *x*-ray showed nothing in the usual antero-posterior views, since the lung lesion was behind the heart, but when the child was turned obliquely, so that the heart shadow was rotated toward the right, an area at the left base showed a diffuse thickening of the lung with two or three small cavities. There were probably more of these behind the heart. The patient had gained 7 pounds in six months. The diagnosis in this case was endocarditis and pulmonary cavity, either bronchiectatic or tuberculous. In favor of a simple fibrosis with bronchiectasis was the good condition of the child, the gain in weight, and the fact that there were no tubercle bacilli in the sputum, together with the fact that the complement fixation test to tuberculosis was negative. In favor of the tuberculosis was the tuberculosis of the father, which implied the exposure of the child to infection, and the plus von Pirquet. It seemed to the speaker that the child was an example of a large group of cases which were not uncommon and which were called tuberculosis, but which were probably simple bronchiectasis.

Dr. JEROME ZUCKERMAN presented this case, the history being read by Dr. Smith. He said this child was 6 years of age, a native of the United States. The father died of tuberculosis six years ago, and the mother of the same disease three years ago. There were two older children, who were well. The patient had had scarlet fever at the age of 3 years, measles and pertussis at the age of 4 years, and varicella at 5 years. About three months ago she had an attack of urticaria. Her tonsils had been removed. Her present illness began about two months ago, with swelling of the hands and a moderate amount of pain. Physical examination made about two months ago showed a fairly well nourished child, pale, and weighing 41 pounds. The examination was negative except for moderate swelling at the metacarpo-phalangeal joints, more especially the left hand. There was a slight general swelling of both feet and enlargement of the cervical axillary and inguinal glands; the epitrochlears were not felt. The knee jerks were exaggerated, and there was a marked Chvostek. The child's condition had remained practically the same up to the present time. The *x*-ray examination of the hands showed an infiltration of the soft tissues, but no evidence of arthritis. The *x*-ray examination of the feet was negative. The von Pirquet was markedly positive. The *x*-ray of the chest showed an adenopathy of the roots of both lungs. The Wassermann was negative and the vaginal smear was negative. For the past few days the child had run a temperature of from 100° to 101° Fahr. This was shown for differentiation between an early Still's disease and tuberculosis, and for the possible correlation between the two conditions. In Still's original description there was a chronic progressive enlargement of the joints associated with general enlargement of glands and enlargement of the spleen. The onset was before the sixth year. There was an absence of osteopathic growth even late in the condition. The affection was symmetrical; there was no tenderness and very little pain. There was an increased temperature appearing during periods and lasting a few days. This child lent herself to this description with the exception of the enlargement of the spleen. But there was also present a distinct family history of tuberculosis, a very positive von Pirquet, and positive *x*-ray findings in the lungs.

Dr. MURRAY H. BASS asked whether this child was fluoroscoped. He said that a few years ago he had reported a series of cases with Dr. Wessler, in which the children showed a patent ductus arteriosus, and the chief interest in the series of cases was that under the fluorscope one could see the sudden systolic dilatation of the small aneurysm in the pulmonary artery; under the fluoroscope this showed very well, but one could not see it on the *x*-ray plate.

Dr. SMITH replied that the fluoroscopic examination had been made and the child showed distinct evidence of tuberculosis.

Erythema Multiforme as a Rheumatic Manifestation in Children.—Dr. MURRAY H. BASS read this paper, in which he said that in spite of much research and theorizing the clinical entity comprised by the term "rheumatism" was still somewhat vaguely defined. In childhood we might define as rheumatism a group of pathological conditions which appeared to be closely associated, and which apparently were due to the same causative factor, since any one of them might be the starting point of an illness in which any or all of the others might make their appearance. This group of pathological conditions included joint pains and joint swellings, muscular involvements, such as torticollos; cardiac affections, either endocardial, myocardial, or pericardial, chorea, tonsillar infections, and certain skin manifestations, mainly erythema nodosum and erythema multiforme. To this disease complex the name rheumatism was correctly applied. Though there was no strictly pathognomonic clinical sign or symptom of rheumatism, we did possess sufficient data concerning its pathological anatomy. The lesions found in the heart were characteristic, consisting of small, firm, grayish-pink wart-like nodules situated on opposing surfaces of the valves along the line of closure. On section bacteria had rarely been demonstrable, and then in very small numbers; the only organisms found in section or on culture, according to Libman, were streptococci. Very characteristic changes were also to be found on the myocardium in the form of microsconic foci, forming submiliary nodules. These bodies, described by Aschoff and known as Aschoff bodies, consisted of aggregations of large cells scattered through the myocardium, mainly in the subendothelial portion, in the course of the medium-sized and smaller blood vessels. Dr. Bass reviewed the conclusions of Aschoff and of Thalheimer and Rothschild, which showed that they considered these bodies as characteristic of rheumatic infection. Thalheimer and Rothschild suggested that the cases of arthritis characterized by the presence of the Aschoff bodies in the myocardium be placed in

one group and called for the time being "rheumatism" and the cases with articular manifestations, yielding positive bacterial findings and no Aschoff bodies should be classified according to the infectious organism concerned, and not as rheumatism. We had therefore in the Aschoff bodies a pathognomonic sign of rheumatic infection, and one which might be safely used to identify the disease. Dr. Bass reported in detail a case in which the diagnosis of an unusually virulent type of infection was definitely proven to be rheumatic by the post mortem finding of the Aschoff bodies. Briefly the case was that of a child, 3 years of age, who had a severe tonsillitis, followed one week later by an eruption of erythema multiforme, and one week later by endocarditis, with death from heart failure after four days. The microscopical examination of the heart showed great numbers of typical Aschoff bodies present throughout the section situated in the interstitial tissue and also around the blood vessels and in the adventitia. The mitral valve was thicker than normal, and showed a very irregular arrangement of its connective tissue cells in places, these being arranged in whorls. The connective tissue cells were in places widely separated from each other, evidently by serum, giving the appearance of edema. In these places the cells were branching and resembled embryonic connective tissue. There was a diffuse infiltration with mononuclear leucocytes. There were no definite Aschoff bodies present, but in places the endothelium of the surface of the valve was thickened, being made up of several layers of cells, and from these situations columns of endothelial cells were apparently growing down into the valve. These cells somewhat resembled Aschoff cells. On the edge of the valve there was an irregular hyaline thrombus apparently being organized, as fibroblasts extended into it for quite a distance. Some of the fibroblasts were very large, and also resembled Aschoff cells, although they were not identical with them. With Unna Pappenheim's stain the Aschoff bodies stained a bright red and were sharply differentiated from all the other cells. At autopsy the lungs showed marked congestion and there was a bilateral hydrothorax with clear straw-colored fluid. The liver and spleen showed great congestion so virulent that bacterial endocarditis was suspected. The autopsy findings, however, disposed of this diagnosis nad absolutely proved the rheumatic origin of the disease. Erythema as a rheumatic manifestation was not particularly common in childhood, being a more frequent manifestation of the disease in the adult. Dermatologists did not seem to agree as to the exact nature of these eruptions, some regarding them as superimposed infections while others regarded them as the results of toxin action of the disease itself on the skin. The eruption might take one of a number of forms—the lesions might be papules, vesicles, wheals, nodes, or a combination of these, and they might be hemorrhagic. The author reported one type of case which closely resembled urticaria. Others seemed to combine some of the characteristics of erythema multiforme with those of erythema nodosum. The writer had recently observed such a case in a child, four and one-half years of age, who suffered from repeated attacks of mild joint pains accompanied by exquisite tender swellings of the skin. The attack observed started in with fever 101° F. and swelling over the anterior surface of the tibia, which was thought at first to be a periosteitis, but a radiogram showed the bone to be absolutely normal. The Wassermann reaction was negative. When seen two days later the swelling involved the skin over the entire tibia. It was hot and exquisitely tender. A second similar swelling was beginning to appear over the right elbow. A diagnosis of rheumatic erythema was made and large doses of salicylate prescribed. Two days later the eruption had practically disappeared. Such an eruption could not be classified as an erythema nodosum on account of its transitory nature. The author reported a third case which showed the relationship existing between the erythema and the other symptoms. In this child after a slight joint pain, the skin lesions appeared. Three weeks later the child developed a chorea, and one week later a mitral endocarditis. A year later there was an identical eruption which seemed to be improved by the administration of salicylates. In concluding Dr. Bass said that their autopsy case was the first in which an illness, one of the symptoms of which was erythema multiforme, had been pathologically proven to be rheumatism by finding of Aschoff bodies in the heart muscle. These case histories were of importance since they showed that children exhibiting this type of eruption should be considered rheumatic and sick enough to be kept in bed in order, if possible, to avoid the other and more serious complications of rheumatism.

Dr. Oscar M. Schloss said that Osler gave his attention to the erythemas and classified them into erythema multiforme, angioneurotic edema, and certain purpuras, and he drew attention to the fact that associated with these conditions were endocarditis, pericarditis, and rheumatism. In 1910, the speaker reported four cases as belonging to this group. Two of these cases had a definite rheumatic involvement connected with the erythema multiforme and urticaria and two represented erythema nodosum and erythema iris. The other patients had a distinct rheumatic history. There was no question that these findings of Dr. Bass were of the greatest importance. The work of Aschoff Frankel, Thalheimer, and Rothschild, showed that these Aschoff bodies were characteristic of rheumatism, and short of finding the actual organism which caused rheumatism, this was the most particular evidence one could have as to the relation of the erythema group of Osler to rheumatic fever.

The Treatment of Acute Intestinal Intoxication.—Dr. Oscar M. Schloss read this paper. (See Medical Record, May 25, 1918, page 921.)

Recent Studies in the Physiology of Tendons and Their Application to the Operative Treatment of Poliomyelitis.—Dr. Leo Mayer presented this contribution. He said that the interest in the anatomy and physiology of tendons was first aroused by the problem of preventing post-operative adhesions. Working in conjunction with Dr. Henze of New Haven, the speaker, in 1912, discovered that the essential principle in the prevention of adhesions was the maintenance of the normal relationship between the tendon and its sheath. To render this principle practical to operations for poliomyelitis paralysis, an extensive research into the anatomy and physiology of tendons was necessary. The results of this research showed that the tendons were equipped with a delicate, gliding mechanism, the essential of which was a peculiar elastic tissue, known as the paratenon, which enveloped the tendon and permitted it to move to and fro beneath the rigid fascia. At the upper pole of the tendon sheath, this tissue was prolonged downward, as a kind of tongue which acted as a valve maintaining the closed character of the sheath, and at the same time permitting the gliding motion of the tendon. This gliding mechanism of the tendon could be retained in tendon transplantation by appropriate technique, the details of which were given in a work entitled the "Orthopedic Treatment of Gunshot Injuries," published by the Saunders Company. The speaker then demonstrated by lantern slides the results obtained by tendon transplantation performed according to the physiological method.

Death Attributed to Obesity.—Maranon describes the case of a woman of 29 years of age who weighed over 345 lbs. Her height was 5 feet 2 in. The type corresponded to Ebstein's third degree. She was vain over the distinction of being so fat. She had contracted syphilis and had never been thoroughly treated; she herself attributed the obesity to that disease. Menstruation had completely ceased. Physical examination showed normal circulatory conditions and a few days before her death she was feeling in excellent health. The decease was sudden and an autopsy was therefore obtainable. To the naked eye there were no pathological alterations of any kind. The glands of internal secretion were all examined with the microscope. The author concluded that they had been attacked by a sclerotic process of syphilitic origin. The hypophysis appeared to be affected to a greater degree than the other organs. The exact mechanism of death was none the less obscure. In the discussion which followed Espina reported a case in a man of pluriglandular obesity, similar to the preceding. This patient also died suddenly but he was known to have had sugar in the urine.—*El Siglo Médico.*

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 95, No. 11.
Whole No. 2523.

NEW YORK, MARCH 15, 1919.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

A THERAPEUTIC SUGGESTION CONCERNING ENDOCRINES.

BY SAMUEL WYLLIS BANDLER, M.D.,

NEW YORK.

PROFESSOR OF GYNECOLOGY, NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.

THE human body is managed by the endocrine glands of the body. You have an automobile, and it is run by gasoline of one kind. In spite of the fact that it has a competent mechanism, if you are short of gasoline, or have a poor quality of gasoline, that invalidates the value of the automobile. But in the human body you have many kinds of gasoline given off by many glands, each gland producing many secretory elements. The particular division of these secretions we do not yet understand, but each gland and its special components has a definite specific action; and every individual from the time he is born until the time he dies is under the influence of these many different kinds of elements—some of them having to do with the development of the bones and teeth, some with the development of the body and nervous system, some with the development of the mind, etc., and, later on—with the introduction of sex features—with reproduction. Still later on, these elements have to do with the preservation of these structures and functions which constitute the body and mind, and if the gasoline elements which are given off by these glands become under- or over-active there is a disturbance of the specific functions which these component parts are supposed to perform; and since these glands are dependent on each other, the upset of one disturbs the rhythmical action of the others; so that accordingly a woman during her development and maturity keeps in action as her glands keep in normal action; and as she approaches the climacterium and, later on, the years of senility, her glands change and her activities change, so that if she lives long enough she is pretty nearly back to where her body functions started in the early years.

In recent years our knowledge as to the physiology of the ductless glands has been put to the test by endocrine therapy, and there is no longer any doubt that the future of medicine lies along these lines. In my own practice, endocrine therapy has displayed and replaced the old time drugs, so that I might safely say that practically 90 per cent. of all prescriptions for internal use consist almost entirely, if not wholly, of endocrine extracts. The varying forms of amenorrhea, most of the menorrhagias and metrorrhagias, threatened miscarriage, habitual miscarriage, sterility, the disorders and disturbances of the climacterium, and many other states met with in gynecological practice may be corrected in many instances specifically by a certain extract; in many other cases, by a combination of extracts.

We know what many of the gland extracts will do, but we have not yet solved the question as to how many various elements enter into the secretions produced by any of these glands. We know the difference between the adrenal medulla and the cortex, between the anterior and posterior lobes of the pituitary, between the interstitial secretion of the ovary and that of the follicle apparatus, and in all probability will some day find the following explanation: Many of these internal glands secrete more than one element, each of these elements acting directly on certain structures, or nerves, or nerve ends, and having definite stimulating, trophic, or inhibiting functions. On the other hand, such of the gland elements as we know have a varying selective action according as they act on the bones, or the muscles, or the mucous membranes, or the musculature of the hollow viscera, or on certain nerves, or on the branches of certain nerves, or on the nerve ends. With either of these ideas in mind it is easy to picture all of the functions of the body carried out by the proper relation between stimulation and inhibition.

The selective activity of the endocrine products is easy to understand. Pathology has taught us much that leads to a proper understanding of physiology. In anterior poliomyelitis there is a selective action by the toxins on certain cells in the anterior horns; in locomotor ataxia there is a selective action of the toxin on the posterior column of the spinal cord; in shingles, some toxin acts on definite nerve roots. Hence it is no stretch of the imagination to conclude that nature has conferred on the ductless glands of the human body control over practically all its functions by giving to certain elements definite, specific activities.

Whatever sequelæ and complications the internist many find in influenza at the present time, the gynecologist and obstetrician has his attention fixed very decidedly on the endometrium, whether the patient is pregnant or not. I have had several patients, not pregnant, whose menstruation came on early and excessively shortly after an attack of influenza. Several pregnant patients have spotted and stained after slight attacks of influenza. One patient miscarried in the fifth month after a pneumonia; and another, after a slight attack with no pneumonic process.

The uterus is a lymphoid tissue, and I have come

to the conclusion that the uterine mucosa by its sensitiveness to the influenza toxin proves that the disease affects markedly the thymico-lymphatic system, and that when this barrier is passed the toxins act most disastrously on the pituitary and adrenal structures; so that the specialist in diseases of women may readily come to the conclusion that the influenza toxin—from his standpoint, at least—has, if not a selective action on the endometrium at least a predilection in that direction.

Trophic control over development and growth, and the maintenance of the normal state in the various structures of the body is vested in the ductless glands, and immunity or lack of immunity to various diseases is more than probably one of the most direct evidences of their important functions. Normal relation of these gland elements, whether their action is exerted directly on the tissues in question or upon the structures through the medium of the nerves and nerve ends, preserves a proper state of growth; and the lack of trophic care or an overstimulation of tissue cells and epithelial cells must lead to abnormal growth. In this view of the question, I believe will eventually be found the cause of benign and malignant growths of the body.

Dermoid cysts represent the growth of embryonic elements displaced in clefts during the development of the embryo, or of such elements—located, for instance, in the ovary—which at first dormant, are not inhibited and are at some later period stimulated to growth. That many of these cells have lain dormant for years and have then taken on a growth, proves the question to be either lack of inhibitory control or overstimulation.

Chorioepithelioma is, after all, the very best evidence of lack of inhibition or over-stimulation in the mother afflicted with this condition. Certain cells of the ovum's outer layer have been retained in a uterus after a miscarriage or a full-term pregnancy, and after a few months, or even after two or three years, these develop into a malignant growth characterized by metastatic deposits carried through the blood channel. It is perfectly evident that these cells have grown either because a protective ferment or element is lacking in the individual in whose uterus these cells have developed the above mentioned growths or because an overstimulation exists which forces these cells and fosters their growth.

The uterus of every woman is the potential carrier of myoma or fibroma. If she bears children and the uterus is engaged in carrying out the functions for which it is prepared by the action of the ovary, thyroid, pituitary, and other glands, there is certainly less likelihood of fibroma or myoma developing through hyperpituitarism than if she have no children.

For instance, we have the pituitary gland, especially the posterior lobe, which is often hypoactive. We know that a woman grows stout, menstruates less and less, and has an atrophy of the uterus and ovaries, often permanent, when the posterior lobe underacts markedly for a long period of time, this condition being called dystrophia adiposogenitalis. Therefore, on the basis of both theory and practice, we know what hyperactivity of this lobe should produce. It overstimulates both ovary and uterus, and in all probability is the cause of fibromata and myomata of the uterus and of the condition known as fibrosis uteri, in which condition, at operation, the ovaries are found large and hyperplastic and certainly are overactive.

There are so many manifestations of hyperpituitarism that are probable but not yet definitely settled, that it may seem almost theoretical to mention some of these states. For instance, many cases of dysmenorrhea are cases of hyperactivity of the pituitary lobe at the menstrual crisis. Again, I recently operated on a patient suffering from what was diagnosed as prolapse of the uterus, the cervix appearing at the vulva. She had had no children, in fact, was unmarried. I diagnosed it as a case of elongatio colli, with retroflexed uterus. The uterus was more than twice the normal length. I amputated the cervix at the level of the internal os, and the amputated cervix was certainly over three inches long. In talking on this case during this step of the operation, I stated that this condition, as well as fibroids and fibrosis of the uterus, was an evidence of some hyperactivity of the posterior lobe. When I opened this patient's abdomen in order to correct the retroflexion, I found a large uterus with a fibroid the size of a walnut on the fundus. This, of course, might have been, unless my theory is right, simply a coincidence, but I believe the above expressed view to be the correct one.

I wonder if the following case is to be viewed as merely a coincidence: Patient, married six years, 2-para, menstruates every twenty-eight days, duration four to seven days, large in amount. Her premenstrual phenomena are sleeplessness and frequency of bowel movements, which have become more marked in the last year. Her blood pressure was 140, and my diagnosis was hyperpituitarism, combined possibly with hyperthyroidism. In asking her whether she had nursed her second baby, born two years ago, she replied, no, because the baby had suffered from pyloric spasm and had been operated upon for the same. If the whole question of heredity is, as I believe, mainly a matter of inheritance of endocrine relationship, then this hyperpituitarism in the mother and pyloric spasm is more than simple coincidence.

We know that the history of a patient's premenstrual phenomena constitutes one of the most important diagnostic aids in all gynecology, for at this period, which is a crisis, interglandular weaknesses are brought into the foreground. Many patients suffer from marked headaches at and during this period; others suffer from nausea and vomiting, and these undoubtedly represent overactivity on the part of related glands, among which the pituitary is certainly most active at menstruation.

When a patient is pregnant and the menstrual activities of the ovary, thyroid, and pituitary are nullified and held in check by the placental secretion, we have a constant struggle between these two—secretions of the mother and the secretion of the ovum—during the entire 280 odd days of pregnancy. If the placental secretion cannot hold the maternal secretions in check, the latter assert themselves and the patient has a miscarriage. This is the explanation of repeated, habitual miscarriages, and hyperpituitarism of the posterior lobe plays an important part in this condition.

Many pregnant patients are not nauseated at any time while they are carrying an ovum *in utero;* others are nauseated in varying degrees. I have frequently noted that many patients who are not nauseated are quite drowsy and sleepy. I am accustomed to tell such sleepy patients that this is a favorable sign, as nausea is not a probable annoyance from which they will suffer. This nausea and vomiting represents a reaction on the part of the system to the introduction of the placental secretion. If a stable adjustment results quickly, the nausea disappears quickly. In this readjustment, undoubtedly (in the cases which vomit and vomit decidedly), we are concerned either with a toxic influence produced by the placental extract or with an exaggerated reaction on the part of the posterior lobe, with hypersensitiveness of the gastrointestinal tract. How great a part transient forms of pyloric spasm play in this persistent nausea and vomiting remains to be decided. Those patients who are sleepy and drowsy (and these are not nauseated nor do they vomit) have the opposite condition—an underactivity of the posterior lobe.

I have always considered fibrosis to be due to hyperactivity of the ovaries. Now that we know the special relation of the pituitary to the ovary and the uterus, we realize that at the menopause period, when gland activity as it relates to the sex-structure should diminish, these glands may, on the contrary, remain active or hyperactive. This will give at the menopause period ovaries which do not regress, a uterus which is overstimulated, with the result that the patient has a menorrhagia or metrorrhagia, a large uterus, and large ovaries at a time when atrophy should be in view. Therefore, the study of any change occurring in a patient at the climacteric period (many of these changes begin years before the menopause comes on) must concern itself with the question of regression. If ovary, thyroid, and pituitary gland diminish in activity harmoniously and in the same ratio, the patient develops amenorrhea, atrophy of the genitalia, with no symptoms of hyperpituitarism, or hyperthyroidism, or hyperovarianism. If the regression is too rapid for the body needs, we have rushes, due to sudden loss of ovarian stimulus; or hypothyroidism, if the same condition takes place in the thyroid; or hypopituitarism, if the hypophysis shows the same rapid decline.

When we consider that one or other of these three glands, leaving the adrenals and other secretory structures out of consideration—may regress much more quickly or more slowly than the other two; and that various combinations of these processes may take place, we see that we may have in any patient various combinations of hyperactivity or hypoactivity which need not be permanent but which may change and fluctuate at this period, so characterized by instability that the laity have well named it "change of life." It is no rare thing to see a patient during or after the menopause suffering from alternating hyperthyroidism and hypothyroidism, and the same is true concerning the pituitary and the ovary.

In the condition, to which we have already referred, known as dystrophia adiposogenitalis, the patients are very sugar-tolerant and may be given large amounts of glucose without sugar appearing in the urine. By theory and by observation, it must of necessity be concluded that overactivity of this lobe will make the patients very slightly tolerant of sugar, and this is undoubtedly one of the important causes of glycosuria. We know the relation of the pancreas to glycosuria, but we have not, in practice, at least, given sufficient attention to the relation which the ovaries, and more especially the thyroid and the pituitary, bear either to the pancreas directly or to the sugar-forming or sugar-retaining qualities of the body. Therefore many patients with fibromata and myomata have glycosuria, many of them have tachycardia, which means either a coincident involvement of the thyroid or tachycardia from hyperpituitarism indirectly.

Whether this overactivity of the pituitary plus the overstimulation of the thyroid has anything to do with gallstones, I do not know. We do, however, observe frequent association between fibromata of the uterus, the post partum period, and stones in the gall-bladder.

In gland therapy we must realizez that it is easy to administer the extracts when any gland fails in action. We simply supply what is needed. The more difficult and eventually glorious part is to overcome the hyperaction of any gland; and this must be done by selecting those other extracts which counteract or antagonize this activity.

In searching for endocrine elements that are antagonistic to the posterior pituitary lobe, we may take these three points into consideration. Mammary gland formation and mammary gland extract certainly have the effect of diminishing menstruation, contracting the uterus, shrinking fibroids, and limiting the activity of the ovaries. We must presume that it may have the same effect upon the posterior pituitary lobe.

The thymus has the effect of controlling the activity of the gonads until the developmental age comes on, after which the thymus is supposed to regress and allow the sex arrangements to develop. We know, then, that thymus extract, if given therapeutically, will in certain cases diminish menorrhagia and metrorrhagia through action on the ovaries. It may have an effect on the posterior pituitary lobe.

When a woman is pregnant, the placental secretion inhibits the menstrual activity of the ovary, plus the thyroid and the posterior pituitary lobe. Therefore we may have in placental extract a secretion that has some controlling influence over the posterior pituitary lobe. If this be so, it should help us in the treatment of dysmenorrhea due to posterior lobe hyperactivity, and should help us in those cases of glycosuria due to the hyperactivity of the posterior hypophysis gland. I have helped, not cured, many patients suffering from dysmenorrhea, by giving placental gland extract by mouth and by hypodermic. I have had remarkable results in several cases of glycosuria at the climacterium, seeing the urine clear up and the sugar disappear by the administration of placental gland extract, with very little restriction of the diet.

We may then conclude that certain forms of glycosuria, if they be dependent on pituitary lobe hyperactivity, should react and improve if placental extract be given.

If the mammary gland and the thymus, in addition to acting on the uterus and the ovary, also inhibit the posterior lobe, they should be tried, if not in other forms of glycosuria, at least in the form of which I have just spoken. How many cases of hypertension or increased or raised blood pressure, especially those noted in women at the menopause or subsequently, are due to hyperactivity of the posterior pituitary lobe remains to be decided. At this menopause or climacteric period, when the activity of the ovaries is supposed to diminish, when there should be and often is a regression in activity on the part of the thyroid, we expect that the posterior lobe will regress too, since the patient's sex activity is no longer of importance. This regression, however, often fails to take place.

My purpose in setting down these views is to direct attention to the possible value of thymus extract, mammary extract, and especially placental extract in those conditions due to hyperpituitarism, among which are certain cases of glycosuria.

The influence and activity of the endocrine glands are evidenced by the stimuli and the changes produced on the body, the nervous system, and the psyche. In some instances abnormalities of gland activity are characterized by physical stigmata; in others, by changes in the activity of organs whose function is continually under the influence of the nervous system; in still other individuals, abnormalities of gland activity are evidenced by changes in the psyche; and in some, combinations of various forms are in evidence. If we can fathom and understand what the ductless glands have done to an individual up to the stage of puberty, we may appreciate why the individual develops as he does; if we can reason out what these ductless glands have done to that individual from puberty up, we may understand why that individual is what he is and why so many changes have occurred in him; if we can eventually fathom what hereditary or accidental and intercurrent factors are responsible for his gland changes and for the consequent systemic, mental, and psychic factors, then medicine will have achieved a glorious work.

134 West Eighty-seventh Street.

TUBERCULOUS BACTERIEMIA AND MASSIVE EXOGENOUS TUBERCULOUS INFECTION IN MAN.

By GEORGE E. BUSHNELL,

WASHINGTON, D. C.

COLONEL M. C., U. S. ARMY, RETIRED.

Much has been written upon the subject of tuberculous bacteriemia in man and very widely varying experimental results have been reported. Some investigators have found tubercle bacilli present in a very large percentage of cases, others find them but rarely under similar conditions. The antiformin method of concentration of the bacilli of Uhlenhuth and its various modifications has been attacked and the claim has been made that the stained objects seen were not tubercle bacilli but artefacts. It has also been claimed that the acid fast bacilli demonstrated were not tubercle bacilli but saprophytes which grow in distilled water or in the water taps, or circulate normally in the blood of rabbits, also that the lesions found in animal experiment are not always tubercles, etc. Liebermeister[1] has made a series of investigations with the use of Schnitter's modification of the antiformin method in which he employed extraordinary precautions to avoid these sources of error and reached the following results: In fifteen cases of open pulmonary tuberculosis he found acid fast bacilli in every case, in thirteen cases of closed pulmonary tuberculosis in eleven cases. Bacmeister is not willing to admit that the bacilli thus found are pathogenic. While it must be conceded that some of the investigators who find tubercle bacilli present almost universally in the blood have not always exercised due caution in guarding against error; on the other hand the methods of the critics themselves are also sometimes open to criticism, as for example the choice of the rabbit for inoculation with human tubercle bacilli, it being well known that the distinction between human and bovine tubercle bacilli is usually made on the assumption that human tubercle bacilli are not pathogenic for rabbits. Fortunately we can spare ourselves the task of a full review of this most perplexed subject, for if necessary we can afford to give up the results obtained by the antiformin method and rely solely upon those of the inoculation of animals. These give unquestionably positive results. Bacmeister,[2] the severest critic, concedes that the animal experiments of Liebermeister withstand criticism and states that to Liebermeister is due the credit of having proved that virulent tubercle bacilli circulate in the blood much more frequently than has hitherto been supposed. We will therefore confine ourselves to his work. In one hundred cases of tuberculosis Liebermeister obtained forty positive results. He had six positive cases in persons without clinically demonstrable tuberculosis, the total number of cases examined not being stated. In his judgment a positive result proves the presence of tubercle bacilli in the blood, but a negative result does not necessarily prove their absence. In other words, animal inoculation is a reliable test, but it is not sufficiently sensitive. Liebermeister used three to six c.c. of blood in his injections and found that, even in cases of severest tuberculosis, of three guinea pigs injected with the same blood only one or two fell sick, which is to be explained, he thinks, by the rarity of the organisms in the blood, their death, and the presence of immunizing substances in the blood. Now if we suppose that 6 c.c. are used as injection and that six tubercle bacilli constitute the minimum infecting dose, as has been stated by another authority, then assuming the volume of the blood to be 5000 c.c., since the blood taken from an arm vein remote from probable tuberculous lesions should fairly represent the general condition of the blood as respects the presence of tubercle bacilli, we should have, as the minimum concentration of tubercle bacilli which would infect, one tubercle bacillus per cubic centimeter, or 5000 tubercle bacilli circulating at one time in the blood, a very respectable bacteremia indeed. Calmette,[3] using the method of direct transfusion of blood from tuberculous to healthy guinea pigs, states that the results proved conclusively that even in mild tuberculous infection the blood almost always contains tubercle bacilli.

It would appear then that the reason why positive results are not obtained in a larger percentage of cases of tuberculosis by the inoculation of their blood into animals is rather that an insufficient amount of blood is employed under the ordinary conditions of experiment than that tubercle bacilli are absent. But it is not necessary to claim so much. If tubercle bacilli circulate in the blood of the consumptive even occasionally during the localization of the disease to the lungs—often a period of many years—the fact that a generalized miliary tuberculosis does not result can only be explained by an immunity to the presence of the tubercle bacillus at parts remote from existing lesions which is fairly comparable with the immunity observed in animal experiment.[4] The tuberculous guinea pig suffers no harm from injected tubercle bacilli. The consumptive patient suffers no harm from the tubercle bacilli which escape from his lesions. He suffers no harm, that is, during the period of localization. Just before death a generalized miliary tuberculosis often develops in the chronic case which has resisted hematogenous extensions of the disease for many years. The dissemination of tubercle bacilli at the close of life may be somewhat greater than in the previous course of the disease, but the difference is one of degree only. If the presence of the tubercle bacillus in the blood meant miliary tuberculosis the patient would have died long before. The reason that tubercle bacilli circulated harmlessly during a long time was that they were prevented from colonizing by the processes of immunity. When the vital powers fail rapidly and cachexia becomes marked the cells no longer furnish the protective substances, and general infection takes place. This view is corroborated by the observations of Fischer,[5] who saw reactivation of tuberculosis from old fibrous glands in the cachexia of cancer, and other wasting diseases, active tuberculosis elsewhere in the body being absent.

We are warranted in saying that under ordinary conditions the consumptive is immune to tubercle bacilli which circulate in his blood. It remains to inquire what the resistance of the human body already infected with tuberculosis is to massive injections from without. There is naturally less evidence than has been obtained by experimentation upon animals, but sufficient when properly analyzed to prove that here also man does not differ in his resistance from the tuberculous animal of experiment.

Kleine[6] gives the following facts as to inoculation with bovine tubercle bacilli: In Königsberg half a dozen patients with cancer were inoculated subcutaneously with bovine tubercle bacilli which had been shown to be virulent for rabbits. Abscesses foci appeared locally, containing at first tubercle bacilli in abundance. These foci healed gradually. The patients lived from some months to a year. At their autopsy v. Baumgarten found small scars at the point of inoculation which were free from tubercle and tubercle bacilli. There was no trace of tuberculosis in the neighboring glands nor in the internal organs. Carl Spengler injected himself with 0.5 mg. of a suspension of living bovine tubercle bacilli subcutaneously. An abscess formed and broke down in a month. A few tubercle bacilli were present. The ulceration lasted eight months, then closed, leaving a pigmented scar. The regional glands were never even transitorily painful or swollen. The infection remained completely localized and gave the impression of being entirely benign. Klemperer, after twice rubbing a suspension of bovine tubercle bacilli into shallow cuts without producing the slightest local reaction, injected 0.25 c.c. of a suspension of virulent bovine tubercle bacilli subcutaneously into his left arm. At the point of injection there was a lively inflammation without fever, which declined in a few days. After two weeks there remained a painless roundish tumor of about walnut size, which finally, as a small chronic inflammatory infiltration of the subcutaneous tissues, was extirpated after ten months. Nothing characteristic of tuberculosis was found. Of the regional glands only the cubital of the left elbow was swollen for a short time. Klemperer injected into a colleague first 0.25 c.c. then 0.5 c.c. of a suspension of bovine tubercle bacilli into the left arm subcutaneously. As notwithstanding local symptoms (not described) the general condition was relatively good and the weight even increased, injections were continued for therapeutic reasons. From March 26 to the middle of May Klemperer made twelve injections of 0.25 c.c. at one-half week intervals into the sides of the abdomen. These were at first borne excellently. There was only slight, sometimes no fever, no swelling, no pain. Only on the right side where several injections were placed close together was there marked infiltration and an abscess finally formed which was some time in healing. This was ascribed by Klemperer to the nearness of the injections to one another. Klemperer made in all fifty-four inoculations on six patients. These were borne well. The local disturbances were slight. Four times there were abscesses which healed more or less rapidly. There were no general disturbances in any case. The patients even reported subjective improvement and gain in weight.

Occasionally the accidents of the laboratory give an opportunity for massive infections. A workman twenty-eight years of age, in consequence of the breaking of a 10-liter bottle, spilled the fluid containing enormous quantities of living tubercle bacilli over his clothing. He was healthy at the time of this accident, but two years later pains appeared in the left chest and pulmonary tuberculosis became manifest. A sister of the workman having fallen sick with pulmonary tuberculosis nine years before, a family tendency to the disease was assumed. A connection between the accident and the later disease of the lungs could not be established. His claim for damages was rejected by the courts.[7]

A similar instance is known in which a workman dropped and broke a bottle containing dry tubercle bacilli, but received no harm therefrom.

A quack in Brooklyn advertised a cure for consumption. He procured a tuberculous cow and induced a woman to submit to inoculation into the neck of virus obtained directly from the diseased animal, an examination having previously been made by three physicians who certified that she was entirely free of tuberculosis. In a short time—too short a time—the claim was made that she had become tuberculous, and this was also certified to by physicians. The advertised treatment was then

administered and in a remarkably short time she was declared to have quite recovered from the disease. The woman not long afterward committed suicide, and the autopsy discovered no evidences whatever of tuberculosis.[8]

Butchers frequently receive infection with bovine tuberculosis in cuts upon their hands, and similarly the "anatomical wart" of the pathologist is due to infection at human autopsies. In both cases the infection remains local and harmless, although on account of its location it is exposed to frequent irritation and may be slow in healing.

The greater part of the foregoing evidence relates to infection with bovine tubercle bacilli. They were used in the experimental inoculations in the belief that they are relatively innocuous to man. This belief has its origin in the observation that the milk of tuberculous cows appears to be harmless for the human adult. But recent investigations have shown that bovine tuberculosis is not uncommon in children, the difference between them and adults being manifestly due to the fact that the child is not immunized against tuberculosis, whether of bovine or human origin, but the adult is. The bovine and human strains of the tubercle bacillus are closely allied, in fact there is some evidence which goes to show that the bovine bacillus undergoes changes during a long stay in the body of man which assimilates its characteristics to those of the human bacillus, and it is hard to explain the fact that bovine tubercle bacilli are common in children, but rare in adults, on any other hypothesis than the assumption that bovine bacilli in time practically become human bacilli.

If this is the case the evidence above cited abundantly proves that the man who has received a primary infection with tubercle bacilli becomes thereby immunized not only to the bacilli from his own lesions, but also to the massive introduction of bacilli from without. That this should prove to be true is to be expected from the manifest analogies which exist between the tuberculosis of man and that of animals. The facts derived from the experimental inoculation of animals may safely be employed to explain the phenomena of human tuberculosis.

REFERENCES.

1. *Med. Klinik*, 25, 1912 p. 1018.
2. *Deutsch. med. Wochenschr.*, 50, 1912.
3. *Presse Méd.*, Feb. 7, 1914.
4. Medical Record, Jan. 18, 1919.
5. *Deutsches Archiv. f. klin Med.*, Vol. 99.
6. *Zeitschr. f. Hyg.*, Vol. 56, 1906.
7. *Internat. Zentralbl. f. Tub*, Vol. VII, 12 p. 83.
8. *Turf, Field and Farm*, Aug. 30, 1902, p. 833.

TUMORS OF THE BLOOD.

By E. H. P. Ward, M.D.,

White Plains, N. Y.

In an article on tumors published in the *New York State Journal of Medicine* for March, 1907, I advanced the view that a tumor results from the arrested development of one or more cells of the tissue in which the tumor originates and of which it is characteristic; this arrest of development resulting in an atavistic reversion whereby the cell or cells affected, and those resulting from their multiplication, fail to perform their normal functions in the tissue and start off on a more individualistic course marked by more rapid multiplication of a more or less irregular type, tending toward degeneration, and reverting to some of the qualities of the ancestral unicellular organism, such as being able to live a more or less detached life apart from their proper tissue. As a secondary feature, the supporting and nourishing tissues are led astray to a greater or less extent and try to keep pace with the growth of the aberrant cells. And the pathological results of tumors on the organism are due to: (1) the failure of the tumor cells to perform their proper functions; (2) the mechanical effects of the original tumor mass and its metastases; and (3) the production of toxins and other effects due to the altered metabolism and degeneration of the tumor cells and their supporting tissues.

We are, of course, familiar with the occurrence of arrested development in entire tissues and organs, and in some cases very striking atavistic reversions result—as, for example, hare-lip, cleft-palate, persistence of branchial clefts, *spina bifida*, patent *foramen ovale*, and others as numerous as the tissues and organs of the body. It has been a long and complicated process of development from the amoeba to man, and no doubt many were the failures by the wayside. Existing forms of metazoa represent the survivors still plodding along on life's journey, we know not to what goal. But each individual organism in its development has, more or less completely, to recapitulate the life-history of its kind, from the single cell to the mature organism, adding what new features it may; and it is only to be expected that many failures in development will result, not only in organs and tissues but in individual cells as well. In fact, if we did not find the answer at hand in the form of tumors, we might well question why the development of individual cells in tissues did not sometimes become arrested, and speculate as to what might happen if it did.

As to the *cause* of arrested development, whether in single cells, organs, individuals, or races, it may be some injurious influence of chemical, mechanical, or other nature that we can recognize, or it may just happen. We do not know what life is or why organisms and their cells develop at all; how then shall we be able always to say why they fail to develop? Does an ignorant savage, seeing for the first time an automobile, broken down by the roadside, know what caused it to stop, when he has not the remotest conception of what ever made it go? No more can we comprehend the underlying strata of life, which crop up in unexpected places to add to the roughness of our journey.

But after writing the article referred to above, and in thinking further on the subject of tumors, it occurred to me that if a tumor is due to the arrested development of a cell, then each type of cell in the organism ought to have its characteristic tumor. And, of course, there are recognized tumors of nearly all the tissues of the body—of all, in fact, except the blood-forming tissues. But why should we not have cases of arrested development of cells in the blood-forming tissues, giving rise to conditions analogous to those in recognized tumors? It required but a rapid survey of the pathology and clinical manifestations of the mysterious

anemias to recognize at a glance the analogy of the principle ones among them to the recognized tumors.

We do have tumors of the blood-forming tissues in the following diseases: (1) *pernicious anemia*, where the erythoblastic tissues start to proliferate, and metastases occur to the marrow of the long bones and the lymph glands; (2) *myeloid leukemia* (the classification and terminology are taken from Osler's "Practice of Medicine," edition of 1916), where the tumor process starts in the bone-marrow and metastasizes to the lymph glands, spleen, and other organs of the body in typical tumor fashion; (3) *lymphoid leukemia*, where the proliferation starts in the lymph glands and metastasizes to the skin, etc., and in the special form of *chloroma*, to the skull, orbit, long bones, and viscera generally; (4) *Hodgkin's disease*, where also the process starts in the lymph glands and metastases occur to the spleen, long bones, liver, kidneys, intestines, tonsils, etc.; and (5) possibly other less definite forms of anemia. The *aplastic* type of pernicious anemia presents an interesting contrast, as in this case we have a simple atrophy of the blood-forming tissues as compared with the orgy of irregular and temporarily exuberant cell proliferation which in these other anemias precedes the final degeneration and loss of function, and tends to make the disease longer drawn out. Consider the many irregular types of cell in these anemias, how the growths in some of the leukemias infiltrate neighboring tissues and form metastases; and compare the various types of giant cell with the giant cells of sarcoma, the evidences of toxic action on the system with the tumor cachexias, and the acute form of lymphoid leukemia with the malignant tumors and the intermissions of other forms with the quiescent stages of tumors; also the effects of *x*-ray treatment on tumors and on some of the leukemias. Cabot, writing in Osler's "System of Medicine," states that the *incidence* of certain of the leukemias resembles that of tumors; and, in fact, some investigators have considered some of the leukemias as related to myeloma and sarcoma, and Hodgkin's disease has been confused with lymphosarcoma. But why these mysterious anemias have not all been recognized finally and conclusively as *tumors* of the *blood-forming tissues* is more than I can comprehend, after ance regarding them from this point of view. I suppose the picture presented by the blood itself, with the strikingly irregular shape and structure of the cells, has diverted attention from the true nature of the disease, as in no other tumors do we find the cells swimming around loose in the blood, at least not in noticeable numbers. I believe that it can be necessary only to focus the light of research on these anemias from this angle to get them assigned to their proper place in medicine—with the tumors.

Alas, how little that term "tumor" conveys of the many characteristics and the intricate mechanism of these cellular aberrations If these anemias are really identical with tumors in their nature, they throw an interesting side light on the nature of the tumor process, tending to support my belief that this process is fundamentally an arrest of cell development: for the many *nucleated* red corpuscles in the blood characteristic of these anemias, and especially of pernicious anemia where the red cells are particularly concerned, are obvious cases of arrested cellular development; and the embryonic form of the erythroblastic neoplasms in the marrow of the long bones in this anemia is a case of reversion resulting from arrest of development. Let me make clear just what I mean by arrested development of a cell and reversion. The cells in the lowest strata of epithelial tissues, the cells of gland tissues and connective tissues, and in a general way all the living cells of the body, including, of course, those of the blood-cell-forming tissues, are either constantly multiplying to replace wear and tear, or stand ready to multiply to repair an injury. Of course, this is the case with some tissues more than with others, the muscle and nerve cells, for example, being so highly specialized that they do not retain much if any power of multiplication and regeneration (except from within the cell), and it is significant that tumors occur but rarely in these tissues and are relatively unimportant (unless, indeed, the arrested development, with atavistic reversion, characteristic of some of the insanities be considered analogous to tumors, the changes taking place *within* the nerve cells and being manifested principally by derangement of *function* rather than of *form* and manner of growth; thus senile dementia being essentially similar to the cancer of old age). But in the more actively regenerating tissues the cells either constantly multiply and develop their full tissue functions and characteristics in a highly specialized way, and in close coordination with both their fellow cells of the same tissue, and also with their supporting and nourishing tissues; or else stand in reserve, with their power of multiplication and coordinated development latent, ready to exercise these powers in response to an injury. And if they are overworked by continued irritation, or perhaps injured by chemical, mechanical, or other action (including that of parasites as a possibility), they lose their powers of development into highly specialized normal cells with a coordinated function and revert to a condition that is more primitive or atavistic, characterized by multiplication more rapid and less coordinated with the surrounding normal cells of their tissue, and by their ability to live and multiply when removed from their tissue and transplanted to another in metastasis or in experimental transplantation; and their irregular shapes and sizes and karyokinetic figures and tendency to degeneration show that this reversion is pathological. We must remember that each cell in the body is descended from a unicellular organism, similar perhaps to an ameba; and how much of the ancestral potentialities for living an independent existence remain as a foundation on which are built up the more specialized potentialities for living a highly organized community life with the other cells in the tissues that go to make up the organism, we do not know. That they must retain some of these primitive ancestral qualities we know, because they exhibit them in tumors and in the fact that tissue cells can be kept alive apart from the body, *in vitro*. That they retain all of them is unlikely. Apparently, the latent cells of the tissues stand somewhere between the ancestral free-living unicellular organism and the fully specialized mature tissue cell. They are prob-

ably fully differentiated as cells of their respective tissues, because the cells of tumors can practically always be recognized as belonging to the tissues from which they originate; they are not "embryonic" in the sense of being entirely undifferentiated, like the germ cells; and in an epithelium, for instance, the lower layer cells that regenerate the tissue are obviously not mature epithelial or gland cells. As they move forward from their latent position in reserve to take their places as fully developed cells they undergo a development the stages of which we can in some cases actually see, as, for instance, in a stratified epithelium, losing, no doubt, some or all of their still persisting primitive potentialities and acquiring more specialized ones. Now, if at this time, their development is arrested—if the intracellular mechanism fails, due perhaps to being overworked, or to some mechanical or other injurious influence (it might be just a primary or "accidental" failure of the intracellular mechanism of a single cell, in which case the tumor would consist of the descendants of a single cell, as no doubt some tumors do, as is suggested by the wedge shape of certain epithelial tumors)—they are set loose in a half-baked condition. They are not fully enough developed to fulfill their specialized functions as mature tissue cells, nor do they retain enough of their primitive nature to be able to live as normal unicellular organisms. But they undergo a partial reversion to the atavistic free-living condition, with the results that we see in tumor cells; and their failure to adapt themselves to this mode of life completely is shown by their pathological irregularities of shape and structure and manner of division, and by their degeneration. It may seem strange at first sight that an arrest of cellular development can result in more rapid multiplication of a cell, but when we consider that the normal development of the tissue cell consists essentially in the loss of its primitive generalized powers (and that the power of multiplication is one of the chief among these), and the conversion of these primitive powers into or their replacement by other powers of a more highly specialized nature (the red blood cell, for example, loses even its nucleus), then we realize that more rapid multiplication is to be expected as a result of arrested cellular development, at least until the pathological factors result in degeneration.

North Street and Ward's Lane.

THE ETIOLOGY AND TREATMENT OF "SPANISH INFLUENZA"

By Captain OWEN PAGET, M.D., A.A.M.C.,

Montevideo Camp (Australian), Weymouth, England.

So many theories as to the origin of this disease have been put forward that it may be as well to propose a fresh hypothesis, even though its consideration is still in the early stages. I am the more inclined to do this as such hypothesis adds confirmatory evidence to my theories on tuberculosis, and, in addition, supplies an efficient method of treatment.

In charge here of the tuberculosis wards, I had during the last epidemic of influenzal pneumonia a ward full of the latter cases, in which I was much interested.

My treatment was guided by the recommendations in the medical journals and by my personal experience, and my results were as bad as in other centers. In other words, the patient recovered as a result of his own vitality, which was very little, if at all, enhanced by the treatment he received. Clinically, the seats of infection were—

(1) The tonsils, (2) the lungs, (3) both pharynx and lungs. A case infected in the pharynx alone often recovered within 48 hours, under aspirin.

The expressions of the disease in the lungs were various. Perhaps bronchopneumonia predominated, but true lobar pneumonias and pleurisies occurred.

A very common phenomenon was the absence of physical signs, especially in the early stages. This feature of pneumonia I had noticed many years previously in epidemics of pneumonia occurring in Australia concomitantly with our dust storms. The virulence of this Australian influenzal pneumonia is not high, probably on account of the low vitality of bacterial life there, due to the heat and sunshine and the high vitality of the people, as the result of an open-air life and quantities of nourishing food, especially meat.

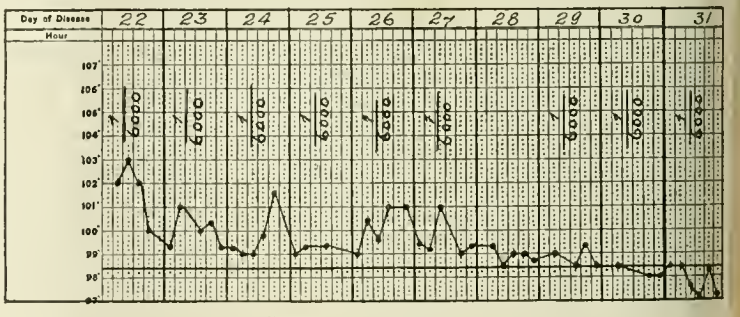


Chart 1.—Private K.

The mortality in these Australian epidemics is quite insignificant, and my researches into the matter were little more than observations. I formulated, however, to myself the possibility that they were epidemics of tuberculosis, and was influenced in this direction by the long subsequent loss of tone in many of the cases.

In spite of the frequency of hemoptysis, the intense virulence of "Spanish influenza" led my mind away from tuberculosis, and I waited patiently for some dictum from the bacteriologists as to what was the invading organism. During this period of vacillation I noticed one point of great interest, namely, that my cases under treatment for tuberculosis were apparently immunized against the influenza. The wards were contiguous, and the easy nature of the Australian made the probabilities of contagion certain. Instead, however, of my tuberculosis patients becoming seriously ill, the few cases affected were of so slight a character as to require at most 48 hours rest in bed; and this at a time when influenza was raging in the camp and attacking the sturdiest with the utmost virulence.

One other point was the complete absence of coryza in patients admitted to hospital with influenza. A cold in the head was apparently some protection against an inflammation of the lung.

Finally, when on leave, I interviewed Messrs.

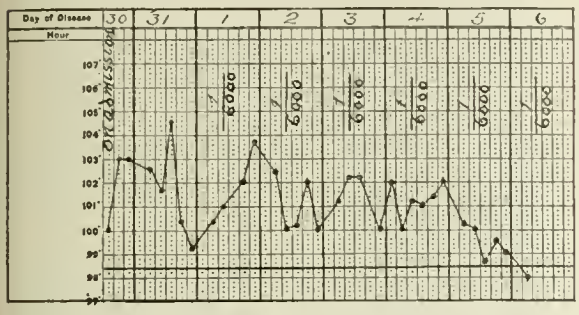


CHART 2.—Private S.

Parke, Davis & Co., with the request that they would prepare me bacillary emulsions of pneumococci, Pfeiffer's bacillus and *Micrococcus catarrhalis* on the same lines as tuberculin B. E. is prepared. This they kindly promised to do, but informed me that it would have to be done in America and that it might be two months or more before I could obtain delivery.

My object in seeking these preparations was to employ them as nasal insufflations on the ethmoid, in the same way as tuberculin B. E. is used by me in the treatment of tuberculosis. In the meantime one of my patients developed a typical hectic temperature, with absence of resolution in the chest. Major Barton, who was called in to see the case, explored with a needle in many places, but could find no pus, and it seemed very probable that the case was one of tuberculosis following influenza. This case (Sergt. H.) was treated by my methods of insufflation of tuberculin B. E. with immediate success. Subsequently tubercle bacilli were found in his sputum in large numbers.

I was so impressed by the result in this case, that the patient (Pte. C.) in the next bed, who was in a condition of partial resolution, was placed under the same treatment and with the same happy result. Unfortunately his sputum was not examined for tubercle bacilli before it had dried up.

My interest aroused by what appeared to be very brilliant results, I still merely regarded these cases as tuberculosis, subsequent on influenza, and I con-

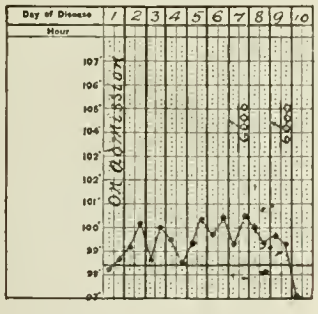


CHART 3.—Private T.

tinued to treat other cases on general lines, determined, however, to employ my own methods if the cases developed seriously. The next case to be treated was later on handed over to Major Barton as an empyema.

By this time I was beginning to suspect that "Spanish influenza" was in reality acute tuberculosis, and I therefore selected two cases with the disease in an acute sthenic form, and both of them patients of robust physique, and therefore not

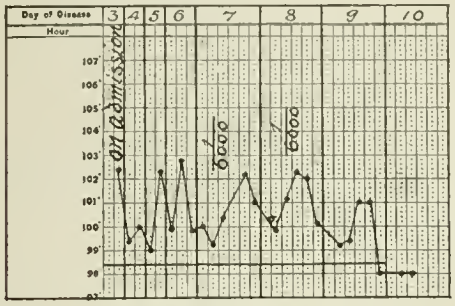


CHART 4.—Private K.

likely to be suffering from previous tuberculous lesions. These cases (Pte. K. and Pte. S.) show in a remarkable manner the beneficial effects of insufflations. Pte. K.'s sputum was found on examination to be full of tubercle bacilli.

In the meantime, Capt. Black, who was now in charge of most of the influenza cases, had sent a patient (Pte. G.) to the tuberculosis ward as a positive case. The effect of insufflations on this patient's temperature was not so well marked, as I intentionally gave him a larger dose, namely 1/500 mgm., than was necessary. To this the little rise in temperature was probably due, although his general condition was distinctly improved. This giving of a larger dose than is directly beneficial is sometimes employed by me to estimate the virulence of the attack. Though it is harmless, when carefully employed, I do not recommend it as a common procedure.

A matter which may be remarked on at this juncture is the extraordinary variation in virulence of tuberculin preparations. They require a true standardization.

During Capt. Black's absence on leave I took over his influenza wards for a couple of days. Selecting the three worst cases (Ptes. T., K., and R.), I placed them on insufflations, with results as shown on the accompanying charts, 3, 4 and 5.

On studying my cases, the mind tends to form the following hypotheses:

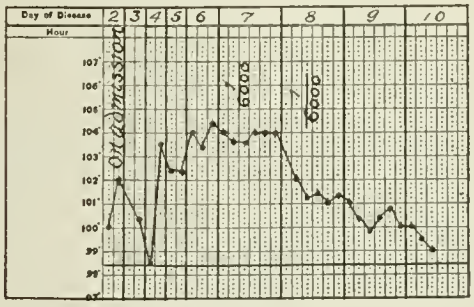


CHART 5.—Private R.

(1) Spanish influenza easily awakens latent tuberculosis. (2) Spanish influenza is an epidemic of acute tuberculosis. Whichever, if either, of these hypotheses is correct, I have no hesitation in saying that insufflations of tuberculin B. E. are a

most potent remedy against this disease, and one I shall always employ in cases which do not show resolution in 48 hours.

It has to be borne in mind that possibly the production of antibody in the ethmoid sinuses can be stimulated by tuberculin bacillary emulsion against some entirely different organism. Conflicting this argument is the abundance of tubercle bacilli found in some of my cases.

A brief résumé of the cases mentioned:

Sgt. H.—On admission, headaches, shivering, and cough. Developed pneumonia right upper lobe; later on right base also affected. Tubercle bacilli in sputum.

Pte. C.—Pneumonia left base; later, pneumonia right base. Nov. 16 aspirated 28 oz. left side; Nov. 30 aspirated 30 oz. same side; Nov. 26, dulness left side much diminished. No sputum for examination.

Pte. G.—Chest clear. No physical signs. Admitted with headache, pains in legs, cough. Tubercle bacilli in sputum.

Pte. K.—Pharyngitis. Scattered crepitations in chest, but no definite physical signs. Tubercle bacilli in sputum.

Pte. S.—Weak breath sounds and crepitations at bases. Free hemoptysis.

Ptes. R., T., and K.—Spanish influenza.

SEBORRHEIC ECZEMA OF THE LOWER LIP, WITH DEEP CENTRAL CRACKING.

By DOUGLASS W. MONTGOMERY, M.D.,

AND

GEORGE D. CULVER, M.D.,

SAN FRANCISCO, CAL.

On June 29, 1918, a stenographer, twenty-four years of age, called on us on account of an affection of the lower lip.

She said that a crack had appeared in it in the present situation eight years previously, and had never perfectly healed.

There was present a deep crack exactly in the median line of the red of the lower lip. This crack extended through the mucous membrane and invaded the cutaneous portion of the lip for a further couple of millimeters. It had rolled edges, but no induration indicating malignancy could be made out. There was scaliness along the whole exposed mucous membrane of the lip just above the mucocutaneous border. The lesion was most annoying. The crack was painful when open, and it would crack open on the least stretching of the lip, as in laughing, so that the patient was constrained to hold the mouth in a peculiar way in order to avoid this accident. This caused a disagreeable alteration of the expression of the whole countenance. It also gave a slightly affected tone to her speech through interference with pronunciation.

The patient was taking too much sugar and too much milk fat, and her occupation as a stenographer caused her to have a meager oxygen intake. She therefore did not burn well these carbohydrates and milk fats, and consequently had a flatulent dyspepsia, which would naturally increase the delicacy of her mucous membranes, and render them more susceptible to infections and to lesions such as cracking.

She slept restlessly, was under weight, and although only twenty-four years of age was rapidly growing gray. She was not constipated, an unusual circumstance with stenographers.

It was concluded that either *x*-rays or radium, because of their action on seborrhoids and on deep, indurative, inflammatory processes, offered the best means of treatment. As the rays of radium are only about half the wave length of *x*-rays, and much more deeply penetrative, it was concluded to use them in preference to *x*-rays. It was also concluded to shield very heavily in order to exclude the longer wave lengths and to secure the deeper action with less superficial reaction.

A normal plaque containing 11 mgm. of radium substance was screened with brass 0.30, aluminum 0.01, and one layer of writing paper, and held in place for half an hour.

A salve was prepared consisting of:

℞ Liq. alumini acetici.....mx
Lanolini
Cerat. simp. āā.....℥ ss.
M., Sig: Apply frequently.

General hygienic and medicinal measures were also taken to improve her health and to increase her resistance, for it may be confidently assumed that these cracks are always infected with streptococci.

By August 13, 1918, the lip was entirely healed, leaving a slight scar in the skin just below the mucous membrane, where the crack had invaded the skin. The expression of guarded tension had not, however, yet left the mouth. Another application of the radium was made, screened in the same way and applied for the same length of time.

By October 14, 1918, the expression of the mouth was normal, and the healing appeared to be perfect.

On the date of this report, February 11, 1919, seven months after the patient first consulted us, and about six months after complete healing, a small scar is still visible where the original crack was, but there are no other objective or subjective symptoms of her trouble.

This seems to us an excellent example of the beneficial effects of radium in these obdurate cases, which are also so dangerous because of their threat of epithelioma.

323 Geary Street.

Grippophobia.—Anglade relates the case of a woman of 40 who developed a phobia concerning the grippe against which she could not possibly react. Despite this fact, the woman had previously shown courage in nursing children with diphtheria. For the past three months or during the period of the epidemic in her vicinity she had no other thought than the existence of the latter and was constantly gargling her throat and spraying her nose. She would not allow any one to approach her. She recovered her mental state, probably after the passage of the epidemic, but it is very likely that it will return with the next outbreak of the same affection, as recurrence of this type has been noted in such cases. Verger stated that nosophobia was apt to be aroused by the pandemic and cited a case in which a case of grippophobia developed in a woman who had once suffered from phthisiophobia. She was a shopkeeper and actually closed her shop for the period of the influenza. Anglade also cited a case of extreme lyssophobia in which the woman finally passed into a state of melancholy with crises of delirium.—*Journal de Médecine de Bordeaux.*

Medicolegal Notes.

Unprofessional Conduct in Prescribing Drugs.—In a proceeding at the instance of the Rhode Island Board of Health for the revocation of a license to practise medicine (which was previously before the court in Knoop v. State Board, 102 atl. 609) twelve witnesses were produced by the State, the majority of whom testified that they had obtained numerous prescriptions for morphine and cocaine from the defendant; that no physical examination of any kind was made by the doctor before prescribing the desired drug; that they stated the amount of morphine which they were accustomed to use, and upon payment of the fee charged they were given a prescription to start with, usually for 60 grains, and were told that they must go for as long a time as possible before returning for another prescription, and that the amount of the prescription would be reduced each time a new one was called for. The wife of one patient was a robust, healthy woman, who did not use drugs at all, but, acting by direction of her husband, she became a patient of the defendant and secured a number of prescriptions of morphine, nominally for her own use, but in reality for the use of her husband and a friend of his. The Rhode Island Supreme Court, on appeal from a decision of the State Board of Health revoking the license, was satisfied that in the case of this woman and in certain other cases no examination of the patient was made before the prescription was given. The so-called treatment of these patients was the same regardless of their physical and mental condition, past history or environment.

"In numerous cases," the court said, "the patients by paying an additional fee secured prescriptions for cocaine also. The excuse for using this given by the patient was that the cocaine relieved the pain caused by the needle when the morphine injection was taken. The appellant says that the cocaine was prescribed in one case for neuralgia or neuritis, and in other cases to relieve the patients from constipation, one of the common results of drug using. Neither explanation is convincing. The patient undoubtedly wanted the cocaine to satisfy the craving for drugs. The cocaine habit is as well recognized by the medical profession as the morphine habit, and, as stated by one of the medical witnesses in regard to this particular subject, it does not seem fair for the sake of relieving the ailments above mentioned to take the risk of fastening an added drug habit upon a patient who is already a victim of the morphine habit. Whenever a cocaine prescription was written an extra charge, usually $1, was made in addition to the customary charge of $2.

"The appellant claimed that the treatment given to these patients was given in good faith and in accordance with recognized medical practice of 'cure by reduction.' Testimony was given in regard to this form of treatment to show that the method was to decrease regularly and continuously the amount of the drug taken by the patient and to deprive the patient of the drug entirely as soon as feasible. It appears that this method has been used with more or less success when applied in institutions where the patient was under the constant observation and continued control of the physician, when the amount of each dose could be regulated by the physician and not by the patient, and that in some cases it had been used with success outside of an institution when the patient was possessed of strong will power and a fixed determination to be cured, but, if the patient was lacking either in the necessary will power or the desire to be cured, that this treatment would be of no avail. One of the physicians who testified on behalf of the appellant testified very frankly that he would not undertake the treatment outside of an institution of an addict who did not desire to be cured, for the obvious reason that it would be useless.

"In the case at bar the appellant continued to treat a number of these addicts when he knew, according to his own testimony, that they did not desire to be cured, that they were getting drugs from other sources in addition to the amount prescribed by him and had secured prescriptions for additional amounts from him on their false statements that they had lost a part of their weekly supply. . . . That he [the appellant] did not expect to cure his patients is made clear by his own testimony, when he was recalled to the witness stand after other witnesses had testified in regard to his method of treatment. The appellant then admitted that he did not expect to cure his patients, that the only practical way of effecting a cure would be by placing them under control in some institution, and that his object was to give his patients a sufficient supply of the drug to enable them to continue their usual occupations.

"This particular testimony requires no extended comment. Such treatment for such an avowed purpose is illegal and unprofessional. One of the objects of the Statute (Chapter 178 of the Gen. Laws, 1909) is to prevent drug addicts from securing the desired drug and thereby enabling them to continue the drug habit. The Legislature recognized the necessity of making some provision for these unfortunate people and in a proper case permitted physicians to prescribe morphine, etc. Such treatment, however, must be in accordance with the recognized practice of medicine, the object of which, in cases wherever it is possible, is to effect a cure.

"The procedure followed by the appellant neither cured the patient nor was it adapted to cure him. So long as the patient was able to procure his supply of the drug he would remain a drug addict. The treatment of the appellant was directed principally with the purpose of securing the fees which his patients paid to him in order to secure the desired prescription, and the conclusion from the testimony is irresistible that whatever reductions were made in the amount of the drug prescribed were due more to a desire on the part of the appellant to escape a prosecution for violation of the law than to any expectation on his part of effecting a cure of said patients, or of securing for his patients any permanent benefit." The finding of the State Board of Health revoking the appellant's certificate was affirmed.—Knoop v. State Board of Health, Rhode Island Supreme Court, 103 Atl. 904.

Expert Opinion.—In an action for injuries to a child a medical expert testified that "the skull consists of two tables of bone, with a spongy bone between the two, and sometimes a fracture may extend further on the inside than it does on the outside. Of course a fracture of that kind cannot be seen." This was objected to as regards what might possibly be underneath, the objection being to the witness testifying to anything he did not know. The answer was held to be clearly within the realm of proper expert testimony, and if it were otherwise the error was rendered harmless by the witness' subsequent assurance that he did not know whether or not the fracture extended into the motor area of the brain.—Ahouen v. Hryszko, Oregon Supreme Court, 175 Pac. 616.

Liability of Private Hospitals.—In an action against a private hospital by a patient for damages because of pneumonia, alleged to have been caused by a heavy rain penetrating a leaking roof, the Oklahoma Supreme Court holds that the rule is well settled that, when a hospital is being conducted for private gain, it is bound to exercise that degree of care toward its patients, measured by the capacity of such persons to look after and provide for their own safety, as an ordinarily prudent person would exercise under like circumstances and conditions. The rule laid down in Hogan v. Clarksburg Hospital Co., 63 W. Va. 84, 59 S. E. 943, is as follows:

"There can be no question about the liability of a hospital which is being conducted for private gain and not for charitable purposes, for damages to its patients through the negligence of its officers and employees. . . . It is the duty of such hospital to employ only competent physicians and nurses, and to treat such patients with such skill and care as ordinarily obtains in the conduct of such institutions, and to protect its patients in such manner as their condition may render necessary, and such degree of care and diligence should be in proportion to the physical or mental ailments of the patient rendering him unable to look after his own safety."—Tulsa Hospital Assn. v. Juby (Okla.), 175 Pac. 519.

Military Medicine.

Sanitary Aspects of Warfare in Southeastern Europe.—The war now practically over, in spite of the immense size of the armies engaged and of the magnitude of the operations conceived and carried out, has been distinguished from the medical point of view perhaps chiefly by the triumphs of preventive medicine. However, this statement must be made with a certain amount of reserve. While it is absolutely true that disease on a large scale was successfully prevented on the Western Front, with the exception possibly of influenza, on the Eastern Front prophylaxis was less satisfactory. The Russian and Serbian armies were decimated by disease and even the French and British armies in the near East and in Southeastern Europe were, at one time, and at a somewhat critical time too, almost incapacitated by diseases of various kinds, mainly insect borne. It must be borne in mind that the part of Southeastern Europe in which the Anglo-French armies were stationed is notoriously unhealthy. A large portion of it is infested with mosquitos and rife with malaria. At the time of the coming of the Western forces drainage of the large areas of swampy lands was lacking and in addition to anopheles mosquitos various other insects abounded. The inhabitants lived in an extremely primitive way, sharing their houses with their fowls, pigs, cattle, and horses, the consequence being that lice, flees, and bedbugs were almost as numerous as the sands of the sea shore.

Professor W. J. R. Simpson, writing regarding sanitary conditions in Southeastern Europe during the war, in the *Transactions of the Society of Tropical Medicine and Hygiene* for October, 1918, gives a vivid account of the difficulties with which the British medical corps had to cope in Macedonia. As for the domestic insect pest, he states that many of the patients admitted to hospital, sometimes suffering from malaria, were so abundantly covered with flea-rash that unless carefully examined the impression was conveyed that they were typhus fever cases. The water supply in many places, especially in those near the foot of the hills, is good, owing to its origin from springs, but wherever there are wells, they are polluted with filth; canteens, kitchens, and wells are usually close together. There is much dysentery among the civil population, both bacillary and amebic, the former being the most prevalent, but the two diseases which bulk the largest are malaria and tuberculosis.

By the time Monastir was taken by the Serbs and French in November, 1916, and the British were fighting in the Struma Valley, the toll of sickness from malaria, sand-fly fever, and dysentery had been enormous. The British troops, perhaps, suffered in a less degree than the French, except in the Struma Valley, where all the regiments were more or less affected, some worse than others. It is not surprising that the name which the allied armies received was the "Phantom Army." For example, a regiment entered the Struma Valley 900 strong. In six weeks there were only 200 left not in hospital.

The paper by Simpson shows clearly that Southeastern Europe is an unhealthy area for warlike operations, and that though disease has fallen very heavily on the armies of these countries who do not pay the same attention to hygiene that the British pay, yet in this war the Gallipoli and Salonica experiences demonstrated that the sanitary organization and measures which have been so effective in France have not been sufficient for armies operating in countries where malaria exists, and where the sanitation is in a very primitive condition. This state of affairs as regards the preventive side of disease in the British armies, as distinguished from the hospital and curative side, is emphasized also by what happened in Mesopotamia and Egypt. It appears to Simpson that the British sanitary service for campaigns in tropical and sub-tropical countries must be submitted to a thorough examination and be reorganized on a very different basis. These views, he thinks, can be held without in any way diminishing the importance and magnitude of the work done by the British sanitary service in France. The results are written large in the health conditions of the army there. The reason for Simpson's views is that the conditions under which the armies were operating were different, so that what was found adequate for the West was not so for the East nor for the Tropics.

The chief requisite of efficient sanitation and hygiene in tropical and sub-tropical climates is first and foremost to eradicate the insect pest so far as is possible. So long as insects, the hosts and conveyors of many diseases, abound, just so long will these diseases flourish. While the eradication of insects on a wide scale is the most important step in the direction of conquering tropical diseases, another essential movement forward is to improve sanitation, and domestic hygiene in particular, in tropical countries. The war in the East has shown what can be effected by judicious sanitary and hygienic measures and the knowledge there gained should be put into practice wherever necessary.

Health of the Army.—According to the statistics made public on February 13, there are about 82,539 sick and injured soldiers remaining overseas. Of these 19,966 were listed as suffering from injury and 62,573 from disease. This was a reduction of about 60 per cent. as compared with the figures of November 14, 1918. A report from the War Department, Washington, under date of March 7, states that the health of the troops in the camps of this country continues very good. A recrudescence of influenza and pneumonia was noted at Camp Taylor, Ky. It is also announced that the crest of the tide of returning sick and wounded soldiers has been passed. The War Department has tried consistently to send the sick and wounded to hospitals as near their homes as possible but the requirements for proper hospital attention have made the situation difficult and many men have had to be retained at debarkation hospitals in or near New York.

Doctors Consult by Wireless.—Physicians on the transports *Sierra* and *Powhatan*, which reached the port of New York on March 6, held a consultation by wireless telephone while the ves-

sels were fifteen miles apart at sea in regard to influenza cases on the *Powhatan*. Lieut. Commander A. E. Younie, senior surgeon on the *Sierra*, also diagnosed the ailment and prescribed treatment by wireless telegraph for a sick man on the British steamship *Pollac* which was one hundred miles distant. Lieutenant Commander Younie is reported as saying that the wireless telephone opens a wide field for the medical profession, since most ships of our merchant marine will not carry surgeons but the capitain of such a vessel will always be able to obtain medical services either from shore or from some other ship.

Army Quits Long Beach Hotel.—Army General Hospital No. 39, at Hotel Nassau, Long Beach, L. I., is to be abandoned. Surgeon General Ireland announces that the institution will be cleared of patients and personnel by March 15.

Many Disabled War Veterans Take Vocational Training.—The Federal Board for Vocational Education, in a report on its activities for 1918, shows that 12,000 American soldiers, sailors, and marines, disabled in the war, have been registered as prospective candidates for vocational education.

Many Sick and Wounded Reach Port.—During the week ending March 8 some eleven troopships reached New York, bringing an influx of 4,100 sick and wounded. On the *Leviathan* there were nine convalescent detachments, comprising 1,179 war victims in charge of 56 nurses. The *Santa Marta* from Brest brought forty-five medical officers and thirty-five nurses, among whom were included a number of the members of the Mount Sinai (New York) Hospital Unit.

First Lieut. Abraham F. Thomas, of Newburyport, Mass., attached to Ambulance Company No. 1, Second Division of the Regular Army, A.E.F., has been awarded the **Croix de Guerre** for distinguished service in the face of the enemy during the battle of Blanc Mont Champagne sector from October 1 to 10, 1918.

Capt. Conrad Wesselhoeft, M.C., U. S. Army, of Boston, attached to the 104th Infantry, was awarded the distinguished service cross and also the **Croix de Guerre** for his services in caring for the wounded under fire.

Hospital Units to Return.—An announcement made by the War Department on March 3 states that Base Hospitals Nos. 11, 34, 38, 52, and 58, Convalescent Camp No. 2, and Evacuation Hospitals Nos. 2 and 4 have been assigned to early convoy.

Deaths in the Service.—Lieut. Edward Sartor Stewart, M.C., U. S. Army, of Summertown, Tenn., a graduate of Vanderbilt University, Nashville, in 1911, died at Camp Greenleaf, Ga., from lobar pneumonia, on October 13, 1918, aged 32 years.

Lieut. Ralph Edgar Powers, M. C., U. S. Army, of Akron, Ohio, a graduate of the Eclectic Medical Institute, Cincinnati, in 1915, died from wounds received in action while on duty with the American Expeditionary Forces on January 22, aged 28 years.

Capt. Gilchrist Briggs of the American Volunteer Ambulance Corps, died, on March 2, at his home in Schenectady, N. Y., aged 54 years. He was graduated from the Albany (N. Y.) Medical College, in 1889, and during the war served with both the British and French armies. He was awarded the Croix de Guerre for removing French wounded from the zone of fire during the battle of Verdun.

Capt. John D. Hess, M.C., U. S. Army, of Clarkton, Mo., a graduate of Washington University, St. Louis, in 1900, died from pneumonia while on duty at Fort Bliss, Texas, on October 17, 1918, aged 41 years.

Major Joseph James Kinyoun, M.C., U. S. Army, of Washington, D. C., a graduate of Bellevue Hospital Medical College, in 1882, died of lymphosarcoma of the neck at his home in Washington, on February 14, aged 58 years. He was a surgeon in the U. S. Marine Hospital Service from 1886 to 1902, professor of hygiene and bacteriology from 1890 to 1892, and of pathology and bacteriology from 1892 to 1899 in Georgetown University, Washington, D. C. He was decorated with the Order of Bolivar in 1897 on account of his excellent sanitary services to the Republic of Venezuela. He was a member of the Association of American Physicians, the Association of American Bacteriologists, and American Public Health Department of the District of Columbia. He was founder and first director of the United States Hygienic Laboratory, and director of the H. K. Mulford Laboratories from 1902 to 1907. He was on duty at the cantonments of North and South Carolina until December 6, 1918, when he was detailed as pathologist to the Army Medical Museum.

Capt. James Williamson Squires, M.C., U. S. Army, of Charlotte, N. C., a graduate of the North Carolina Medical College, Charlotte, N. C., in 1911, died from lobar pneumonia in the U. S. General Hospital at Toul, France, on December 16, 1918, aged 30 years. He was professor of rectal diseases in his alma mater.

Capt. Aaron Shiner Oberly, Med. Dir., U. S. Navy, retired, of Avon, Conn., a graduate of the Medical Department of Yale University, in 1860, died at his home, on February 15, aged 81 years. He entered the Navy in July, 1861, serving throughout the Civil War. He was made chief surgeon of the Adriatic in 1886 and was retired after ten years and six months sea service, on January 4, 1889.

Lieut. Bedford Wagoner Russell, M.C., U. S. Army, of Strong City, Okla., a graduate of the Epworth College of Medicine, Oklahoma City in 1909, on duty at Fort Riley, Kan., died from the effects of influenza at the home of his mother in Oklahoma City, on February 13, aged 31 years.

Major Clarence Ewen, M. C., U. S. Army (retired), a graduate of Bellevue Hospital Medical College in 1862, died at his home in Washington, D. C., on January 6, aged 75 years. He was assistant surgeon of the New York State Volunteers in 1862; assistant surgeon of the 102d United States Volunteers in 1862 and 1863; acting assistant surgeon, United States Army, in 1864; assistant surgeon of the United States colored troops in 1864 and 1865; and acting assistant surgeon, United States Army, in 1868. He was promoted to major in 1889, and was retired at his own request after thirty years of service.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, March 15, 1919.

EPIDEMIC INFLUENZAL ENCEPHALITIS.

THE occurrence in Chicago of some cases of narcolepsy or lethargic encephalitis, which the newspapers call "sleeping sickness," dependent upon influenza, was doubtless to many the first intimation that encephalitis is a known complication or sequel of the grippe. The claim that this affection occurs with or in the wake of the influenza epidemic has indeed been made, but such disease association does not apparently manifest itself in all countries ravaged by the latter. Nor does encephalitis occurring in the course of infections always impose itself as a lethargic affection. Polioencephalitis, in general, may or may not be associated with narcoleptic crises and somnolence. There is evidence that the study of this clinical and pathological entity may possibly lead to the discovery of a new nervous center, which, when implicated in an infection, or even functional disturbance, may cause phenomena which suggest narcolepsy, sleeping sickness, catalepsy, or other clinical syndromes.

Molinari, writing in *La Riforma Medica* for February 1, asks two questions which he seeks to answer: "Is this affection new?" and "Is it autonomous?" In regard to the first query, he refers to the affection known as "noma," which followed in the wake of the pandemic in 1889-90. In the spring of 1890 the newspapers of the Continent were filled with reports of a new disease called noma, or sleeping sickness, which had broken out in Italy, and which it was feared would invade the rest of Europe. It was soon recognized as a comatose form of influenza, and it was subsequently traced through a large part of Europe, and even reached the United States. An epidemic of "sleeping sickness" swept Europe in 1740, in the short interval between two visitations of the grippe, and may readily have been connected with cases left over from the 1737 epidemic. In 1900, Bozzolo found two sporadic cases in Italy which paralleled closely the sleeping sickness of the African negro, but careful study showed that it was presumably affiliated with influenza, at that time, of course, only endemic.

In regard to the question of autonomy, it was at first regarded as a not fully developed form of cerebrospinal meningitis, and it is even now found very difficult to distinguish the affection from the encephalic form of acute anterior poliomyelitis, which has a protean sweep of clinical manifestations. Authorities like Netter, however, remain dualists. Another problem is the connection, if any, between infection of the rhinopharynx and encephalitis.

THE PRACTITIONER OF THE FUTURE.

IN the past decade there have been signs of impending change in the science and art of medicine. Drug therapy has been subjected to a good deal of criticism and ideas as to the value of drugs have undergone more or less revision. This alteration in the attitude of a goodly proportion of the medical profession was due, to some extent, to the manner in which drugs, most often of German origin, were continually being brought out for the treatment of every kind of disease, but was owing more largely to the fact that despite advances in pharmacological knowledge, medical men were conscious that many drugs were given without any certainty as to their value and without definite knowledge of their mode of action. While there are not a few drugs which by the test of experience have shown themselves to be of therapeutic value and of which little is otherwise known, there are many new drugs of which little is known concerning either their mode of action or their value. When long experience has demonstrated the usefulness of a drug, it is right to recommend it, even if the why and wherefore of its action are not known. On the other hand, when knowledge is lacking as to why a drug acts as it does act and when it has not come through the clinical test with satisfaction, then it seems assuredly wise either to discard such a drug or not to recommend it until further investigation has proven its efficiency.

However, the drug problem, that is, to know what kind of drug to give and when, is not the only one that confronts the medical profession and calls, if possible, for solution. It must be borne in mind that the methods of practising have changed vastly during the past fifty years. This is the age of the specialist and of laboratory research. With regard to laboratory research, Sir James Mackenzie, writing in Vol. 1 of "Oxford Medicine" on the future of medicine, points out that the methods of investigation and the type of individual who prosecutes research have altered during the past fifty years. Before that time the investigator was a man engaged in medical practice, who, recognizing in his patients problems that needed solving, sought their solution by experiments conducted by himself or under his supervision. This was the method pursued by such men as Harvey, Hunter, Jenner, and Lister. All this has been changed and research work has passed almost wholly into the hands of the laboratory worker, and to laboratories are attracted many of the most brilliant and able of the younger members of the medical profession. The view is becoming crystallized that by laboratory work alone can medical research be advanced and thus other means of investigation are ignored.

Mackenzie, while acknowledging that laboratory investigation has done great service in forwarding the progress of medicine, is yet convinced that the method possesses certain inherent defects. He is of the opinion that underlying all the seemingly reasonable belief in laboratory research there exists a fallacy. Investigators are now specially trained for their work under men who have spent their lives in the laboratory. Consequently the pursuit of knowledge tends to assume ever more and more an academic character, with little reference to the problems confronting the doctor who practises medicine. This is in contrast with the methods pursued by the great pioneers whose names are mentioned above. Laboratory workers now get a limited view of disease, and it must be recognized that their opportunities permit them to see but a very small part of the field of medicine. This is to say that the pure laboratory investigator is merely an investigator and nothing more. The old time investigator was generally a man in general practice, as Jenner, for instance, or as Mackenzie himself, who was deeply skilled in clinical diagnosis and learned to investigate with human material and in a field far wider than the up-to-date highly scientific investigator. The results, too, were eminently satisfactory.

Moreover, as Mackenzie shows, the reaction of these views upon medical practice is seen in the breaking up of clinical medicine into a series of specialities. Diagnosis of any case which appears to be at all out of the common is not now attempted by one man but a number of specialists. The patient may be sent from one consultant to another, each of whom sends in a report dealing with the organ or method in which he specializes, and then the original physician studies these reports and is supposed to be in a position to treat the case properly. The method is impressive, and, needless to say, costly, but in reality there is more than one rift in the lute. In the first place, it is almost out of the reach of all but the wealthy, and even if institutions under government were started only a limited number of persons could be treated.

The most damaging criticism that Mackenzie directs against the ultra specialist institutional system of dealing with disease is that the cases in the early stages would not be sent, and, if sent, their ailments would probably not be recognized, for the phenomena created by the early stage of the disease are not revealed by mechanical means or laboratory methods.

The point must never be lost sight of that the effect of disease is rarely limited to one organ; in many cases the change in one organ is secondary to conditions elsewhere. Some specialists whose horizon is restricted to their particular subject are not always capable of recognizing the remote causes and effects. Also, the physician whom the patient first consulted, implied by the very fact that he had to call in help that he was not able to detect the phenomena produced by the disease, and, as Mackenzie pertinently asks, if he was not capable of finding them, how could he be qualified to assess their value?

The writer enters somewhat fully into the question, and emphasizes the need of an urgent call to the clinical investigator to view his position from a standpoint different from that to which he has been accustomed There is a great field still unexplored for the detection and for the assessment of the value of symptoms recognizable by the unaided senses, or by simple mechanical aids. The class of investigators must be enlarged to include those who have the opportunities of seeing disease in its earliest stages, and the clinician must take a part in the laboratory investigations in order to solve the numerous problems that will arise if he sets himself to find out the significance of the signs of the disease. In the medicine of the future, the laboratory investigator, pure and simple, will not hold the predominant position he now holds, if the advice of this British investigator is ever followed. Indeed, his importance will be subordinated to that of the clinician who interests himself in laboratory investigations. Neither will the specialist reign as supreme as he reigns at the present time. Both the laboratory investigator and the specialist will, of course, play their part, but the all-round man of practical experience will surely come into his own again.

THE PATHOLOGY OF CHELOID ACNE OF THE NECK.

Cheloid acne has been described by Lenoir and Vidal as a pilosebaceous perifolliculitis with a cheloid tendency, the structures surrounding the follicles tending to the formation of a sclerous tissue instead of progressing to suppuration as in ordinary folliculitis. Some time later, Dubreuilh described the presence of giant cells. The lesions commence first in the sebaceous gland, the cells of which assume the aspect of giant cells, and secondarily, the lesions progressively extend and end in the formation of a follicular abscess. Therefore, originally the lesion is an acne and not a folliculitis, since the first lesions arise in the sebaceous gland, which is totally destroyed before the follicle becomes involved. The perifolliculitis secondarily provokes suppuration of the follicle on the one hand and a cheloid on the other. Dubreuilh also admits that cheloid and cheloid acne have both the same structure and are differentiated only by their respective evolutions; a true cheloid being a proliferating new growth, cheloid acne on the contrary always following an acne.

Mibelli maintains that the lesions commence by small follicular abscesses, and the presence of giant cells in the sebaceous glands should prove, on the contrary, that this lesion is secondary to the precedent. At the same time, a cell proliferation occurs around the vessels of the dermis, ending in the formation of cheloid nuclei under the influence of some pathogenic agent as yet to be determined, as well as by lesions resulting from the friction of the

clothing. Ledermann and Ullman have described the presence of eosinophile cells and certain formations which they term Russell's corpuscles. Mantegazza has mentioned the presence of plasma cells along with giant cells, while Baillon describes cheloid acne as a subacute or chronic nodular inflammation which is similar in nature to a certain number of bacterial affections, particularly tuberculosis.

Quite recently, Gouin distinctly separates cheloid plaques still presenting small active "pustulettes," which he calls "inhabited" cheloids, from adult cheloid offering no trace of infection and found in the center of the "inhabited" cheloid plaques. After having studied the pathology obtained from biopsies of four patients, Gouin and Pautrier come to the following conclusions: The areas still in activity which contain "pustulettes," and which may be looked upon as the extension zone of cheloid formations, present two types of lesions, namely, those of the pilosebaceous system and those of the intervening dermis. At certain spots the pilosebaceous lesions offer the aspect of simple folliculitis and perifolliculitis with a tendency to suppuration, but giant cells are also to be found. At other points the entire sebaceous gland is transformed into a mass of giant cells which destroy the infiltrated hair. In the intervals between these foci of pilosebaceous lesions, examination shows that the dermis is sclerosed and forms meshes filled with foci of infiltration almost exclusively composed of plasma cells, although giant cells may also occasionally be present.

As the evolution progresses the cheloid assumes a different aspect. The pilosebaceous system and even the giant cells disappear and there remains an almost pure plasmoma riddled by a sclerosed connective-tissue stroma. Regardless of the opinion maintained by Dubreuilh, Gouin supposes that the pathogenic agent penetrates in the first place into the pilosebaceous orifice and there sets up the formation of a pure folliculitis. At this phase of the process suppuration may sometimes occur; later on, either on account of the chronicity of the lesions or because of the low virulence of the pathogenic agent, a slow process of inflammation becomes established around the follicle, which ends in the formation of giant cells. This process reacts on the sebaceous gland and then sets up the production of giant cells within it. What would seem to prove that the evolution of the process takes place as described is that at this last phase the hair is completely destroyed and only the lesions of the dermis persist.

The differentiation of true cheloid from cheloid acne is to be made from the fact that in the adult stage the former process has the structure of a fibrous growth composed of fibrous connective tissue, containing only fixed connective-tissue cells and no trace of foci or infiltration. In cheloid acne, on the contrary, even at the stage of complete development, numerous plasmomata are always found.

Peace-time Surgery.

Undoubtedly many surgical lessons have been learned from the war and consequently a considerable amount of progress has been made, but it may be well to point out that war surgery is in many respects a very different affair from surgery in civil life and that experience of war surgery does not fully equip the surgeon for dealing with the surgery of civil practice. The man who has been operating day after day for three or four years in base hospitals and casualty clearing stations, is not necessarily on account of his wide experience at all times competent as an operator in civil practice. As a matter of fact, although this statement is obvious, conditions from the surgical outlook are so different in civil life that the surgeon versed in army methods will have to revise his modes of procedure considerably in order to adapt himself to civil practice. The fear has been expressed that with the return of surgeons from the seat of war, of men who have acquired great manual dexterity and who have become accustomed to the manner of operating in war hospitals, an orgy of operating will set in. Mr. C. Hamilton Whiteford, writing in the *Medical Press* for January 29, voices this view and lays down a list of surgical "don'ts," presumably for the behoof of surgeons habituated to the customs of army medical practice. These don'ts appear to be to the point and especially those which lay emphasis on the need for an aseptic environment when operating. Whiteford contends that in no circumstances should an operation be performed in a patient's house, and undoubtedly such advice is fundamentally sound, though not always practical. It is true that many valuable surgical lessons have been taught by the war, lessons which will prove of the greatest use in civil practice. Nevertheless it is timely to draw attention to the fact that peace conditions differ widely from war conditions and that this applies with equal force to peace surgery and war surgery. The progress made in surgery during the war must be adapted to meet civil conditions and not to override them.

Mortality in Madrid During the Grippe Year.

According to *La Medicina Ibera* for January 4, the total number of inhabitants of Madrid is at present approximately 624,303. The number of births in 1918 was 16,672, and that of deaths 18,961. The total deaths in 1917 were 15,557. It is thus clearly shown that the balance is on the wrong side of the ledger. This is due to some extent to the prevalence of variola in 1918, which disease caused 431 deaths. It is, of course, only too evident that the chief agent in reversing the vital statistics is influenza, but to bring out the full participation of the latter we must also enumerate all of the acute respiratory disorders. The deaths set down to grippe alone are 954. The number of deaths from acute bronchitis is given as 908, which should include some bronchopneumonias. The pneumonias *per se* add up to 549 only. There are, however, nearly 2000 cases of respiratory affections in which apparently no diagnosis was made. The author gives the causes of increased mortality as smallpox, bronchopneumonia, and grippe. Since chronic respiratory diseases are abundantly accounted for, we have over

4,000 presumably acute pulmonary affections which proved fatal. It is hardly to be doubted that influenza at least trebled the normal death rate of these affections. Despite the vagueness of these figures it seems that Madrid, as the first great center of population attacked, reaped some slight benefits from the mildness of the initial outbreak and the protection afforded against recrudescences. The figures cited cover a calendar year, including the cold-weather mortality of the first months of 1918, while influenza raged in the last two-thirds of the year. Nevertheless, an increase in the deaths in one year of 3,404, of which only a fraction could be attributed to other causes, seems to speak eloquently of the deadliness of the pandemic.

News of the Week.

Another Medical College Will Admit Women.—At the commencement exercises of the New York University and Bellevue Hospital Medical College on March 3, Chancellor Brown announced that for the first time in its history this institution will admit women on the same basis as men with full privileges of the college and will grant them the degree of doctor of medicine upon graduation. Degrees were conferred at this time upon seventy students who finished their medical course three months earlier than usual owing to the war emergency program adopted last year.

Typhus Fever in Germany.—A despatch to the Associated Press, under date of March 1, states that within the week the number of cases of typhus fever in Germany rose from 144 to over 500. Of these 18 cases were reported in Berlin. It is believed that the disease was brought to Germany by troops and civilians returning from Russia.

Mount Sinai Hospital Report.—At the annual meeting of the Society of the Mount Sinai Hospital, New York, on February 3, it was announced that the construction program arranged before the war would be resumed at the earliest possible date. It is expected that the actual work on the new buildings will be begun in the spring of 1920 and that the buildings will be complete before the end of the following year. Colonel Howard Liliental, in charge of Base Hospital No. 3, the Mount Sinai Unit in France, and Major Edwin Beer told of their work in France. The unit had a very active service as many as 2,800 patients being taken care of at one time. The expenses of the hospital for the year were $652,835, and were covered by receipts of a similar amount, $213,388 of which was contributed by the Federation of Jewish Philanthropies. It was also reported that the experimental stage of the Cardiac Section had been passed and it had been regularly incorporated as a part of the dispensary and had been installed in quarters especially designed for it in the Children's Clinic.

Rockefeller Money for Medical Education.—At a meeting of the General Educational Board of the Rockefeller Foundation, appropriations of $1,108,525 were made to carry on the work of various educational institutions throughout the United States, the largest amounts being given for the furtherance of medical education. Johns Hopkins Medical School received $400,000 for the endowment of a department of obstetrics and the Meharry Medical College, Nashville, Tenn., for negroes, received $150,000.

Influenza in Japan.—According to the report of the Home Department officials there were in Japan during the months of October, November, and December 10,000,000 cases of influenza. This means that about one in every seven of the population has been attacked. During the three months about 80 per cent. of all deaths were from influenza.

Bolsheviki Kill Incurables.—A despatch from Stockholm reports that typhoid fever is raging with increased force in Petrograd. In one hospital 8,000 patients are said to be dying monthly. In the provinces the mortality from the disease is so high that the Bolsheviki have issued a secret order to kill the incurable cases, hoping thus to stop the spread of the contagion in some measure. Scarcely any medicine is available.

Sing-Sing Prison under Quarantine.—An epidemic of diphtheria has broken out in Sing-Sing Prison, there being forty prisoners down with the disease on March 6. An embargo has been placed on the movement of prisoners both coming in and going out. It is believed that the epidemic is now on the wane.

Poliomyelitis After-Cure.—The January *Bulletin* of the New York State Department of Health gives an outline of the work the State Board of Health is doing in caring for poliomyelitis victims. During 1918, 42 clinics have been held in 53 municipalities. The total number of cases examined was 654; of this number 456 had attended previous clinics and had been under the care of field nurses. Forty-nine were discharged cured, or practically normal, and 296 were improved, the improvement consisting in increased strength of the weak or paralyzed muscles or a general improvement. During 1918, 823 pieces of apparatus were delivered to patients. Eighty-three patients have been admitted to various hospitals for operations or for the correction of long standing deformities. The results in these cases have been very satisfactory. There were about 70 new cases of the poliomyelitis during the year and these are now being visited by the nurses and after-care treatment begun as soon as the acute symptoms have subsided.

Druggists Object to Selling Liquor.—Representatives of the New York State Pharmacists' Association appeared before the Senate Judiciary Committee on March 5 to protest against any provision of the proposed prohibition enforcement law which will permit them to handle liquor. They urge that the medical men who want to prescribe liquor in certain cases should dispense as well as prescribe it and not throw that burden on the drug business. The druggists want to be permitted, under special permit, to purchase alcohol for prescription purposes only and not to be used for beverage.

Drug Clerks Form Union.—The drug clerks of New York City have organized a union called the "United Drug Clerks' Local No. 325, and have appealed through a resolution to the Central Federated Union for its assistance toward bringing

about amended legislation that will lessen their working hours. At present they are required to work 132 hours a week, which makes, including the lunch hour, a twelve hour day. They also believe their wage scale should be higher; on an average they are now paid $25 weekly.

New York's Drug Addicts.—James A. Hamilton, Commissioner of Corrections, in his anual report on drug addicts, urged that the idenities of such persons be admitted to public record. He reported that during the year 240 men and 32 women were committed by the courts as drug users, of whom 114 men and 16 women had never been convicted before. Mr. Hamilton recommends that all drug users be committed to a correctional institution instead of to hospitals for treatment, because it is too easy to get out of the latter.

Dr. Frederic Huntington Coerr, who has just returned from foreign service, has resumed his practice at 8 East 54th Street, New York City.

Lieut. J. C. Barker, formerly an interne at the New Haven Hospital, has been awarded the medaille sauvetage presented by the Minister of the Interior of France for his work in France during the recent epidemic of influenza. This is a civil and not a military decoration and Lieut. Barker is one of the first medical men in this country to have received this award.

Dr. Cecil Gaston, recently returned from service in the Medical Corps of the U. S. Army, has been reinstated to the position of City Surgeon of Birmingham, Ala.

Board of Health Requires Whooping Cough Arm Band.—The Board of Health of Hornell, N. Y., has adopted whooping cough regulations requiring the placarding of houses and the exclusion of persons not immune to the disease. The person is allowed the liberty of the yard provided he avoids contact with non-immunes and wears an arm band with the words "whooping cough" printed in red ink.

The Medical Association of the Greater City of New York.—A stated meeting of this association will be held at the New York Academy of Medicine on Monday, March 17, at 8.30 P. M. Papers on Chronic Intestinal Toxemia will be read by Drs. A. A. Rutz of Brooklyn and J. G. Dwyer of Manhattan, and will be discussed by Drs. E. Libman, Helen Baldwin, H. F. Graham, and others.

American Medical Editors' Association.—The fiftieth annual meeting of this association will be held at the Marlborough-Blenheim Hotel, Atlantic City, on Monday and Tuesday, June 9 and 10. An attractive program is now being prepared, and all physicians even remotely interested in medical journalism are invited to attend.

Medical Society Elections. — The TRI-STATE MEDICAL ASSOCIATION, which met in Richmond, Va., on February 18-19, 1919, elected the following officers for the ensuing year: *President,* Dr. Robert C. Bryan, Richmond, Va.; *vice-president for Virginia,* Dr. Clifton M. Miller; *vice-president for North Carolina,* Dr. A. J. Crowell, Charlotte; *vice-president for South Carolina,* Dr. A. H. Taft, Charleston; *secretary and treasurer,* Dr. Ralph E. Hughes, Laurens, S. C.

Ask Aid for Hospital Music.—The Hospital Musical Association of New York City, which for the past nine years has been providing musical entertainment for the sick and crippled in hospital wards throughout the city, is greatly in need of funds, owing to the fact that war charities had deprived them of the usual contributions. At the recent annual meeting Henry W. Goddard was elected president of the association.

Charitable Bequests.—By the will of the late Mrs. Fanny M. Thorpe of Philadelphia bequests are made as follows: To the Philadelphia Home for Incurables $10,000, also $5,000 after the death of another beneficiary, and in addition one-half of the residuary estates; to the Hahnemann Hospital $5,000; as well as one-half of the residuary estate.

By the will of the late Mrs. Louisa Horwitz Bullitt of Philadelphia a bequest of $3,000 is made to the Children's Medical Ward of the University of Pennsylvania Hospital for the endowment of a free bed.

By the will of the late Walter M. Steppacher of New York, and formerly of Philadelphia, the sum of $1,000 is bequeathed to the Jewish Hospital of Philadelphia.

By the will of the late Justus T. Brunner of Philadelphia, the sum of $24,000 is to be equally divided among the following institutions following the death of nieces and nephews: Philadelphia Home for Incurables, Children's Hospital, Midnight Mission, Pennsylvania Training School for Feeble-minded Children, Friend's Home for Children.

By the will of the late Gustavus B. Benson, Jr., of Philadelphia, the sum of $2,000 is bequeathed to Howard Hospital.

Death of Ivar Bang.—The *Hospitalstidende* for December 25 publishes the obituary of this distinguished scientist which occurred on the 11th of that month. He was the son of an eminent clergyman and born in 1869. He began his work in physiological chemistry after his graduation in medicine, about 1895, studying in his native land and also in Germany, finishing in Sweden with two years under Hammarsten at Upsala. His first professorship was in the University of Lund, in 1902. Here he remained till his death. After much miscellaneous research he settled down about 1910 to the study of the chemistry of the blood in which department he made his greatest reputation. He investigated especially the lipoids, blood sugar, and blood proteins, his so-called micro-methods of investigation adding greatly to his fame. For a man of his relatively short life to have accomplished so much means of course that he was a ceaseless worker. However, he was also a musician and an excellent 'cello player and took extensive summer pedestrian trips through Norway. His death took place at Lund and the cause, recognizable during life, was sclerosis of the coronary arteries and degeneration of the myocardium.

Obituary Notes.—Dr. MERCY N. BAKER, a graduate of the Woman's Medical College of the New York Infirmary, class of 1872, died in New York, October 12, 1918, of malignant disease. Dr. Baker was born near Bangor, Maine, November 11, 1840. She served in the infirmary as interne, later as attending physician from 1875 to 1884. She lectured on materia medica in her alma mater from 1874 to

1884. She practised her profession for more than 40 years. Beloved by her patients for her skill and her fine womanly qualities, she was a fine example of the family doctor.

Dr. HERMAN VEDDER MYNDERSE, a graduate of the Albany Medical College, in 1887, died at his home in Schenectady, on March 5, aged 58 years.

Dr. HAROUTYOUN TIRYKIAN, of New York, author, linguist, and for nine years physician to the Shah of Persia, died at the Manhattan Sanitarium, following an operation, on March 2, aged 74 years. He was a graduate of the University of Paris, in 1874, played an important rôle in the movement for the nationalization of Armenia, and was at one time president of the Armenian Political Chamber of Constantinople. He received the title Khan and was also decorated for his services to the Shah.

Dr. HARRY HIBBERD WEIST of New York, a graduate of Bellevue Hospital Medical College, in 1891, died suddenly at his home on March 6, aged 51. Dr. Weist formerly resided in Richmond, Ind., was a physician for the Pennsylvania Railroad and physician for the Exchange National Bank.

Dr. WALTER M. GOODALE of Saco, Me., a graduate of the Harvard Medical School, in February, 1919, an ex-Harvard Varsity oarsman, died of pneumonia following influenza in Cambridge, Mass., on February 21.

Dr. JOHN WAITE MITCHELL of Providence, R. I., died of pneumonia in that city on February 27, aged 70 years. He was graduated from Bellevue Hospital Medical College, in 1871. He was visiting surgeon at the Rhode Island Hospital from 1875 to 1903, consulting surgeon to the Catholic Orphan Asylum, St. Joseph's Hospital, and St. Elizabeth's Home. He was a member of the American Medical Association, the Social Science Association, and many other medical and lay organizations.

Dr. NATHANIEL L. EDWARDS, a graduate of the Leonard Medical College, Raleigh, N. C., died of spinal meningitis at his home in Bluefield, W. Va., on February 24, aged 49 years.

Dr. C. E. FARRISH of Mobile, Ala., while crossing the railroad near his home in his automobile, was struck by a freight train and instantly killed on February 21.

Dr. BROMWELL ARTEMUS ANDREW, a graduate of Bellevue Hospital Medical College, in 1869, died suddenly in his office in Jersey City, N. J., on February 28. He was for many years surgeon of the Jersey City Police Department.

Correspondence.

AD VOCEM "MUSK."

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Walter C. Allen, M.D., takes the trouble of telling you in your issue of March 1 of a drug which is quite dead in his opinion. Still, Trousseau, Allbutt, and others, for instance my friends and pupils Elsner and Forchheimer, are called up by him to prove that musk is not so dead after all. Give me, if you please, a few lines to prove that the drug is not altogether extinct or useless. I have used musk a great many times and taught its use since 1860. Hundreds of my pupils have known of it, and many remember my writing about it.

In "A Treatise on Diphtheria," 1880, p. 157, I wrote: "A three-year-old child can comfortably take thirty to one hundred and fifty grams of cognac . . . or a *gram of musk* or camphor in twenty-four hours."

In my first edition of "Therapeutics of Infancy and Childhood," 1896, p. 338 (reprinted in my "Jacobi Colectanea," Vo. II, 1909, p. 59) you find the following: "The most powerful of all internal stimulants—Siberian musk—should be given frequently, viz., every half to one or two hours, in doses of from one-half to two grains, until from six to fifteen grains have been taken in the course of half a day."

The following quotations are taken from the third edition of "Therapeutics of Infancy and Childhood," 1903:

Umbilical hemorrhage, p. 103: "Feeding and stimulants (whisky, musk, ether, camphor)."

Typhoid fever, p. 191: "Of musk as a powerful stimulant I have seen the best possible results."

Asiatic cholera, p. 198: "Alcohol, coffee, caffeine, strychnine, camphor, tincture of musk are counted among the stimulants."

Scarlatina, p. 213: "When . . . high rectal temperatures and cold extremities, a mottled skin, and a cyanotic hue, the large amount of the toxin which has invaded the system demands strong stimulants —ammonia, musk, and camphor. They are better than alcohol."

Measles, p. 219: "Cardiac stimulants are required such as digitalis, spartein, camphor, and musk."

Diphtheria, p. 234, 235: Musk is mentioned as the best stimulant in very urgent cases of collapse.

Heart and bloodvessels, p. 454: "The centers of the medulla and of the spinal cord are influenced by strychnine and ergot; the vasomotor centers and centers of the heart by caffeine, camphor, ammonia, and musk."

Heart failure, p. 458: "Musk internally, strychnine subcutaneously, may be required."

In the artice on "Diphtheria, Its Symptomatology and Treatment," published in "The Twentieth Century Practice of Medicine" (reprinted in Collectanea Jacobi," 1909, Vol. I, p. 197), occurs the following: "The very best internal stimulant in urgent cases is Siberian musk. I prefer to give it from a bottle, in which it is simply shaken up with a thin mucilage. In urgent cases it ought to be administered in sufficient doses and at short intervals. When ten or fifteen grains given to a child one or two years old within three or four hours will not restore the heart's action to a more satisfactory standard, the prognosis is very bad."

In "Treatment of Influenza in Children," *Medical News*, December 15, 1900 (reprinted in Collectanea Jacobi, Vol. I, p. 354, 1909), I stated: "One of the best stimulants, useful in the gravest of all cases which are attended with collapse and heart failure, is sadly overlooked among us, viz., Siberian musk. I know of nothing better in the most urgent of cases. A child of two years should take of the 10 per cent. tincture five to ten minims every half hour until half a dozen or a dozen doses have been taken. Musk, together with large, hot enemata, has led me over many a difficult pass, and I again offer this experience of mine, which now extends over fifty

years, as a contribution to your aid in dire distress, always, however, reminding you of the fact that all these measures are not exclusive to influenza, but to all conditions of nerve exhaustion, no matter from what cause."

These are only specimens which I am sure will interest Dr. Allen.

A. Jacobi, M.D.

19 East Forty-seventh Street, New York.

THE SPAS OF AMERICA.

To the Editor of the Medical Record:

Sir:—In the issue of the 7th inst. an excellent article calls attention to the therapeutic value of the spas of America. My interest in this subject dates back many years. In the *Medical News* of July 10, 1897, I expressed the same views as follows: "A careful study of the American spas convinces me that we have in this country some of the highest types of these springs. A fertile field is open to the medical profession of this country which, if properly tilled, not only would bear good fruit to numberless invalids, real and imaginary, but satisfactory results to many colleagues who now labor in crowded towns and cities during the hot summer months."

How this was to be done was partly demonstrated by my description of thirty-three resorts which I had personally visited. It appears that your contributor still finds it necessary to make the same comment. He gives as one of the unfortunate reasons of failure that they have not been scientifically developed, and he properly concludes: "If the physicians of America would give greater cooperation and encouragement to the development of the American spas, founded upon an ethical basis, success would be insured." He does not tell your readers how to achieve this consummation; in fact, he indulges in the type of "scientific development" that is common among American spa doctors, by offering in two pages a complete epitome of hydrotherapy, without giving us a particle of scientific information about the beautiful resort in which he lives. Perhaps this omission is attributable to modesty. But how are your readers to learn anything ethical or scientific about the latter if he refrains from the former?

If we compare the literature furnished by physicians at our American spas with that offered by those in European spas, the reason for our failure will become evident. The latter do furnish scientific studies and practical contributions. And let me tell your readers how they obtain it. Nearly every spa physician in Europe visits the large clinics during the intervals between the seasons. I have known some to come to our shores. They not only endeavor to improve their knowledge of diagnosis and pathology, etc., but, with an eye to the main chance, become acquainted with the physicians of the cities by attending medical society meetings, reading papers before them, and other "ethical" activities. How many American spa doctors give like cooperation and encouragement to their spas? Here is "the nigger in the woodpile."

The physician who sends a patient to "the springs" is more concerned about the *mental equipment* of the doctor at the springs than with the *chemical composition* of the waters. Nauheim and Marienbad have illustrated that the scientific standing of the physicians at a health resort is the chief asset in its prosperity.

Simon Baruch, M.D.

51 West Seventieth Street.

OUR LONDON LETTER.

(From Our Own Correspondent.)

London, February 13, 1919.

Social Evenings at the Royal Society of Medicine.—Out of the war there has certainly emerged in London a spirit of goodfellowship in the medical profession which formerly did not exist. Many expressions of this can be seen in the institution of post-graduate classes to which medical men of all those nations which fought on the Entente side are welcome; facilities in the same way are extended for the visit of museums, institutions, and libraries, while the Royal Society of Medicine has now for over two years been a center of international goodwill and hospitality. The departure has been made by the Society now in holding weekly "Social Evenings" whose informal character is a clear derivative of military camaraderie. Every Wednesday evening a distinguished man is invited to deliver a discourse on some subject congenial to himself and of wide interest. After the discourse the library of the Society is available for informal discussion, at which it is certain that many professional acquaintanceships will be turned into personal friendships. The first discourse was given by Sir John Bland-Sutton on Gizzards, and the second by Sir Arbuthnot Lane on Intestinal Stasis. Other discourses are announced from Dr. Norman Moore, the president of the Royal College of Physicians of London, who will talk on English Morbid Anatomists, and from Sir William Osler, who will introduce to the audience the ever-fascinating character of Sir Thomas Browne. Dr. Henry Head and Mr. W. G. Spencer, whose addresses are entitled respectively "Disease and Diagnosis" and "Larrey and War Surgery," are certain of interested audiences.

Sir William Osler has for a long time made a steady cult of Sir Thomas Browne, while Dr. Norman Moore is famous as a medical historian and contributed many of the more important medical biographies to the National Dictionary of Biography. Mr. Spencer will introduce his hearers, in Larrey, to a man whom the great Napoleon described as the most valuable individual in his armies. Larrey was with the French armies in Italy, when he established in that country several schools of surgery; he was in the Egyptian expedition, and distinguished himself by his self-sacrificing attentions to the wounded; he served in the Australian campaigns, in Poland, in Spain, and in Russia; and finally he was wounded and taken prisoner at the Battle of Waterloo. Baron Dominique Larrey was a learned surgeon for his time, was one of the earliest organizers of an ambulance service, the author of the admirable Memoirs de Chirurgie Militaire and was an extraordinarily brave and patriotic man.

Medical Scholarship in London.—Seventeen

medical entrance scholarships and exhibitions, of an aggregate total value of about £1,550 will be offered for competition this year in connection with certain metropolitan medical schools. The scholarships and exhibitions are tenable in the faculties of medicine at Kings College, London, University College London, and at the medical schools connected with these two colleges, with the London Hospital, and with the Royal Free Hospital, this last school being the London school of Medicine for Women. That such valuable prizes are a stimulus to student work is undoubted, but what is really required in London is more pecuniary support for the teachers of these subsidized lads.

Pay in the Indian Medical Service.—The Secretary of State for India, Mr. S. Montague, has received a deputation from the British Medical Association regarding the pay in the Indian Medical Service to whom it was stated that the conditions both in pay and prospects of the officer in question would be at once bettered. Regarding the pay of the Service, the Secretary of State announced that an increase of pay amounting to 33 1/3 per cent. of present rates would be sanctioned. The object of this measure being to attract to the Service European candidates with the highest professional qualifications, the question whether Indian candidates entering the permanent Service after December 1, 1918, shall be eligible for increased rates of pay, and if so, to what extent and under what conditions, has been reserved for future consideration. All Indian officers already in the permanent Service on December 1, 1918, will be eligible for the increased rates of pay. As regards private practice Mr. Montague explained that, subject to the reservation that it must be under the control of Government, he was of opinion that it was to the public interest that the Service should enjoy as fully as possible opportunities of private practice, and he assured the deputation that no further restriction of the facilities for private practice now enjoyed by the Service was contemplated. The increasingly liberal attitude toward the natives of India is of good omen.

New Public Health Regulations for the Control of Epidemic Disease.—The toll exacted from the population by various forms of epidemic disease during the years of the war has been very heavy and has led the local Government Board to exhibit much activity. The secretary of the board has circulated to sanitary authorities and medical practitioners a general order containing the Public Health (pneumonia, malaria, dysentery, etc.) Regulations for 1919 and a circular explaining these regulations. Their object is to secure better control over certain epidemic diseases prevalent or threatened at the present time and to increase the facilities for their treatment. The regulations impose the duty of notification by practitioners of any cases of pneumonia occurring under their care, if primary or the result of influenza. All cases of malaria, dysentery, and trench fever must be notified unless the practitioner knows that this has been done in the same district within six months. The regulations in regard to the handling of food by carriers are extended to the enteric fevers, and the duties in relation to lice-borne disease to typhus and relapsing fever. Local authorities may provide medical assistance for any of the diseases named in the regulations. The order it will be seen is remarkably far-reaching, while asking for powers of diagnosis from the general practitioner which it is a high compliment to credit him with. But many thousands of general practitioners during the past four and a half years have seen malaria, dysentery, and trench fever in huge quantities, so that the discrimination necessary to the discharge of the order will be forthcoming.

The Curability of Cancer of the Larynx.—At the last meeting of the Medical Society of London, Sir St. Clair Thomson, the well-known laryngologist and surgeon to the throat department of King's College Hospital, read a paper upon intrinsic cancer of the larynx in which he showed the remarkable progress that has taken place in the operative treatment of what 33 years ago was considered a necessarily fatal condition. Laryngofissure which now gives the sufferer a reasonable hope of recovery from intrinsic cancer, was unsuccessful in the great Billroth's hands, and was condemned by Morell Mackenzie, Henry Butlin, an original and bold operator, and Felix Semon, as an unreliable procedure. How far this is changed is seen from Sir St. Clair Thomson's figures. Of 38 cases of laryngeal cancer on which he has operated, 22 were alive at subsequent periods of from 6 months to 10 years without manifesting any symptoms of return. Moreover, none of the 38—a total made up of 34 males and 4 females—died from any cause directly attributable to the operation. In successful cases the resulting voice was, said Sir St. Clair Thomson, usually a good one. It has been his custom to keep the patient silent after the operation for at least 3 weeks, and then to permit whispering. After which special reeducation might be required, but as a rule it was not necessary, while school-masters and clergymen have been found able to carry on their callings. He now made whispering compulsory for 3 weeks only.

The Medical Parliamentary Committee.—This committee, which has the laudable if extravagant pretext of making itself, by democratic election, a truly representative committee of the medical profession, gave a dinner this week to the new medical members of parliament, asking the heads of many great departments in medicine to meet the new senators. The chair was taken by Sir Watson Cheyne and the principal guest was Dr. Christopher Addison, formerly demonstrator of anatomy at St. Bartholomew's Hospital and now president of the local Government Board. Dr. Addison in a long and carefully rendered speech promised that in connection with the Ministry of Health Bill, which was going to be read in parliament immediately, he would institute Professional Consultative Councils to whose views he would listen and from whom he would expect a great deal of strenuous assistance. But he allowed that there was no organization in the profession that really represented collective medical views, and this is

exactly what the Medical Parliamentary Committee desires to do. At the dinner a forceful plea for medical unanimity at an important juncture of history was advanced by Mr. E. B. Turner, formerly chairman of the Representative Body of the British Medical Association; and if that body should be found meeting with the Medical Parliamentary Committee a federated committee of advice would, *ipso facto*, be formed. Mr. Turner, a well-known London general practitioner, who enjoys the rather unusual distinction for a general practitioner of the F.R.C.S., Eng., was in his youth a famous foot-baller, and he drew his many examples of the value of cooperation, and unselfish team-work from his recollection of the tactics employed in conducting a football fifteen to success.

American Gifts to Portsmouth.—Much valuable hospital stores and comforts supplied by the American Red Cross to the U. S. Base Hospital at Portsmouth, has been given to the Mayor of Portsmouth for distribution among the charities of his city. All the constructional work necessary to turn the Portsmouth Asylum into a hospital has been presented free to the asylum, in addition to the payment made for dilapidation. Portsmouth appreciates such visitors as these.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

PARIS, February 15, 1919.

Meeting of the Academy.—The President of the Academy of Medicine of Buenos Aires telegraphed to the Paris Academy the admiration of himself and colleagues for the self-sacrificing devotion displayed by the French Medical Corps in the war, and their congratulations for the splendid victory of the Allies. Dr. Simon Flexner of New York was received as an honored guest by the Academy and warmly applauded upon his entrance.

Dr. Leguen presented an interesting paper upon the vesical retention which often accompanies an hypertrophied prostate, claiming that, contrary to the generally accepted theory that the cause lies in the mechanical closing of the vesical opening by the enlarged gland, often the cause is found in an hypertrophy of the neck of the bladder, causing it to lose its elasticity and ability to open; this is the reason, he claims, why the removal of the prostate does not at times give the results expected.

An American Memorial.—Mr. Wanamaker of Philadelphia recently made public the suggestion that America build in Paris a monument to the Allied dead in the cause of the right, and much discussion has followed—a proposal made by Dr. P. K. Brown to build a research laboratory appeals to one as a splendid idea.

We Americans want to leave behind us something that will be a live and lasting memorial, something built on what we have developed in common in our work for the right of our fellow men to live and enjoy to the full the blessing of freedom and fraternity, something that will grow in influence, binding us closer and closer to the French people and our other Allies, giving us something to come back to for our own good and a common meeting ground in an intellectual sense. If the memorial could take the form of an Inter-Allied Hospital and Research Laboratory it would serve all these purposes and more.

Thousands of young French women from the best homes have given gladly four years of hospital work to the Service de Santé. They volunteered to meet a demand for nursing that France could not supply. French training schools have not attracted the class of women that our best American schools have, nor have those who have entered French schools had what we would call a nurse's training. It will be impossible for many of these young women to go back to the social lives they led before the war. Some organized expression of their feelings they will surely find, and what can they contribute to France more needed than to give her a system of trained nurses of the highest type, the product of their desire to memorialize in a constructive social form the work they did for their country in the hour of her need? A school that would fill the requirements of these women could be a part of the Memorial Hospital.

There is little need to dwell upon the benefits through science to humanity at large that would come through provision for a common meeting ground of English, French, Italian and American research workers in medicine. The war has shown that centering men on the problems in hand resulted in rapid advances along many lines. Most of the unsolved problems will be abandoned now for months with the rapid demobilization bound to go on. Problems like cancer, pneumonia, etc., are being worked on all over the world, but the advances would be far more rapid if the important agencies would be kept closer in touch through a central organization to which could come all delegated workers. We Americans want to come back to France, we want to feel that we have a common forum where we can meet our Allies for consideration of our common problems. The whole subject of exchange professorships needs to be handled on a new and broader basis and made a rule, not an incident. How better can we do it all than by building a memorial that will always stand for the cause of humanity for which we have fought successfully?

War Neuroses.—Recently there appeared an article from an American base hospital which gives an entirely incorrect account of the outcome of cases of war neuroses. The article conveyed the idea that no one recovered sufficiently to perform military service, when, as a matter of fact, practically all recover.

After a nearby shell explosion, a short period of trembling is not unusual. This may last only a few minutes or a part of a day, and ordinarily these patients are returned to duty by the battalion and regimental medical officers. When the stage of absolute exhaustion is reached, nervous symptoms are likely to develop. These cases usually reach the triage, from which place a large percentage return to duty. Forward neurological stations receive and return to duty many of the cases that have been evacuated from the more forward areas, and this hospital receives only those severe cases passed on by three other medical posts, cases which are not expected to recover speedily.

With these cases the hospital returns to duty the following percentage:

Class A	19 per cent.
Class B	44 per cent.
Class C	32 per cent.
Class D	5 per cent.

Thus 19 per cent. are ready for immediate combat duty, an additional 44 per cent. presumably will be ready after a short interval, making a return to the line of 63 per cent., with 32 per cent. more, 95 per cent. in all, capable of rendering A.E.F. service. Only 5 per cent return to the United States, and even they are not incurable, return indicating in this instance a duration too long to warrant continued care in France

A war neurosis which persists is not a creditable disease to have, as it indicates in practically every case a lack of the soldierly qualities which have distinguished the Allied armies, and it will not be a serious problem. The population of the United States will easily absorb the few scores of unrecovered cases that will exist after the expiration of six months of peace, and no one should be permitted to glorify himself as a case of "shell shock." It should become widely known that a persistent war neurosis is not something of which to be proud. It is not the same as an honorable wound. A temporary state of a few days' duration from which a person quickly recovers is not discreditable, but if the symptoms persist after rest and treatment then it is a disorder of the will, and one does not boast of a weak will. In an army of perfect men there would be no "shell shock" problem.

University Union in Belgium.—Mr. Harmignies, the new Minister of Science, Literature and Public Education, has just been approached with a suggestion for the foundation in Brussels and one or two other large Belgian cities of homes for American university students, such as the one created in Paris during the war, under the title of the American University Union in Europe, to meet the needs of American university and college men and their friends. It is expected that many militarized American university men will settle in France and Belgium, and that many younger Americans will come to study in universities of both these countries in order to perfect their knowledge of the French language and of European matters. For this reason, the creation (in Brussels, to begin with) of an American Students' Home is being mooted.

Mr. Harmignies has hailed the idea with delight as a means of encouraging Belgian intercourse with the United States. Measures therefore will be taken by the Minister, in conjunction with the Paris Committee of the American University Union in Europe, to realize the scheme as soon as quicker communications have been established between Brussels and Paris and when things have taken on a more normal aspect than at present.

Evacuation of Red Cross Hospitals in Paris.—The American Red Cross military hospitals of Paris are being evacuated according to arrangements made to close them as soon as possible. Hospital No. 1, at Neuilly, will probably be the first to close. This hospital has occupied the building that was intended for the school at Neuilly, the Lycée Pasteur, since August, 1914, and the municipality of Neuilly is now anxious to open the school in January. The hospital is now caring for about 600 patients, who are being sent to convalescent homes as rapidly as possible. A few months ago the number of patients was 2,000.

Hospital No. 5, at Auteuil, is also being quickly emptied and will probably close about the same time as the Neuilly hospital.

146, Avenue des Champs Élysées.

CANADIAN LETTER.

(From an Occasional Correspondent.)

Montreal, March 1, 1919.

Conference of Public Health Officers at Ottawa.—On February 3, 1919, representatives of a number of the Canadian provinces met in Ottawa at the behest of Sir Thomas White, acting premier, to discuss the venereal problem and legislation for the control of the same. Each province sent its chief health officer. Among those present were Major General J. T. Fotheringham, D. G. M. S., Dr. P. H. Bryce, chief medical officer Department of Immigration, Ottawa; Capt. Gordon Bates, Toronto; Lieut. Col. I. W. S. McCullough, C. A .M. C., chief officer of health, Ontario, and Dr. Elzear Pelletier, Superior Board of Health, Quebec.

The following resolutions were passed:

"Whereas, in the reconstruction of Canada, following the great war, there are very many important problems that must be taken into consideration, such as finance, soldiers' reestablishment, labor, etc. Among these the conservation of the health and lives of the people is equally, if not most, important to be dealt with, as life is the country's greatest asset. Therefore, be it

"Resolved, That this conference whose personnel is made up of representatives from the various provincial governments of Canada, together with the chief medical officers assembled at Ottawa, for consideration of the venereal disease question, memorialize the Government of Canada that it is in the interests of the future health and life of the citizenship of Canada that there should be immediately established a Federal Department of Health.

"That the representatives of the several governments and health departments of the provinces of Saskatchewan, Manitoba, Ontario, Quebec, and New Brunswick, assembled in conference, are agreed, subject to the consideration of the governments of the respective provinces, that the following general principles are necessary in any provincial legislation looking to the prevention and control of venereal diseases in the said provinces: (1) Compulsory notification; (2) compulsory treatment; (3) standardized treatment; (4) authority to examine persons suspected of being affected with venereal disease; (5) prevention of quack treatment, quack remedies, and of advertising of such treatment and remedies; (6) right of entry of public health authorities; (7) prevention of infection; (8) power to make regulations by order in Council; (9) liability of municipalities or local authorities; (10) penalties.

"That the criminal code of Canada be amended so that a person who is suffering from venereal disease in a communicable form, who knowingly or by culpable negligence communicates such disease to any person, shall be guilty of a criminal offense; provided that (1) a person shall not be convicted under the section if that person proves

that he or she had reasonable grounds to believe that he or she was free from venereal disease in a communicable form at the time the alleged offense was committed; and (2) no person shall be convicted of any offense under this section upon the evidence of one witness, unless such witness be corroborated in some material particular by evidence implicating the accused.

"In view of the fact that the Government of Great Britain supports the treatment of venereal disease in the proportion of 75 per cent. to that of 25 per cent. paid by the local authorities, this conference respectfully urges upon the Government of Canada to provide financial assistance to the provinces on a scale similar to that in Great Britain, for the treatment of these affections.

"That the conference suggests that all seamen coming within the purview of the immigration act be examined for freedom from venereal disease before being allowed ashore at Canadian seaports.

"Whereas, successful control of venereal disease depends, among other factors, for the free or readily available and adequate treatment of these diseases, and whereas the cost of one of the remedies for the cure of syphilis, viz., salvarsan, and of other remedies of that character, is excessive; and whereas the production of the remedy in Canada is monopolized by two persons or firms who have been licensed to carry on such production, therefore, be it

"Resolved that this conference do respectfully recommend that the Government of Canada shall give the right of the production of salvarsan and other remedies of this nature to any person or firm or corporation satisfying the head of the health department of any province; or in the event of the establishment of a federal department of health, of the head of that department, of his or their ability to successfully produce a satisfactory product of the kind."

The conference further recommended that another meeting representative of social agencies should be called to discuss the constructive social measures which may be undertaken to combat the existence of venereal disease in the Dominion; and also that legislation be undertaken to prevent the advertising, selling, or giving of quack medicine to cure venereal disease.

Report of the Committee of Sixteen of Montreal.—Another report of the Montreal Committee of Sixteen, formed with the object of investigating vice conditions in Montreal, making these public, and suggesting plans for improving the existing state of affairs, was issued on February 22. This report emphatically recommended the policy of repression. It is stated that experience gathered in all parts of the world has shown that absolute repression is the only practical method. Toleration is not only ineffective, but contrary to Canadian law. The Committee of Sixteen includes a program on venereal disease and a campaign against it as part of its work, because a strong propaganda of education in regard to the peril will strike at the very roots of commercialized vice.

Feeble Mindedness in Canada.—The question of feeblemindedness is important everywhere. It is a prominent factor in the production and dissemination of venereal diseases, as perhaps the large majority of women who lend themselves to immorality are of a low mental grade. This being so, it is of the first moment, in the interests of public health, to deal with the feebleminded in such a way that they will not be a menace to the general population. In Canada the problem of the feebleminded is greatly exercising the minds of social and medical authorities. Immigration lets into the country a large number of those who, regarded from the outlook of mentality, are weak when not really degenerates. A commmission has been sitting recently in Ontario, before Mr. Justice Hodgins, to inquire into the whole matter and to devise, if possible, means to remedy the situation. Dr. C. P. Johns, physician at the jail farm, Toronto, testifying before the commission a few weeks ago, suggested that there should be established a clearing house in Toronto for mental defectives, where experts could examine patients and decide as to the institutions in which they should be placed. He advocated sending them to farm colonies, but not too many to one place. Dr. Johns said that from 35 to 40 per cent. of 280 inmates at the jail farm were subnormal. Another witness was Canon Tucker of London, who said that he thought there were between 10,000 and 50,000 feebleminded persons in Canada. Dr. Lilian Langstaff, superintendent of the Women's Industrial Farm, Toronto, said that 40 per cent. of the inmates there were mentally defective. She suggested classification as a solution, as moral degenerates taught vice to the ordinary feebleminded person.

Annual Meeting of the Montreal General Hospital.—The annual meeting of the General Hospital, Montreal, was held on February 18, when it was pointed out that more state and municipal support was necessary to enable this large but meagerly endowed hospital to continue its work on the usual scale. It was argued that the burden of caring for the sick who are unable to pay for hospital treatment should be taken over by city and province. In Toronto the hospitals are financed by the city to the extent of $1,000,000. Toronto pays $1.25 per day to each of the general hospitals for maintenance of each indigent patient, and for each such patient the hospitals received 32 cents a day in a year from the Province of Ontario. Montreal grants totaled only $5,000, and grants to the same amount in the year came from the Province of Quebec. The secretary's report showed that 7,295 new patients had been received during the year. Of these there were 2,035 public cases, 1,206 soldiers, 355 sailors, 1,038 private cases, 631 semi-private. Maximum number of patients in the hospital at any time was 441; minimum, 291.

Personal.—Lieut.-Colonel T. A. Starkey, Montreal, has been appointed consultant in sanitation in Military Districts 4, 5, 6, and 7.

Major Brefney R. O'Reilly, M. R. C. S., of Toronto, has been gazetted an officer of the Order of the British Empire.

Dr. Richard Andrews Reeve of Kingston passed away with dramatic suddenness on the night of January 27. Dr. Reeve was returning from a committee meeting of the Academy of Medicine, Toronto, when he fell dead on the street. He was one of the best-known eye specialists in Canada. He was born in Toronto in 1842, and was graduated

from Queen's College, Kingston, in 1865. Shortly afterward he commenced practice in Toronto, and was assistant surgeon of the Toronto Eye and Ear Infirmary, 1867-72. He was also oculist and aurist to the Toronto General Hospital, lecturer on ophthalmology and otology in the Toronto School of Medicine, and became a professor in the University of Toronto in 1887. Dr. Reeve received the honorary degree of LL.D. from Toronto in 1902, and from McGill and Birmingham universities in 1911. He was dean of the medical faculty of Toronto University from 1896 to 1908, and president of the Alumni Associates from 1904 to 1907. He was president of the British Medical Association at its meeting in Toronto, in 1906, and was also president of many Canadian medical associations.

While the late Dr. Reeve shone in his profession, and attained the highest eminence, it is as a man, even more than as a learned and skillful exponent of his chosen specialty, that he will live in the memories of all who knew him. He was of such transparent honesty and nobility of character that the possession of these attributes was obvious to those who knew him only slightly. He was so modest and unassuming that he carried his wide scientific knowledge with a total lack of arrogance. He was imbued with the conviction that it is the wise man who knows how little he knows. In his daily life and in his intercourse with his fellow men he was ever courteous and considerate. These were innate qualities which marked him from the ordinary run of individuals.

Progress of Medical Science.

New York Medical Journal.

March 1, 1919.

1. Fourteen Points Concerning Ophthalmia Neonatorum. Frank Allport.
2. Chronic Headaches with Painful Points. George T. Stevens.
3. A Description of the Carrel-Dakin Treatment. William P. Cunningham.
4. Two Cases of Orbital Disease of Nasal Origin. E. L Meierhof.
5. The Family Medicine Chest of Our Grandmothers. Emily Read Jones.
6. The Linear Dermatoses. Fred Wise.
7. An Improved Bone Surgery Equipment. H. C. Masland.
8. The Removal of Foreign Bodies from the Lung. John W. Murphy.
9. Simple Prevention of Influenza and Pneumonia, Its Frequent Complication. S. L. Burton.
10. A New Principle for Treatment of Gonorrhea by Sensitizers and Developers. F. S. Mason.

2. Chronic Headaches with Painful Points.—George T. Stevens calls attention to the common form of frequently recurring headaches associated with painful points in the region of the back of the head and of the neck and back. Such pains have often been attributed to rheumatism, or to the general nervous disturbance caused by the headache. They may be felt at the location of the occipital protuberances, at the extremity of the spinous process of the seventh cervical vertebra, at the lower points of the scapula, at the vicinity of the twelfth dorsal vertebra, this point being more or less diffuse, at the turn of the shoulders, also diffuse, or at the point at the lower extremity of the spinal column. There may also be frontal, diffuse pain, or pain at the vertex of the skull. Some of these points are painful even when headaches are rare. Such pains were formerly attributed by the author to the principle of reflex, particularly from eye peculiarities, and it was found that with the correction of certain eye defects the pains as well as the headaches often disappeared. Examinations by the tropometer and the clinoscope, however, showed that the view of reflex was too narrow and that many phenomena hitherto considered to be of a reflex character were due to specific mechanical causes. The author became convinced that these pains are associated with the muscles whose attachments at the points involved are subject to special tension under certain conditions and that they are due to a lack of proper equilibrium, the position of greatest equilibrium being the most restful. The next step was to determine the cause of the loss of equilibrium between the head and the body, which affected the splenius capitus and produced pain at its attachment (the most common of the painful points). This cause he believes to lie in the natural desire for clear vision which is dependent upon certain adjustments of the eyes. For instance, if the plane of vision is somewhat depressed, as it is in case the orbits are adjusted in such a way as to induce such a depression of the plane of vision, then both the muscles immediately affecting the direction of the eyes and the surrounding muscles of the ball are brought into action. Furthermore, the muscles at the posterior aspect of the cranium are enlisted in the work of adjusting the plane of vision to its most effective level. The position of the head is also influenced in order to adjust for certain declinations. On the other hand, if the plane of vision is too high, which it may be by reason of the direction of the orbits to the cranium, or if, by reason of certain forms of declination of the vertical meridians, an approximation to the best adjustments of these meridians can be made by throwing the head forward, this is accomplished by means of adjusting the muscles of the neck. These facts have been often stated, but are too generally overlooked. The headaches themselves are the response to similar influences to those which give rise to the painful points, but on account of the more general and, in many cases, more flexible attachments of muscles involved, the pain is more diffuse. Other general symptoms are associated with these pains, such as malaise, nausea, and vertigo. These may arise from the pressure of muscles on certain nerves or from the position of the cranium in its relation to the body. Fatigue, impure air, malnutrition, etc., may be contributing causes. The remedy, however, lies in attention to the condition of the eyes. The use of properly adjusted glasses will serve as effective and permanent means of relief in a certain proportion of cases; in others the position of the eyes in relation to the cranium may require adjustment. The question of the sufficient rotations of the eyes and the great importance of declination should be realized and made the subject of careful treatment.

Journal of the American Medical Association.

March 1, 1919.

1. Staphylococcus Aureus Pneumonia. H. T. Chickering and James H. Park.
2. Early Suturing of Wounds of the Face. V. H. Kazanjian.
3. Schistosomiasis (of Bilharz) Associated with Uncinariasis: Report of a Case. James J. Short.
4. The Complement Fixation Test in Influenzal Pneumonia: Studies with Serum from Convalescent Patients, the Influenzal Bacillus Being Used as Antigen. F. H. Rapoport.
5. The Transmission of Infection Through the Eye. Kenneth F. Maxcy.
6. Hysterical Aphonia Associated with Latent Syphilis: Report of a Case. Charles Wolf and E. G. Breeding.
7. Treatment of the Pneumonic Disturbance Complicating Influenza: The Transfusion of Citrated Immune Blood. C. W. Ross and Erwin J Hund.
8. Epidemic Meningitis and Detection of Meningococcus Carriers. Edwin Henry Schorer.
9. The Pathologic Anatomy of Influenzal Bronchopneumonia. E. R. LeCount.
10. The Diagnosis of Mitral Stenosis. Marcus A. Rothschild

5. The Transmission of Infection Through the Eye.—Kenneth F. Maxcy draws attention to the following facts: (1) That the eyes offer a relatively large surface area for the reception of droplets sprayed from the mouths of other persons. (2) That an organism introduced into the conjunctival sac may be recovered from the nose in five minutes, from the throat in fifteen minutes, and from the stool in twenty-four hours. (3) That the upper respiratory tract of a person wearing a properly constructed mask may be infected by exposing the eye briefly to direct droplet spray. (4) That this portal of entry is of importance in the transmission of acute respiratory infections. He also points out that the frequency with which respiratory infec-

tions, such as acute coryza, measles, and influenza, begin with a conjunctivis suggests that the entrance of the causative organism by way of the eye may not be uncommon. At all events, the evidence is sufficient to warrant serious consideration of this portal of entry in planning measures for the prevention of the spread of contagion. Moreover, the pathologist at the necropsy table should remember that infectious material splashed into the eyes is just as potent as if it had been directly implanted on the mucous membrane of the nasopharynx.

The Lancet.

February 8, 1919.

1. A Lecture on Gizzards and Counterfeit Gizzards. Delivered at the Royal Society of Medicine on February 5, 1919. Sir John Bland-Sutton.
2. Medical Aspects of Aviation. L. E. Stamm.
3. Some Simple Tests of Physical Efficiency. Lieut.-Col. Martin Flack.
4. The Treatment of Venereal Disease. Sir Archdall Reid and P. Hamilton Boyden.
5. Hilus Tuberculosis in the Adult. Clive Riviere.
6. The Substitution of Air for Oxygen in Anesthesia with Hewitt's Gas and Oxygen Apparatus. Captain J. H. Fryer.
7. Stammering in the War Psychoneuroses. Captain E. Prideaux.
8. A Simple Method of Staining the Diphtheria Bacillus by a Toluidine Blue Acetic Acid Mixture. P. L. Sutherland.

2. Medical Aspects of Aviation.—L. E. Stamm draws attention to the importance to the aviator of good muscular tone with the power of nice control and adjustment. Deficiency in this respect is characterized by the pilot instructor as "heavy on controls." Another factor of importance is "conscious control of the muscles," which means the power not only to control the movement of muscles but to relax them. The inability to relax or inhibit muscular contraction shows a lack of conscious control of the motor mechanism, and of complete *rapport* between the muscles and the brain nerve centers. It may be easily demonstrated by instructing the person to lie down on the floor and relax all muscles; in many cases upon gently raising a limb and then letting it go, instead of dropping limply, it remains in the air, showing that the muscles are rigid and not relaxed. In training for aviation a pupil may lose his head and because of this unconscious rigidity hang on to the joy stick, making it impossible for the instructor to take proper control. Stamm suggests that instruction in the proper control of the muscles should be embodied in the ordinary physical training. In the air circumstances arise continually which call for rapid decision, discrimination and judgment, and the proper exercise of these faculties often decides the fate of the aviator. Above all things, a good pilot requires a mental constitution that can take in all the circumstances of a situation and make a rapid and quick decision. He requires not only quick and accurate co-ordination between the senses and the muscles, but also between these and the higher mental functions. Testing for the "simple reaction time," therefore, is of little value in candidates for the air service; what one requires is to test the ability of the candidate to respond quickly and accurately under conditions in which the higher *conscious* mental functions are involved. In order to test this many forms of apparatus have been devised, but the difficulty has been to find one accurate and rapid and at the same time simple enough for practical use. The author has devised such an apparatus, which has proved of value. It consists of a chronoscope which registers to 1/100th second, and is worked electrically by a hammer from a coil and accumulators. There are four signals, two differently colored lights, an electric horn, and an electric bell. The operator has a switchboard, by which any one of the signals is put in the current, and the signal is given by touching the key. The candidate sits opposite the operator and places his right-hand first finger on the brass plate, which is equidistant from the three keys. The end keys are for the corresponding lights and the middle key is for the horn or bell. When the operator presses a key one of the signals is given and at the same time the chronoscope starts. The candidate responds by touching the appropriate key, which stops the chronoscope, and the reaction time is read off in 1/100th seconds. The candidate is first tested for the simple "automatic reaction time" by one signal, having been told beforehand which signal to expect. Though the author attaches no value to these simple tests, they enable the candidate to get used to the machine. Tests are then made with two lights, then with two lights and horn, and finally with all four signals, given haphazard. In the last test the candidate is told to keep his finger on the brass plate instead of using the key previously used for this signal. This involves mental inhibition. The author has tested 150 cases, including pupils and experienced pilots, and has found a remarkable correspondence between the results obtained and their capacities. He has also found that the results of the tests in pupils and the criticisms of their instructors have shown a marked correspondence. These tests involve considerable adjustment and co-ordination between the senses and the muscles and at the same time call for an accurate working of the higher mental functions and prolonged mental effort. The "will" factor is also brought into play; this may be negative, in which case the candidate will not do his best, or it may be very positive, when the candidate will exceed for a time his normal power of reaction, but, mental fatigue setting in, be unable to keep up the pace he has set for himself. The two good types are those in which the reaction times are very quick, but in the final tests several mistakes may be made, and those who are absolutely accurate but appreciably slower in reacting to signals. Another important characteristic in the aviator is emotional stability or "guts." The individual who is liable to serious emotional disturbance or, in the language of the service, liable to get the "wind up," is constitutionally unfitted for work in the air, since no matter how good his judgment may be, in the presence of danger it is inhibited by the emotional disturbance of fear. Stamm has found the pulse rate under ordinary medical examination a very fair guide to detect the "windy" type. He points out that the instability does not appear to be in the vital centers, but in the higher nerve centers controlling them. Then there is the typical facial expression—a furtive, apprehensive look. In cases where this is marked, the author states he would have no hesitation in throwing out its possessor as undesirable for the air service. On the other hand, though quick, accurate judgment and emotional stability or "confidence" are essential qualities, over-confidence in a judgment that does not justify such confidence probably leads to just as many crashes in the air as "wind up" or losing one's head. Aviation requires, above all things, a strong, tough nervous system, for which the author suggests the term "nerve physique," which is found in young men who have led an outdoor life. Stamm disagrees with those who believe that the fighting scout should possess the fighting spirit and be able "to see red." In his opinion, cool agressiveness with judgment unclouded by any emotional disturbance is what is required. Any excess of alcohol or tobacco would, of course, act adversely upon the nervous system, which must be kept up to pitch. Since horse riding is one of the best physical exercises and comes nearer controlling an aeroplane than any other ground occupation, the author suggests that every aerodrome should have its stables. What better place than an aerodrome for polo, he asks?

3. Some Simple Tests for Physical Efficiency.—Lieutenant-Colonel Martin Flack describes certain tests by which the physical efficiency of an individual may be computed. The technique is important, as it is essential that the tests should be carried out in the same way on all occasions. The first of these is the *response of the pulse to exercise.* The sitting rate of the pulse should be first taken, then the standing rate; if unsteady, the pulse should be counted in periods of five seconds until a steady rate is obtained. Standing before a chair, the candidate places one foot upon the seat of the chair and steadily raises his whole body to the height of the seat five times in fifteen seconds, one foot being retained on the chair throughout. The examiner should regulate the speed and rhythm by swinging his arm forward and backward, holding the candidate's wrist with his fingers on the pulse. The subject still standing, the examiner then counts the pulse rate in five second intervals and notes

the acceleration and the time taken to return to the previous rate. The increase should be about 20 and the time of return to normal 15-25 seconds; more than 30 seconds is suggestive of cardio-vascular inefficiency. *The breath-holding test* consists in getting the subject to hold his breath without any preliminery deep breaths. This should be done in the following way: A deep expiration followed by filling of the lungs, clipping the nose, and holding the breath as long as possible. The subject should merely be told to breathe out and breathe in as far as possible and then hold the breath. At the end of the test the subject should be asked as to the sensations experienced. A normal answer would be that the individual "had to give up," "felt he would burst." The author has found that people who are likely to suffer from "oxygen want" give up quickly and state that the "blood rushed to the head," "things became blurred," etc. A man without resolution, of course, will give up early. Colonel Flack points out that if a lungful of oxygen is taken instead of air the time of holding the breath will be increased from one and a half to two and a half times and that break down in the first case is due to oxygen want, because when one breaks down in holding the breath on oxygen the symptoms are quite different—headache, sweating, etc. Furthermore, the power to hold the breath is diminished at altitudes. An efficient man at altitudes is a deep breather, whereas the inefficient man is a panter. In the test performed on forty successful pilots the time of holding the breath averaged about 69 seconds, the vital capacity averaging 3,800 c.c. with a minimum of 3,400 c.c. In a number of men sent up for medical boarding, the time of breath-holding was not more than 45 seconds, usually much less. The third test is a combination of the two former tests—*the time the breath can be held after exercise*. In the unfit, the breath-holding power comes right down, probably by 30 seconds. In the ordinary breath-holding test the standard has been set at 45 seconds. The vital capacity can best be measured by a gas meter, preferably one made by an English firm, as this has the advantage over the German model that its capacity cannot be overshot. In testing officers who had broken down, a number were found to be under the minimum of 3,400 and in some the vital capacity was only 2,800 c.c. Captain Bazett has shown that in addition to the tests mentioned, if the respiration rate is multiplied by the ventilation per minute and divided by the vital capacity, a very good indication is obtained of the power of a pilot to fly. The tone of the abdominal wall may be measured by a U tube manometer filled with mercury, with movable scale. This instrument may also be employed for the sixth test, when the subject is asked to empty the lungs, fill up, blow the mercury to the height of 40 mm. and hold it there without breathing as long as possible. The nose should be clipped. The behavior of the pulse during this test should be noted, a large rise in rate—*e. g.*, from 72 to 132 or 144—is unsatisfactory. Such cardiomotor instability is frequently associated with flying stress and is indicative of the need of rest, the subject not being in a condition to be allowed to continue to fly. The tests described should be used in combination and would be of the greatest value in maintaining the efficiency of a flying station. Every pilot should be examined from time to time and only allowed to do special duty if found fit; in fact, this has been done at one station, with very satisfactory results. These tests would also be of value in measuring trench fatigue, industrial fatigue, and fatigue in women workers; also for the grading of people for positions of trust. With special standards set according to age, they might also be used in assessing the maintenance of physical efficiency in children.

British Medical Journal.

February 8, 1919.

1. A Note on Sodium Morrhuate in Tuberculosis. Lieutenant-Colonel Sir Leonard Rogers, Kt.
2. The Teaching of Obstetrics and Gynecology to Medical Students. A General Survey of the Subjects to Be Taught and of the Methods of Teaching Them. W. S. A. Griffith.
3. A Criticism of Some Modern Methods of Infant Feeding. G. D. Laing.
4. Treatment of Early Syphilis. Robert Gibson.
5. The Treatment of Venereal Disease. Sir Archibald Reid and Surgeon Commander P. Hamilton Boyden.
6. Proflavine Oleate in the Treatment of Open Wounds. Comyns Berkeley and Victor Bonney, with Note by C. H. Browning.
7. Some Experiences of the Recent Influenza Epidemic in Bristol. John W. Taylor.
8. Observations on the Influenza Epidemic in the Bristol General Hospital. With Special Reference to the Use of "N. Pane's Siero Antipneumonico" for Prophylaxis and Treatment of Pulmonary Complications. A. J. Lim

1. A Note on Sodium Morrhuate in Tuberculosis.—Lieutenant-Colonel Sir Leonard Rogers has used a preparation of sodium salts of the unsaturated fatty acids of cod liver oil after extraction by ether in the treatment of tuberculosis. This preparation he has termed Sodium Morrhuate. It is obtained by a process similar to that by which sodium gynocardate is made from chaulmoogra oil, which has proved of great value in the treatment of leprosy. As both tuberculosis and leprosy are produced by an acid-fast bacillus, Rogers, in 1916, suggested the administration of this drug in the treatment of tuberculosis. As, however, in rare cases of leprosy prolonged febrile reactions with temporary exacerbation of the disease may follow sodium gynocardate given intravenously, he hesitated to use it in that way in phthisis. Some gain in weight followed its administration by mouth, but hypodermically it caused painful local indurations. Under these circumstances, the author was led to prepare sodium morrhuate, the subcutaneous infection of which has proved to be almost painless. A year's experience with this preparation in the treatment of leprosy has shown it to be of great value and it would appear, therefore, that the products of chaulmoogra oil possess no specific property in regard to that disease, a fact which lends support to the author's view that the sodium salts of the unsaturated fatty acids of the two oils act in some way on the coating of the acid-fast bacilli, that of tuberculosis having been shown to contain palmitic and other unsaturated fatty acids. In the treatment of tuberculosis a 3 per cent. solution of sodium morrhuate is sterilized in an autoclave and ½ per cent. carbolic acid added. This may be injected subcutaneously with very little pain, and also intravenously. The preparation has been used by the author and also by several other observers and full reports of their work will be published in the *Indian Journal of Medical Research*. In phthisis slight febrile reactions have followed the administration of sodium morrhuate, and occasionally there has been slight hemoptysis, indicating a local reaction in the affected lung tissue, which clearly points to a definite action of the tuberculous lesions. No harm has followed such reactions; frequently the temperature and other symptoms have improved decidedly after them. Their occurrence indicates the necessity of increasing the doses very gradually. The author usually begins with ½ c.c. of the 3 per cent. solution and increases by 2 to 4 minims at each injection, which may be given two or three times a week until reaction occurs; then after a week's interval the dose is reduced. Injections are given subcutaneously until they reach an inconvenient size, such as 2 c.c., when intravenous injections are commenced with ½ c.c. and gradually increased. One observer, Dr. E. Muir of the Kulna Mission Hospital, finds that he gets the gest results by pushing the dose until a febrile reaction occurs, and then returning to a small dose and gradually increasing it. In febrile cases the doses should be smaller and increased more slowly. Muir has gone up to 4 c.c. intravenously two or three times a week. This treatment has resulted in reduction and cessation of fever, diminution of expectoration and cough, and steady gain in weight. The tubercle bacilli decrease in numbers and may in time disappear; they commonly show deficient acid staining and a granular or beaded appearance, indicating that they are actually being destroyed within the tissues. As the author's opportunities for clinical trials have been limited, he submits abstracts from the reports of other observers. Muir considers the results, after a year's experience of the new treatment, to be far superior to those produced by tuberculin and "sufficiently encouraging to lead to the hope that the cases under treatment will be finally cured." As the climate at Kulna is extremely inimical to tubercle, spontaneous improvement can be eliminated; yet in all but the most

advanced cases improvement was obtained. In gland cases reactions in the form of fever and local swelling were noted, but were followed by marked improvement. Captain Knowles, director of the Pasteur Institute, Shillong, though not satisfied that the drug is a specific cure, believes it to be the best line of treatment for tuberculosis in general. Remarkably satisfactory results have been obtained in two cases by Major C. Brierly, I.M.S., civil surgeon of Peshawar. While duly recognizing the responsibility of bringing forward a new treatment for such a serious and widespead disease as tuberculosis, the author is convinced of the harmlessness of the doses recommended. He draws attention, however, to the necessity for caution in pushing the drug beyond the limits which have so far proved safe. With this caution he feels justified in bringing this remedy before the profession in order that further observations may be made and the indications and contra-indications for its use worked out.

Berliner klinische Wochenschrift.

January 6, 1919.

The Famine in Germany.—This subject was discussed in an extraordinary meeting of the Berlin medical societies on December 18, 1918. The meeting took place with J. Orth, president, in the chair. The reports were read by M. Rubner, E. Kraus, A. Czerny, Hamel, A. Weber, L. Kuttner, Beninde, and Wurm, who claimed that the food situation was lamentable. Since 1916 the progressive reduction in the rations has been accompanied by an increase of disease—tuberculosis, pulmonary affections, amenorrhea and sterility, and mortality among infants. The speakers maintained that Germany was the innocent victim of its victors, and unanimously voted, as would naturally be expected, that steps be taken to ask the Allies rapidly and abundantly to furnish Germany with food. If this could not be done the sanitary and moral consequences would result in fearful catastrophe.

The Etiology and Epidemiology of the Grippe.—F. Neufeld and P. Papamarker state that in the absence of reliable documents of the etiology of influenza, steps should be taken in the way of social prophylaxis, namely, to instruct the public as to the danger of contagion from drops of expectoration.

The Etiology of the Grippe.—E. Leschke has at length obtained, after filtration of the pulmonary juices which are then placed for a certain time in an incubator, a growth on broth of corpuscles which were hardly visible in the microscope (magnified 1,500 diameters). The inhalation of this culture of filtered virus produced a febrile process, having the characters of influenza, in several persons. It is to be remarked that this process immediately followed the experimental infection without any incubation period.

Münchener medizinische Wochenschrift.

January 3, 1919.

Heredity in Relation to Ophthalmoscopy.—A. Vogt considers ocular malformations in relation to the laws of heredity. This article confirms in a general way the results of well-known general biological researches, viz., that malformations of the eye are hereditary, become combined, and skip over generations according to Mendel's principles. It goes without saying that heredity is also to be found in normal cases. The ignorance of these laws of heredity resulted in an overestimation of accidental factors for a long time, such as the myth of school myopia, for example. Studied from the viewpoint of the variability of the various causative factors, myopia at present appears to be a phenomenon resulting from a concordant or discordant variation of mathematically definable factors. Thus, the curve of the cornea, likewise the length of the ocular axis, may vary according to the tables of frequency established by Steiger. According to the combinations of these modalities, emmetropia, myopia, or hypermetropia, in given proportions, will result, without any evident or even admissible exogenous influence. Vogt studies the various ocular affections from this viewpoint, as well as the regulating influence exercised by selection in relation to the variations in the disturbance of the visual functions and those where correction can be obtained by proper therapeutic measures.

Operative Communication Between the Pericardium and Pleura in Cardiac Compression from Serous Inflammatory Exudates.—A. Läwen describes a procedure which assures a durable decompression of the heart by draining the pericardial fluid into the pleural cavity. In case of relapse, the pleural collection thus produced can be easily withdrawn by puncture. The opening between the two serous cavities is made at the most declivous part of the posterior pericardium a little to the outer side of the apex and to the inner side of the left phrenic nerve.

A New Operation for Ascites.—R. Sievers proposes, in order to assure the flow of ascitic fluid, to introduce through the diaphragm a fragment of the aorta taken from a cadaver. The fluid is thus drained constantly off into the left costodiaphragmatic sinuses, the flow being kept up by the respiratory movements of the diaphragm. The left pleura assures the regular absorption of the fluid.

Deutsche medizinische Wochenschrift.

January 1, 1919.

On Tissue Regeneration.—A. Bier, in this, his eighteenth article on regeneration, considers the biology of the crevices of the connective tissue and tries to establish a relationship in the histologic make-up not only between the synovia, the synovial sheaths of the tendons, and serous bursæ, but also includes the connective tissue crevices with these serous membranes. In all these crevices a lubricating fluid exists whose composition is sometimes that of lymph, at others more viscous like synovial fluid, when the lining cells of the cavity secrete a fluid more mucous in quality. The secretion depends largely upon movements, pressure, or traction to which a given anatomical region is subjected, but these conditions are not absolutely essential for the secretion of mucus to take place. Bier brings forward examples of serous bursæ which formed, although the parts were not subjected to any mechanical irritation or movement and all that was necessary was the presence of a cavity maintained by keeping it filled with a physiological salt solution in order to transform it into a serous bursa. In this respect, Bier refers more especially to the removal of muscle or bone tumors where the resulting cavity after extirpation was filled with normal salt solution. As to the contents of these serous bursæ *a vacuo*, they consist of mucine unquestionably of the synovial type and can be distinctly distinguished from all other types of mucine.

On the Frequency of the Weil-Felix Bacillus.—L. Dienes comes to rather vague conclusions from the results he has obtained in hemocultures made from patients with typhus fever. While at the beginning of the war the Weil-Felix proteus was very frequently found, it would seem that at present it is much more rarely discovered. The presence of this organism appears to be closely related to a dissemination of disease by the Russians, and Russian prisoners did not show the presence of the proteus after they had sojourned for some time in Germany. The reaction of the Weil-Felix proteus is not a reaction of the specific bacillus of typhus, but rather a humoral change which arises during the evolution of the disease in circumstances which are as yet not clear. (The article is very confused and difficult of comprehension.—The reviewer.)

Wiener medizinische Wochenschrift.

December 21 *and* 28, 1918.

Consultation Institutes for Venereal Disease.—E. Finger proposes to form an organization of consultation posts with the object of intensifying the antivenereal struggle. This system is already working in Germany under the protection of the institutions of national insurance. The work to be accomplished by the consulting institutes is gratuitously to enlighten all persons afflicted with venereal disease as to the necessity of treatment, the degree of contagiousness of his or her affection, etc. As these institutes only have prophylaxis

as an object, the persons are sent to their own physician to carry out the treatment, the institutes' part being to advise the people and superintend their treatment by means of a system of information which puts the public into relation with the entire medical corps.

The Primary Treatment of Cerebral Wounds by Gauze Packing and Lumbar Puncture.—F. Demmer combines these two procedures and thus assures the best conditions for repair. The gauze packing prevents infection from taking place, as well as cerebral hernia, while repeated lumbar puncture prevents the occurrence of compression, etc. The wound being thus undisturbed, the process of repair begins at its edges while granulations spring from the bottom. Then a surface cicatrix forms which takes the place of the tissue destroyed without causing an irritant action (epileptoid), as is the case with cicatrices which are allowed to develop without these precautions.

The Potato Cure in Cardiac Hydropsy.—J. Lipiner, in this article continued from a previous issue, demonstrates the advantages of this diet. To explain the mechanism of its action, the writer invokes the small volume of the food, the relative restriction of liquid, dechloridization, and lastly, and above all, the potassium contents of potatoes. The action of this tuber is particularly diuretic and cardiotonic.

Brazil-Medico.

November 9 and 30, 1918.

Influenza in Brazil.—The Oswald Cruz Institute has naturally taken up the study of the pandemic as it affects Brazil and Dr. de Beauperaire Aragao publishes a preliminary report. The first cases to be reported in Rio were at once subjected to investigation at the Hospital di Misericordia, where they had been interned, and the research has been continued. The sputum finds have in no wise differed from those in Europe and North America. Pfeiffer's bacillus was present in less frequency than the pneumococcus, streptococcus and several other microorganisms. In 18 febrile cases blood cultures were attempted and the pneumococcus and *Streptococcus hemolyticus* were found in one case each. In experiments with small animals the inoculated sputum proved to be deadly, while sputum and other secretions when directly applied caused no reaction. The animals did not perish of any distinct malady but from various secondary infections due to the pneumococcus and other bacteria. In the same periodical for November 30, Drs. Da Cunha, Magalhaes and Fonseca publish a second communication from the Institute. A special small diplococcus has repeatedly been isolated from the secretions of the throat and has also been recovered by hemoculture. This organism was readily cultivated and inoculated into laboratory animals. Every attempt was made to secure pure cultures and the latter were also filtered. The material used in inoculation was also sown in certain culture media. Other inoculations were made with patient's blood. In monkeys the culture caused a type of fever without complications. The infection was transmitted in series from one guinea pig to others, always with the same result. Control experiments with Pfeiffer's germ gave negative results. The experiments with monkeys were simple but conclusive. One injection always caused after very brief incubation a fever of about two degrees Centigrade and when after recovery the inoculation was repeated the animal was found immune. Finally the monkeys could be immunized by a vaccine although these experiments have not been brought to a conclusion. In fine the work of the Institute thus far agrees in its finds with those of Nicolle in France, namely, that the infectious principle is a filtrable virus, but goes further in the recognition of the minute diplococcus as the cause of the pandemic.

Revista Española de Medicina y Cirugia

December, 1918.

Radium in Cancer of the Upper Air and Food Passages.—Botey has used radium for these conditions since 1906, having begun with cancer of the nose. In superficial cutaneous epithelioma of the latter, excellent results are obtained by the use of radium in sessions of 30 to 60 minutes each. Ordinarily half a dozen sessions at intervals of 4 to 7 days suffice for cure. Of intranasal growths treated the great majority were sarcoma or myxosarcoma. Direct applications were made with but little filtration. A Dominici tube enclosed in one of brass is supported with a tampon, and left in the nose for from 6 to 24 hours. After 3 or 4 sessions the sarcomatous tissue melts away. Instrumental removal of parts of the tumor may be used in association with radium. Recurrence sometimes occurs but may be retarded by radium. In endonasal epithelioma results are mediocre, and this is also true of the same lesion in the mouth with occasional exceptions. In the fauces the only growths to be benefited are fibroadenomas and adenomas. In malignant growths in this region any benefit is transitory. As for the larynx it has always been impossible to maintain a tube in its interior and the growths here are attacked through the skin. But results are poor and the author has spent much time in perfecting a technique in which intubation with or without tracheotomy serves for the introduction of a radium tube. He has made numerous applications of radium in this manner in which the external application is added as synergist. There is a conflict here because on the one hand the tolerance of the larynx for this treatment is limited and on the other hand large doses are in theory indicated. The reactions of the tissues are hostile to the development of the growth and favor autolysis of the cancer cell as well as production of fibrous tissue. It is believed, however, that radium sometimes favors recurrence and all in all the author would limit this treatment to small and circumscribed lesions. Radium after extirpation despite its alleged unfavorable action on extensive growths in the direction of recurrence is also held to prevent the first beginnings of recurrence, this duality being difficult to comprehend. In tumors of the esophagus radium is an excellent palliative. The author treats cases of this nature by the application of tubes with the aid of the esophagoscope for the space of about 6 hours, repeating after an interval of from 4 to 7 days. The size of the tube is increased progressively. The sound and catheter can be used as the growth recedes.

Boletina de la Asociacion Medica de Puerto Rico.

December, 1918.

Influenza in Puerto Rico.—Dr. Del Valle Atiles states that on June 13 last a Spanish steamer which sailed originally from Barcelona and touched at various other ports made port at San Juan. On board were five convalescents from influenza. The total number attacked had been thirty. The steamer had been in transit for thirty-two days, which apparently antedated the Madrid outbreak by a few days and seems to show that the disease could already have been present at Barcelona, Valencia, or Cadiz before it broke out at Madrid, as the boat had touched at the two last named. In the first authenticated epidemic of influenza in the United States in 1647 the disease was ostensibly brought from Valencia and hence known as Spanish catarrh. In the recent visitation San Juan was first attacked, then other cities and villages, and finally the rural districts. After the first visitation to the metropolis there was a recrudescence; by this time man to man transmission was no longer in evidence. At present there are only estimates of morbidity. It is computed that 100,000 victims were affected at the same instant in the island, or more than 8 per cent. of the entire population. Of 250 physicians in practice in the island at least 150 contracted the disease. The total number of people attacked during the entire epidemic is set down as 40 per cent. The total number of deaths from the disease in the month of November is known to have been at least 1,570. The total mortality on the island for 1917 for that month was 2,864, while for November of 1918 it was 5,284, or nearly double the first figure. These numbers justify the assumption of 4,000 deaths as the total tribute of the epidemic for Puerto Rico. It is by no means certain, however, that these figures comprise all the complications and sequelæ of the influenza, and a passage by the author seems to imply that at least many of these complications may not have been set down as grippe deaths.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held January 28, 1919.

DR. SOLOMON WIENER IN THE CHAIR.

Cerebral Hemorrhage Complicating Pregnancy.—Dr. EDWIN G. LANGROCK reported this case. He stated that the woman was a 1-para, 23 years of age, who was perfectly well until 7 P. M., on May 26, 1918, when she had a convulsion and fell to the floor. She became unconscious immediately and never regained consciousness. He saw the patient at 12.30 A. M., after her arrival at the Harlem Hospital, at which time her systolic blood pressure was 180, diastolic pressure 120, and pulse rate 54. She had Cheyne-Stokes breathing and her respirations were very poor. The catheter obtained only a few drops of highly colored urine. There was slight edema of the legs and more marked edema of the ankles. The whole right side of the body showed extreme spasticity, as did also the left lower extremity. The neck was slightly rigid. The left pupil was widely dilated, the right pin-point, and neither reacted to light. There was no corneal reflex. Babinski's sign and exaggerated knee-jerks were present on both sides. The lungs showed moist râles throughout, and the heart sounds were feeble and very irregular. Abdominal examination showed an eight and one-half months' uterus with floating head. Vaginal examination showed the cervix two fingers dilated, soft and thin. The fetal heart rate was 148, and of excellent quality. Lumbar puncture was extremely difficult and only a few drops of blood fluid were obtained. The diagnoses considered at this time were eclampsia and intracranial pressure. The latter was thought to be due to either: (1) Cerebral hemorrhage from eclampsia; (2) intracranial injury due to the fall following the convulsion (which might have been eclamptic in origin), or (3) to a medical cerebral hemorrhage as, for instance, the rupture of a blood vessel, the seat of endarteritis due to syphilis. The woman grew steadily worse, ceased to breathe at 3 P. M., and a cesarean section was immediately performed. The baby was resuscitated without much difficulty. It weighed 6 pounds 14 ounces, and left the hospital in three weeks in good condition. The perplexing questions were these: (1) Was the convulsion due to eclampsia or cerebral hemorrhage? (2) Was the cerebral hemorrhage traumatic, from her fall on the floor following her convulsion? (3) If the patient was not eclamptic and if the condition was not traumatic, what would produce a cerebral hemorrhage in a woman 23 years of age showing no signs of syphilis? The post mortem examination made by Dr. Cassasa of the Medical Examiner's staff showed the brain to be the seat of a most extensive hemorrhage, the ventricles all being filled with blood. The vessels at the base were hypoplastic. The heart was small and the aorta not of normal caliber. The whole cardiovascular system showed distinct hypoplasia. On this finding and several others the diagnosis of status lymphaticus was made. The liver and kidneys showed no evidence macroscopically or microscopically of eclampsia. The unusual features of this case were: (1) A case of status lymphaticus complicating hemorrhage and pregnancy with sudden death due to cerebral hemorrhage. (2) Postmortem cesarean section. (3) Intricacies of diagnosis involving eclampsia.

Rare Complication Following Normal Delivery.—Dr. ARTHUR STEIN reported this case for two reasons. First, because it was a rare and interesting case and, second, to secure perhaps some enlightenment in regard to the diagnosis. The patient was 31 years of age, the mother of two children, and had always been healthy. The husband had had gonorrhea several years prior to her first confinement but was perfectly healthy at this time. She went into labor on June 11, 1918, at 2.30 A. M. *without having been examined by any one.* Her confinement was regarded as most normal in every respect. Immediately after bringing the patient back to bed she complained of excruciating pains in the right sacroiliac region, and these pains promptly reached such a state of intensity that the slightest touch in that region caused her to scream with agony. Concurrent with these pains there was an immediate rise in temperature, starting at 101.6° and the following day reaching 104° F. The pulse was 140. The patient kept up this temperature and pulse with remittances, as in real sepsis, for nearly two months. At the end of July her temperature was practically normal, but her pulse was still around 130. At the onset of the sacroiliac pain the patient was carefully examined by an orthopedic surgeon who failed to find any lesion of the bones. On the supposition that there was some slight dislocation of the sacroiliac ligament she was tightly strapped with adhesive plaster. Examination of the patient's blood at the beginning of her illness showed *Streptococcus pyogenes.* She received antistreptococci injections for three weeks, as much as 20 to 30 c.c. a day. During the second week after delivery she developed a swelling of the left knee, which on puncture was found to contain a purulent material in which *Streptococcus pyogenes* was also present. At the end of July the patient was still unable to walk on account of the marked pain in the sacroiliac joint, but she was permitted to leave the hospital on crutches. *X*-ray pictures showed no abscesses of any kind and no destruction of any sacroiliac ligament. Numerous vaginal examinations were made during the course of the patient's illness, all proving negative, and the uterine secretions were also found to contain no signs of any virulent infection. Two weeks after leaving the hospital she again had a high temperature and pulse. When the speaker again saw the patient in the middle of September (three months after delivery) there was a large bulging mass in the right groin above Poupart's ligament. The right thigh was swollen and edematous in its anterior aspects, up to the middle of the thigh. Internal examination revealed the presence of a large abscess originating apparently in the sacroiliac region and working its way down and outward toward Poupart's ligament. The patient was then operated on with the result that after another six weeks of hospital care she was restored to perfect health. A large amount of pus was evacuated which contained *Streptococcus pyogenes* and also *Staphylococcus pyogenes albus.* The abscess was traced to the right iliac joint. Dr. Stein stated that he had reported this case rather in detail because he was uncertain whether this process was due to an old osteomyelitic focus in one of the pelvic bones or whether the whole process was due to some other cause. The surgeons with whom he had consulted were of the former opinion, there being no signs of any other infection and tuberculosis being practically outruled.

Three Cases of Unusual Intestinal Obstruction.—Dr. ARTHUR STEIN reported these cases. The first patient was a woman 24 years of age who gave an absolutely negative history. Six days before she was admitted to the hospital she was suddenly seized with cramp-like pains in the whole lower abdomen and back. These pains lasted for a day or two and then disappeared. They returned again the evening of her admission to the hospital and were accompanied by vomiting and high fever. Examination showed extreme but even distention over the entire abdomen, and marked tenderness on the slightest pressure; the pain, however, was more localized in the right hypogastrium, more especially over McBurney's point. It seemed that the right adnexa were enlarged and that there was a mass which might originate in them and have some connection also with the appendix. A tentative diagnosis was made of either an appendiceal abscess or a ruptured pyosalpinx. Upon opening the abdomen through a median incision the uterus and adnexa as well as the appendix were found to be perfectly normal. To their surprise the colon ascendens was seen to be extremely distended and a few fresh fibrinous bands were found gluing the small intestines together. The colon ascendens and transverse colon were then brought into view and three very small omental adhesions which held the ascending colon down were cut and ligated. The distention of the colon did not subside, however, after these bands were cut and it was therefore deemed advisable to inspect the whole colon down to the rec-

tum. The whole colon was therefore brought out of the abdomen, but no further adhesions were found. No signs of old inflammation or tuberculosis were found and the abdomen was closed. The patient had a rather stormy convalescence but after four days' constant effort on the part of the speaker and his assistants she began to improve and made a perfect recovery. This case was reported not because cases of intestinal obstruction were rare but because the origin was a rare one and the patient's history gave no clue to the condition that led up to the obstruction. The second case was that of a woman 28 years of age, married, who was admitted to the Harlem Hospital on January 26, 1918, in an extremely serious condition. Her former history was of no importance with the exception of the fact that she had undergone a laparotomy for uterine fibroid one year prior to her admission to the hospital. Since that operation she had never menstruated. Twelve hours previous to her admission to the hospital she was seized with severe abdominal pains and vomiting, her bowels moved, and her appearance was that of acute illness. The abdomen was markedly distended and extremely tender to the touch. No free liquid was found on percussion and no palpable masses could be felt. The blood examination showed 14,000 white cells, 89 per cent. polymorphonuclears, and 11 per cent. lymphocytes. A diagnosis of acute intestinal obstruction was made. Upon opening the abdomen some free fluid escaped. A loop of small gut was found firmly adherent to the pelvis and all the intestinal loops below this were greatly distended. This adherent loop of small gut produced a volvulus in such a way that a fold of mesentery tightly compressed the cecum. The cecum and appendix were found lying together underneath a fold of the mesentery to the left side of the abdomen. The appendix was quickly removed, and on freeing the adherent loop of intestine a small amount of fluid escaped from a pin-hole opening, which was closed with three purse-string sutures of linen. The volvulus was untwisted and the whole bowel carefully inspected, but no gangrenous areas were found. The bowel was returned to the abdomen and the abdomen closed in four layers, after a cigarette drain had been inserted. The patient received a stomach lavage of water, followed by sodium bicarbonate while on the operating table and one ounce of castor oil was administered through a tube. The patient's condition remained practically unchanged for two days after the operation. She vomited and was in great distress and all known remedies failed to induce bowel movement. Upon the fourth day following operation her condition became so alarming that a colostomy was done by means of a McBurney incision. In spite of all efforts the patient died. The post-mortem findings were caseous pneumonia in the right upper lobe with abscess formation in the center, acute localized peritonitis, necrotic ileum, and partial obstruction of the large bowel. There was also a specific aortitis. The third patient was also a woman 28 years of age, married, who had been operated on two years previously, the operation being gynecological, though none of the details were known to the patient. When the speaker first saw her she presented all the symptoms of acute intestinal obstruction. At operation, upon trying to excise an old laparotomy scar, a small loop of intestine, about fifteen inches in length, was found lying directly underneath the skin. The hernial ring through which this intestine must have escaped at the time of her previous operation was at the upper end of the old incision. It took the speaker exactly three-quarters of an hour to loosen the loop of intestine from the skin. He was then able to incise the hernial ring and to replace the intestinal loop which was not so black as to indicate resection. The excision of the hernial ring and the closure of the abdomen followed. The patient made an uneventful recovery.

Large Cauliflower Carcinoma of the Cervix in a Woman Twenty-three Years of Age.—Dr. ARTHUR STEIN reported this case. He stated that the patient was seen by him in September, 1918, when she gave a history of having had two children and one miscarriage. Menstruation had been normal in former years, but of late she had been bleeding profusely and constantly. About six months previously she had first noticed a slight irregularity in her menstruation. She went to a physician who gave her some internal medicine but did not examine her. Four weeks before the speaker saw her she consulted another physician who curetted her and diagnosed her case as one of uterine polyp. The patient seemed very sick and anemic. Upon introduction of the speculum into the vagina, a large, irregular, cauliflower-shaped mass originating in the cervical tissue was found. The diagnosis of cauliflower carcinoma of the cervix was easily established. Owing to the poor condition of the patient, it was not considered advisable to perform the radical (Wertheim) operation, but merely a total extirpation of the uterus and adnexa. Some glands around the common iliac artery on both sides were felt to be enlarged, but because of the poor condition of the patient and the deep seat of the cancer they were left behind, as their removal would have prolonged the operation considerably. The carcinomatous growth was about the size of a small child's fist, originated in the anterior cervical canal, and had destroyed practically the whole anterior lip, the posterior lip being apparently free. The microscopical report confirmed the diagnosis of carcinoma. This case was reported for two reasons: First, because of the extreme rarity of carcinoma of the cervix in a woman of that age and because of the malignancy of this type of carcinoma. The patient in this case was now dying of general carcinomatosis. The second reason was to emphasize the extreme importance of examining every woman who came to one's office giving a history of irregular bleeding without regard to her age.

Dr. JOHN O. POLAK stated that he had seen three cases of infection of the sacroiliac joint following labor during the past winter, and the interesting feature in these cases was that all three women were delivered spontaneously. It was difficult to say how infection reached the sacroiliac joint. An interesting point brought out in Dr. Stein's cases was that the temperatures were very similar to those of thrombophlebitis. A point in connection with infection of the sacroiliac joint was that in the presence of this condition there was pain on motion of the uterosacral ligament. In the three cases referred to the condition did not come on as quickly as in the case Dr. Stein reported; in these three cases the trouble came on in five, six, and eight days, respectively. In reference to the case of carcinoma of the cervix in a woman twenty years of age, they had had a case in a woman 23 years of ago who had an immense cauliflower growth. The uterus was removed and the patient subjected to radium treatment, yet within two weeks after the operation there was a recurrence and the woman died in six weeks. The entire pelvis was filled with the growth, showing the extreme rapidity of growth of this type of carcinoma in a woman of this age.

Extraperitoneal Cesarean Section for Contracted Pelvis.—Dr. GEORGE L. BRODHEAD reported this case, a primipara, who was admitted to the Harlem Hospital on Nov. 20, 1918. The patient was suffering from a marked toxemia, as evidenced by albumin and casts, edema of the legs and lower abdomen, and raised blood pressure. There was no headache, visual disturbance, or epigastric pain. The pelvis was slightly juxta minor and the head in R O position was just dipping in the brim of the pelvis. The fetal heart was strong and regular. The membrane had ruptured two days before admission, but the liquor amnii was clear and had no odor. The patient's temperature on admission was 102.5° F., the pulse 192.8. After a twenty-four hour test of labor, the patient being tired out and no progress having been made, except that the cervix was dilated, it was decided to perform extraperitoneal cesarean section. A medican incision was made from the navel to the pubis, but the bladder fold being much higher than usual, the incision had to be carried up one inch above the navel. The peritoneum was incised and the parietal peritoneum sutured to the uterine peritoneum for about six inches in the form of an ellipse. The uterus was incised, foul-smelling, green amniotic fluid escaping. The child was extracted by the breech in good condition. On account of moderate bleeding the uterus was packed with iodoform gauze and closed with the usual interrupted chromic gut sutures, and the peri-

toneum and abdominal incision closed in the usual way. For four days following the operation the patient's temperature reached 102° to 103° F., but on the fifth day it came to normal and remained so. The baby weighed 9½ pounds. Both mother and baby left the hospital in good condition.

Uterine Inertia.—Dr. GEORGE L. BRODHEAD reported this case. He said the woman, a multipara, was admitted to the Harlem Hospital on November 18, 1918. She had a normal pelvis and her previous labors had been short and easy. She stated that the membranes had ruptured spontaneously five days before admission and the night before she had bled a moderate amount. Pains had been present since the day before. No life was felt on this day, though the fetal heart was heard at 9 a. m. in the right upper quadrant. The cervix was long and soft and admitted two fingers. The presenting part could barely be reached by vaginal examination and no diagnosis of presentation could be made, though it was believed that the presentation was not vertex. Meconium-stained, slightly foul-smelling, fluid was draining away. The patient's general condition seemed to indicate no intrauterine hemorrhage and the diagnosis was inertia with dead fetus. The best treatment seemed to be the introduction of a large No. 5 de Ribes bag and then after full dilatation the method of procedure could be determined upon. There were no pains during the next eighteen hours and the patient was in good condition. At 4 P. M. November 19, the cervix was four fingers dilated, the head in R O P position above the brim, and there was a foul discharge from the vagina. As no progress was being made craniotomy was decided upon. The blades of the cephalotribe were applied but at once slipped off. The right foot was seized and easily brought out. Traction on the macerated foot failed to cause advance and the cervix was found thick and contracted about the thigh of the fetus. The patient vomited, had a chill, and a temperature of 102° F. (rectal). The pulse was rapid, and the woman complained of backache and was very restless. A hypodermic of morphine sulphate (one-quarter grain) was given and the patient put to bed, where she soon felt as well as before the operation. At 8.30 P.M. she had two hard pains and in five minutes the child was born. The fetus was not large, there was no hemorrhage and the patient was in good condition. There was a mild febrile puerperium, after which recovery was uneventful.

Dr. ABRAHAM J. RONGY took exception to the terming of the operation Dr. Brodhead described as extraperitoneal; it was really a transperitoneal operation. In an extraperitoneal operation the uterus was entered below the peritoneal surface. Sometime ago he had had to perform a cesarean section on a woman whose scar from the first cesarean section was situated below the umbilicus. He made the usual high incision and to his surprise found that the entire lower part of the anterior wall of the uterus was adherent to the lower abdominal wall, corresponding to the old scar. This brought out the point that if one did a cesarean section on a patient who had had a previous cesarean section and the scar was situated below the umbilicus, he should always bear in mind the possibility of the first operation having been of the transperitoneal variety and should not make a new incision but should go through the old one.

Dr. POLAK said that this point was well brought out by Dr. Green of Boston, who had reported the largest number of cesarean sections on one patient, through the same scar, namely, nine. He used Hirst's modification of the extraperitoneal, and probably the case referred to by Dr. Rongy was one of these. One objection to this operation was that a number of these cases became retroflexed. In this operation one was more likely to have leakage and hence he had abandoned it. He would consider that as Dr. Brodhead had described the operation it was transperitoneal rather than extraperitoneal.

Observations on a Series of Cases of Cesarean Sections Done at the Long Island College Hospital During the Past Six Years.—Dr. ALFRED C. BECK presented this communication in which he presented the detailed report of 57 personal cases, a morbidity study of 107 consecutive sections, and an improved technique for this operation. He concluded that cesarean section was at times the best means of obtaining a good result in serious obstetric difficulties other than marked disproportion. In his personal series of 37 cases only one mother died, and her death in all probability was due to eclampsia. When the operation was done before term there was great danger of losing the premature infant. It should not be performed in the interest of the child in such cases. There was a gross mortality of 3.8 per cent. in the entire series of 105 consecutive cesarean sections. The mortality of 16 cases previously handled on the outside was 16 per cent. The mortality in 86 cases treated wholly in the hospital was slightly over one per cent. The morbidity varied from 13 to 70 per cent. according to the absence or presence of conditions which governed morbidity. With this high morbidity we should be more fearful of mortality than the actual mortality in this series would lead one to anticipate. By completely sealing off the peritoneal cavity from the closed uterine incision a definite barrier was placed in the path of those infections which reached the peritoneum through the infection of the wound in the uterus. This was accomplished by the lapping of the peritoneal flaps as discribed by the author. This technique should be the one of choice even in elective cases. (See *American Journal of Obstetrics and Diseases of Women and Children*, February, 1919, p. 197.)

Dr. SAMUEL W. BANDLER said that the paper showed them a very distinct addition to the types of cesarean section, but there was one objection that must be raised, namely, that it was too difficult for the clean and safe cases, and possibly did not afford sufficient protection for the not clean cases as compared with extraperitoneal cesarean section. He doubted if it was as safe from the standpoint of infection as the extraperitoneal method, but in doubtful cases it was certainly more easily and readily done. The ordinary transperitoneal operation with the higher incision above the umbilicus and the much easier extraction of the fetus and placenta was, it would seem, the better method for clean cases. If the general practitioner could only be taught to be aseptic in his examinations, then even if a case had been in labor for hours and if the membranes had ruptured, the higher operation would be generally a safe one. Dr. Bandler said that while he did not wish to criticize there was one very important surgical feature that had been omitted in connection with the description of this operation, and he thought this criticism held with practically all the methods in use. This was a point of which he had wished to speak in connection with Dr. Stein's case in which he found the coil of intestine immediately beneath the skin of the abdomen. That meant that the peritoneal suture broke after the operation, which opened the peritoneum and also the muscle and fascia, and up came the intestine against the skin. Why, in doing a cesarean section, did they not unite the endometrium by a separate suture, just as in doing a gastroenterostomy or lateral anastomosis they must unite the mucous membranes? He could not understand why they had been so slow about this feature of the operation, for it was both surgical and safe, and made the rest of the cesarean section simple and easy. Dr. Bandler then described in detail his method of suturing the endometrium by which the cavity of the uterus was walled off completely from the subsequent field of operation. After this procedure the exposed raw surfaces made by the uterine incision scarcely bled a teaspoonful, especially since pituitrin was administered by hypodermic at the beginning of the operation. A series of No. 2 iodinized catgut sutures were then passed through the peritoneum and muscle of one side, taking in the thickness of the uterine wall but not going into the endometrium, passing out in the same way on the opposite side. The sutures were all prepared before the operation was begun, and thus five or ten minutes were saved, the whole procedure from the beginning until the patient was in bed taking scarcely thirty-five minutes. He did not cover the knots by uniting the peritoneum on the two sides since it put too great a strain on the peritoneum and was too likely to tear out. He passed a No. 1 or No. 2 chromic suture Connell fashion to the right and to the left between every suture previously placed in the wound. In his first cesareans the suture uniting the mucous membranes did

not pass through it but was passed through the muscle wall just above and parallel to it from side to side, like a subcuticular stitch. He thought that if either of these methods was followed out the results were bound to be better. If infection took place through the stitch punctures, we did not have simply a peritonitis; we had a metritis. Merely covering such an infection with peritoneum, as was done by Dr. Beck's method was not sufficient guard against the spreading of infection. Dr. Beck's method being done in the lower segment of the uterus, nearer to the cervix, was nearer to the area of infection if bacteria had entered the uterine cavity. As to a choice between Dr. Beck's method and the extraperitoneal route, he was seriously in doubt whether in the cases that were not aseptic it was safe to follow his method without some form of drainage. If he were to follow his method in a doubtful case he would prefer drainage.

Dr. WIENER asked those who continued the discussion to include Dr. Bandler's remarks as a part of the subject under discussion. It would appear that Dr. Bandler's suggestion was a return to an older method which they had largely abandoned because it had been considered a bad practice to have the sutures enter the uterine cavity, just as in a complete laceration of the perineum it was not advisable to have the sutures enter the lumen of the rectum.

Dr. BRODHEAD asked if, in performing this kind of cesarean section with the low incision into the uterus, one must convert a vertex into a face presentation or it was necessary to use the forceps, whether it would not be safer to wait before giving the pituitrin until after the extraction of the child, since one sometimes had difficulty in getting the child out after he had given pituitrin before the usual incision. He also asked Dr. Bandler why the suture of the mucous membrane stopped the hemorrhage. He thought it would seem more reasonable to suture the muscular layer. He agreed with Dr. Bandler that in cases in which frequent examinations had been made he would rather do one of the extraperitoneal operations, feeling that it was safer, and he questioned whether in any clean case this operation had advantages sufficient to make up for the increased time it took to do the operation in that particular way.

Dr. Bandler replied that he did not suture the endometrium because it stopped bleeding from the uterine wound; it kept the blood which was being poured out into the uterine cavity from going into the wound and made the remainder of the operation exceedingly simple. When he first developed this technique he passed a continuous suture close to the endometrium all the way through the length of the wound and the remaining sutures were passed as above. He thought the separate union of the mucous membrane an important step in the operation. He believed the secretion from the uterine lining, if it passed up between the muscle layers, might interfere with the union of the muscularis and might digest the stitches, which was another reason for uniting the endometrium, as the first step of repair after incision and delivery.

Dr. POLAK said he did not see what happened to the endometrium after Dr. Bandler's way of suturing, how he took it in the suture. He must go through the decidua and pass through the endometrium and it seemed to him that he would thus make an avenue of infection instead of preventing it. The reason he gave up the other method was because the uterus became fixed high up and on reopening the abdomen one invariably found adhesions to the uterine scar and the abdominal wall in cases operated on by the other method.

Dr. I. C. RUBIN suggested that the reason the method of suture of the mucous membrane described by Dr. Bandler was abandoned might be answered by saying that to-day the surgeon operated in an aseptic field, while in former days any laparotomy was a serious danger. He thought that the method described by Dr. Bandler was less likely to be followed by infection than the method more generally employed, and that the hemostasis that it afforded also conduced to good results, and for these reasons it recommended itself rather highly.

Dr. RONGY expressed the opinion that there was no question but that Dr. Beck had brought them something new to-night. However there were a few points that must be considered in conjunction with his operation in its relation to future pregnancies. He thought that possibly there was a likelihood of more frequent spontaneous rupture of the scar when it was situated in the lower portion of the uterus. The abdominal incision below the umbilicus had also the disadvantage that postoperative hernia took place more readily in the lower portion of the abdominal wall than in the upper portion. As to the suggestion of bringing the catgut through the mucous surface in order to control hemorrhage from the uterine cavity, he felt that the danger of creating a source of infection from the uterus was too great and at all times suturing material should be kept from the uterine cavity during the performance of cesarean section.

Dr. POLAK stated that he had had about fifteen Krönig operations and he had been able to close the uterine wound completely in all but one. He thought they did not get infection from the spill of amniotic fluid but they did get it from the inside of the uterus. They had had seven autopsies following cesarean section and every one had presented the same picture, that was the uterine wound had been more or less open and the suture cut, and the infection had followed the suture tracts from the inside of the uterus outward. It seemed to him that Dr. Beck's operation was nothing more than an improvement on the Krönig technique. This operation had not the disadvantages of the extraperitoneal operation, which was a much more difficult operation technically to do. One point of importance was that they got the incision low and there was a little trick of accomplishing this. After they threw the bladder up against the pubis they took a gauze pad and placed it against presenting parts and threw the uterine segment up, and this in conjunction with the Trendelenburg position enabled one to make the incision in the lower uterine segment. Convalescence after this operation had been very smooth, there being less intestinal and less abdominal disturbance than in the usual cesarean operation.

Dr. BECK, in closing, related a part of his cesarean experience in refutation of Dr. Bandler's remark that this precedure was too difficult for simple cases and not safe enough for questionable cases. He said he thought he had done at least 35 operations according to the technique described by Dr. Bandler, with the exception that the endometrium was carefully avoided in the suturing of the wound. He felt that closure of the endometrium was accomplished by the deep sutures which passed through the entire thickness of the muscle down to, but avoiding, the endometrium. As most of these patients came from the prenatal clinic, the usual factors which rendered cesarean section dangerous were absent, that was, the operation was performed as an elective procedure or when a test of labor was given vaginal examinations were not made. After reviewing his results from the standpoint of morbidity, he concluded that even in elective cases there was danger of peritonitis and every effort should be made to prevent this complication. As was shown in this report of 105 cases from 13 to 70 per cent. had a definite marked morbidity. A suturing of the endometrium as suggested by Dr. Bandler, it seemed to him, would favor the extension of infection to the uterine wound, as the suture passed into the uterine cavity. From the results of this procedure, as shown on examination of the few patients upon which the operation just described had been performed, it would seem that there actually was a complete peritonealization of the uterine wound, as in each instance the uterus was in good position and no evidence of adhesion was noted. Concerning what Dr. Brodhead had said, it used to be their custom to give pituitrin just before they started the abdominal incision. They now gave the injection just before they started the uterine incision. As a result the incision was completed and the child extracted usually before the drug had taken effect. By giving it in this way they felt that it did not interfere in the way suggested by him and at the same time it greatly aided in the control of hemorrhage immediately following the operation. As to Dr. Rongy's remarks, they seldom heard of a ruptured vaginal cesarean section scar. The incision in the operation he had described passed through prac-

tically the same tissue as did that in a vaginal cesarean section. One might therefore expect results with regard to rupture similar to those in vaginal cesarean section.

SECTION ON PEDIATRICS.

Stated Meeting, Held April 11, 1918.

DR. HERBERT B. WILCOX IN THE CHAIR.

The Active Immunization of Children Under Eighteen Months of Age with Diphtheria Toxin-Antitoxin.—Dr. ABRAHAM ZINGHER presented this communication. He stated that the presence of diphtheria in civil communities presented an important problem and quoted statistics showing that from 1900 to 1910 there was an average of 1900 deaths annually from diphtheria, and that of this number 77.5 per cent. occurred among children under five years of age. The mortality from diphtheria was higher than that from measles and scarlet fever combined. Attempts to isolate and control carriers and the administration of antitoxin had failed to control the disease as it had been hoped they would do. After reviewing the work they had done on the Schick test for the past four and one-half years and the conclusions they had reached, Dr. Zingher presented a chart showing the way in which 101 subjects that gave a positive Schick reaction, and were injected with toxin-antitoxin, gradually came to give a negative reaction. Three weeks after the first injection of toxin-antitoxin, 30 per cent. had become immunized, and 70 cases had failed to respond. A week later still more had responded and gave a negative Schick test. At the end of seven weeks only 19 were found to be slow in developing immunity. Of the 19 who were left in the institution at the end of eleven weeks, finally, all showed a negative Schick test. In making an investigation as to the duration of active immunity the speaker visited 30 small institutions and gained permission to test the children and to administer the immunizing doses of toxin-antitoxin to those that reacted positively to the Schick test. Charts showed how these children gradually developed immunity. When the three doses of toxin-antitoxin were given, 85 to 95 per cent. responded by developing a negative Schick reaction, and a year later retests showed that this active immunity still persisted. Later a retest at two and one-half to three years showed that the immunity persisted. This work had been carried out not only in institutions but in schools, with the consent of parents, and in milk stations and day nurseries. Interesting and important results were obtained at the New York Foundling Asylum, where children ranging in age from a few weeks to eight years were tested and immunized. As had previously been pointed out, the infants of immune mothers were often immune at birth but generally lost this immunity later during the first or second year of life. The charts showed the results in three groups of mothers and infants. In the first group the mothers and infants from two to six months of age were both immune; they were retested six months later, and, while the mothers were still immune, the infants had become susceptible, as shown by their giving positive Schick reactions. In the second group of cases the mothers were immune and the infants, from six to nine months of age, susceptible. The susceptible infants were given toxin-antitoxin, and later the Schick test showed that they had become immune. In the third group both the mothers and infants had become immune. Dr. Zingher said that in his experience he had never found any instance where the mother was susceptible and the young infant immune. From this study the following conclusions were warranted: (1) Many children are susceptible at birth or become so shortly afterward or during the first year of life. (2) Morbidity and mortality from diphtheria were highest from the first to the fifth year. (3) All children, both negative and positive reactors, under eighteen months of age should receive three immunizing doses (each 0.5 c.c.) one week apart. (4) Of the children over eighteen months of age and of youths and adults only those should be immunized with toxin-antitoxin who gave a positive Schick reaction. To these susceptible individuals three doses, each 1.0 c.c., were given, one week apart. They found that young children were very likely to take toxin-antitoxin mixture without showing a local or systemic reaction. The susceptibility to a foreign protein developed at a later period in life; none of the unpleasant reactions that occurred in older children and in adults manifested themselves in young children. The immunity produced by the toxin-antitoxin seemed to be fairly constant. The toxin-antitoxin might be used as a general prophylactic measure or it might be used to control outbreaks of diphtheria. By the application of the Schick test and diphtheria toxin-antitoxin, diphtheria had been practically stamped out in one institution in this city. In another institution the work was carried on during a period of over eighteen months and it was found that the children who were negative at the first test continued to give a negative reaction at subsequent tests. Those reacting positively were given toxin-antitoxin and a large percentage of these became immune. From observations made during an outbreak of diphtheria in one institution it was evident that toxin-antitoxin alone could not be depended upon where the outbreak was extensive and threatened to spread. The stamping out of this epidemic in spite of the presence of a large number of carriers afforded a very striking illustration of the control of the situation that the Schick test gave in the presence of an outbreak of diphtheria in an institution. The immunity developing from toxin-antitoxin was slow in appearing, and was therefore not a reliable safeguard in hospital wards where children were crowded together and suffering from various contagious diseases, but in institutions where diphtheria was more or less constantly present and clinical cases and bacillus carriers readily appeared, the combined application of the Schick test and active immunization had given most successful and encouraging results.

Dr. WILLIAM H. PARK stated that he and Dr. Zingher and those helping them had started several years ago with the mild hope that had now grown into an expectation and almost a belief that an entire population could be immunized to diphtheria. They had tried this in a number of institutions and had found that they could succeed in producing a lasting immunity in children who did not develop a natural immunity. Active immunization with toxin-antitoxin would start the process of immunization in a susceptible individual, and when the process had been started the individual would continue to make antitoxin and finally in some way a natural immunity took place. They had now refined the toxin-antitoxin so as to get rid of some of the protein substances derived from the bacillus, which caused in some individuals marked reaction. With injections of this refined preparation children would probably develop no deleterious reaction and, feeling sure on this point, we need have no hesitancy in urging general immunization against diphtheria. The Health Department Laboratory would furnish toxin-antitoxin and send a physician to make the injections when this was desired. They hoped to get a large group of infants and young children who had been actively immunized and to follow them from year to year, and they would be glad to have institutions co-operate with them in this work.

Dr. ALFRED F. HESS stated that the Schick reaction combined with the toxin-antitoxin injections had entirely changed the situation in regard to diphtheria in the institution with which he was connected. Previous to the introduction of this test they had diphtheria every year and always lost one or more children. About five years ago they began using the Schick test and thus dividing the susceptible children from those that were immune. In this way, by using the von Behring toxin-antitoxin method for immunizing all susceptible children, they had been able to control diphtheria in an institution having four hundred children. They had found that for one and one-half or two years 98 per cent. of the children had retained their immunity. They had found that it was not enough to test the children every year to know which were immune at one, two, or three years. They found that 15 per cent. became susceptible between the time of birth and the age of one year; 10 per cent. became susceptible during the second year; 5 per cent. during the third year, so that one must

watch very carefully during that entire period. They had had no case of diphtheria in any of these children in the last three years and thought this a very excellent result. As to the untoward results, there were three of four instances in which a reaction occurred after the administration of the immunizing dose of toxin-antitoxin, but in each instance the disagreeable symptoms were of short duration. He felt that in their institution they could not get along without the Schick test and toxin-antitoxin immunization.

Dr. ZINGHER, in closing, stated that they had given thousands of injections and had found that the younger the child the less likely it was to show a reaction to the toxin-antitoxin. In the thousands of injections he had given he had seen no instance of collapse or shock immediately following an injection. Even the history of the case reported by Dr. Hess indicated that the toxin-antitoxin might have had nothing to do with the temporary indisposition of the child. In one milk station the death of a child twenty-four hours after a Schick test was attributed by the family and the nurse to the Schick test. From their large experience with thousands of properly performed Schick tests they knew that such an occurrence was practically impossible. To emphasize the points brought out in this communication, Dr. Zingher again stated that the best way apparent at the present time for controlling and stamping out diphtheria from our communities was actively to immunize all children under eighteen months with toxin-antitoxin. The older children should be tested with the Schick reaction and only those immunized who gave a positive reaction and were susceptible to the disease.

A Psychological Study of Stealing in Juvenile Delinquency.—Dr. L. PIERCE CLARK presented this paper, in which he made no attempt to consider the so-called benign types of ordinary stealing, nor was emphasis placed on fanciful stealing, such as the cleptomanias. On the whole the main characteristics of the persons here considered were stealing money and consciously committing other antisocial acts of a petty sort, mainly as a consequence of having no well grounded sense of property rights. Usually these individuals showed predominantly many other poor adaptations to authority and law from earliest life, or they appeared unable to grasp thoroughly the importance of making the proper submission and compromise with parental discipline. There were some investigators who looked for the root of these trends entirely in the make-up of the youth himself, accounting him either a moron, a subinhibited mental defective, one antisocially inclined, or a psychopathic inferior, whatever that term might mean. Others greatly favored the idea that the parents or home environment were largely responsible for the development, if not for the actual implantation of the unruly or immoral traits of character. Usually neither group failed to indict the family stock for the delinquents found. When one undertook to investigate a series of such youths he was impressed by the fact that there were many more subtile forces at work than those usually obvious on the surface. Healy, in his investigations of mental conflicts and repressions in delinquent children, analyzed the acts of stealing money to sex delinquency and the incomplete mastery of the latter. In a long series of cases he found surprisingly often concealed sexual conflict as well as defect in parental discipline and lack of proper filial-parental relations. However, he mentioned no case in which antagonism to the father and desire for childish revenge upon this parent was the cause for stealing. Such a case was recently seen by the writer. This was a boy who for several years had stolen and played truant from school. The mother herself had become embittered because of her marital troubles and had gone to live with her mother. The boy stole so much from the grandmother and her immediate family that the mother had to take him elsewhere. The boy's great fault was in concealing his thoughts and daily activities from the grown people. After the more obvious faults in his home and school life were set right and the boy was permitted certain liberties and pleasures, his conduct improved, yet he still lied and was sly. A frank talk with this boy showed that he failed to make any good compromise with discipline and authority. Dr. Clark related several similar instances and also cases in which the delinquency was more complicated and seemed in part due to inability to adjust properly to the revolt at puberty. In one case the cause seemed to lay in a latent homosexual complex. From a study of these cases the writer believed that one might fairly infer, when the act of stealing occurred without apparent motive, at least sufficient for the offense as ordinarily found, that it was probably unconsciously conditioned upon either a defect in adaptation to authority, to sexual conflict and repression at puberty, or it was a vicious homosexual theft substitution for the offender's own sex. The line of therapeutic procedure was obvious in all these cases, that was, explanation by analysis, conscious guidance, and a sympathetic aftercare and training. The enormous demand and difficulty of sublimation in the homosexual victim of the theft habit made correction extremely difficult. In fact it was to be doubted whether the homosexual was ever able to sublimate sufficiently to keep him from social conflicts or from a neurosis more or less dominant through his life. One could not too forcibly insist upon the importance of studying the child's adaptation to parental authority when delinquency began at a very early age as a basis for adjustment to all law and order in the future life of the individual. Sufficient data were at hand to warrant the statement that in the infant mind one of the earliest conceptions of reality was impingement of its desires by the parent. The magic signals of crying and gestures did not move the parent to gratify the child's wish. In the persistence of this feeling of unrequited longing no doubt the child began to scrutinize with increasing wonder the reason for noncompliance on the part of the parent, and more or less rapidly interpreted it in terms of selfishness or the self-satisfied possession of things and powers which enabled the person calmly to resist the child's frantic demands. Soon the parent's belongings were taken as symbols of the parent's potential self-sufficiency. It was not a far step to the further exercise of power for the child's satisfaction in gratifying his personal appetite in stealing fruits, or committing forbidden excesses which he believed the parent had unrestricted opportunities to enjoy. This seizing of the parental power and privilege advanced to new forms of covetousness and conquest, namely, that of possessing the magic symbol, money. In conclusion, it might be said that, even when the child's defective adaptation to authority and property rights were made clear, there were possibly other and still more genetic reasons for this early conflict, namely, the latent infantile desire to usurp the place of the father and all its possible prerogatives. While one need not neglect the study of the adult life of criminals, and especially the causes of recidivism, even there the adult pattern of the antisocial acts would probably be found to embrace in greater part the distorted mechanism of the primary life fault of early life. Dr. Clark, in closing, added his suggestions to those of Dr. Healy and Dr. Glueck to the end that the intensive study of antisocial behavior of the juvenile delinquent might enable us to correct not a few such faults before a fixed formation of habits and character had rendered the offender so hopeless in adult life.

Dr. BERNARD GLUECK referred to his work with the adult offender in a state prison, which had made him feel that the best results in regard to the study of the fundamental causes of misbehavior would be obtained outside of penal and correctional institutions, and certainly much earlier in the life of the individual than was possible in a state prison. There had to be established, first of all, a kind of relationship between the examiner and the prisoner, such as obtained between the patient and the physician, and this was still an ideal in most institutions. Those who were doing clinical work with the prisoner had fallen into the habit of assuming that in diagnosing the personality they had defined the problem of causation of the criminal act. This was true in some cases, but in the majority of instances the mere definition of the personality did not clear up very much the question of causation. It was in the patients who came to them spontaneously, because of some difficulty, and because they started out with the idea of establishing the proper kind of relationship with the examiner, that they obtained the most helpful clues as regards

causation, and not in the course of routine examination. Dr. Clark's paper threw exceedingly illuminating light on some of the origins of misbehavior. They had felt in a number of instances that it was just this revolt to parental authority in the youngster which remained unadjusted, that might lead to the transfer of the same feeling against authority in general, and to the easy development of a peculiarly paranoid outlook on life, which in its fully developed form might be called an anti-social grudge. In some instances this outlook on life assumed a more or less passive character while in others it assumed an active rôle, and the individual, aggressively antagonized the social order or customs. Occasionally a man left prison and frankly admitted that he had no intention of changing his former anti-social habits, actively resented any help or guidance toward rehabilitation, and seemed to derive considerable satisfaction from the coddling of his attitude toward society at large. There was also not much doubt concerning the relationship of disorders in the sexual life or instinct to misbehavior. The efforts at adjustment which certain individuals made when finding themselves confronted with a disturbing situation in their sexual life occasionally assumed an antisocial trend, and the crime might be looked upon as either a defense reaction or faulty method of adjustment. After relating such an instance coming under his observation Dr. Glueck expressed the opinion that studies like Dr. Clark's ought to be encouraged for he believed that an intensive psychoanalytic study of a few cases had the capacity of throwing far more light on the problem of causation of crime than the mere objective clinical study of even a very large number of inmates could ever hope to do.

Dr. Helen Montague of the Psychopathic Clinic of the Children's Court stated that during the last fifteen months they had had 1100 children in the clinic of the Children's Court, of whom 474 were accused of stealing. This would go to show that stealing was one of the most common of the crimes that they were investigating. It had been their course to believe that there was something wrong with these offenders and one was inclined to think at first that they were feeble-minded. About 27 per cent. of this number were feeble-minded; about eight per cent. were psychopathic, and about 28 per cent. belonged to that class which had been designated as constitutionally inferior. This percentage of feeble-minded was rather low; it was generally estimated that among those who were in the habit of stealing about 30 per cent. were feeble-minded. However, the mental condition seemed to have very little to do with stealing. About 50 per cent. of those brought to the Court for stealing had a very poor environment. About 80 of those arrested for stealing were girls; the remainder were boys. The speaker cited in detail the history of several instances of stealing in which mental conflict was a factor. Often the boys first committed theft simply from a spirit of adventure, or to have a good time, and later on acquisitiveness entered in when they found that they could profit by the things they had stolen.

Dr. Edith Spaulding of the Laboratory of Social Hygiene expressed the opinion that Dr. Clark's paper was a valuable contribution to the study of larceny. It was through such intensive studies as these that progress was actually going to be made in the knowledge of antisocial acts. One part of Dr. Clark's paper that had particularly interested the speaker was the variety of types and causes which he brought out in his several cases. It was perhaps a tendency of the times to believe that delinquencies of various sorts could be reduced to a single simple formula by way of explanation and it was perhaps equally true that each reformer had a pet panacea which he advocated above all others in the reconstruction of individuals. There were doubtless many different causes of stealing, some of which Dr. Clark had so well described. The only one panacea which could be recommended was the analysis that had been used in his cases which permitted the fullest knowledge possible of each case and itself suggested the methods needed in the individual's reconstruction. Among the larceny cases among the psychopathic women at Bedford, there were some who had shown unusual resistance to sex temptation and others who had been unable to adjust themselves to the sex requirements of married life or its equivalent. In these cases the relationship of the stealing to the sex maladjustment was not always clear in its origin. Many times, however, the stealing appeared to be due to childish standards of property which persisted in adult life, perhaps due to, or, at any rate, accompanied by a lack of development in other ways, one of which might be undeveloped or suppressed sex emotions. Both manifestations of immaturity might be the result of a series of maladjustments dating back to early childhood which had blocked development. Situations had not been met because of childish attitudes and fears or repressions. The way of least resistance had, therefore, always been chosen.

The sense of "mine" and "thine" was, it seemed, to a large extent an acquired characteristic of adult type, resulting from a realization of social rights and social standards. The appropriation of articles in the family during childhood was a very different matter, legally, when continued in the larger social family in adult years, no matter how similar the fundamental attitudes might be. After citing in detail a case which illustrated the association of stealing with sex maladjustment, the speaker said that in studying the origin of stealing, it seemed as though in many instances it might be the infantile expression of a primitive instinct of an acquisitive nature such as was found in animals as well as in primitive man. Such an instinct might suddenly appear with the same dominating power which the sex instinct manifested in maladjusted individuals. The appearance of this primitive acquisitive instinct as a habit might be likened to a malignant growth which represented tissue as harmless and as common in the embryo as was stealing in the child, but became an undesirable and even a destructive factor when it ran wild in the adult make-up.

Dr. Anne T. Bingham related a recent discussion which she had heard on the subject of stealing by several prominent psychiatrists and criminologists. They all confessed to having stolen as children and stated that stealing was their first delinquency. This was suggestive and indicated the desirability of having a thorough study of this form of delinquency. Making a thorough study of this subject did not mean making a classification, and fitting the individual to that classification, but it meant a thorough study of the make-up of the individual. The New York Probation and Protective Association had been studying this problem in the girls with whom it came in contact. They had found that stealing was very frequently associated with sex delinquency. It was interesting to hear how these individuals rationalized their conduct to themselves though they did not always succeed in doing so to those who studied them.

Dr. Clark, in closing, expressed the opinion that what was needed was the practical application in psychiatry of that principle which had added so much of value to the science of internal medicine, namely, that every case should be studied singly. Hitherto we had studied crime as an act, not from the standpoint of the individual criminal. The work that had been done at Sing Sing by Dr. Glueck and in Boston by Dr. Healy demonstrated that the problem offered by crime must be approached by the intensive study of the individual. As we all knew, stealing and lying were decidedly common traits in all families, and it had been suggested that they be put down in the family code. But when lying and stealing became a habit with the child, it was difficult for him to adjust himself to the codes of society in later life, and it was the failure to make this adjustment that led the delinquent to such disastrous results. It was not that these acts in themselves were essentially asocial in children; it was the continuance of them in later life that gave us the greatest concern, and just why these traits failed to be suppressed or transformed into healthful activities would be a great problem for future investigation. The study of the individual in his effort to meet these adjustments would be a great advance, Dr. Clark said, over the present archaic method of first making a classification and then endeavoring to fit the individual delinquent into a certain class, and would place criminology on a more scientific basis.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

California State Board of Examiners.

Sacramento, October 22-23, 1918.

ANATOMY AND HISTOLOGY.

(Answer ten questions only.)

1. Discuss anatomy of the superficial lymph glands usually involved in the secondary phases of lues.
2. Describe briefly the gross structure of the pancreas and its topographical anatomy.
3. Discuss the structure and relations of the various tissues penetrated in making a lumbar puncture.
4. Describe fully the histology of the skin of the ala nasi and compare with that of the eyelid.
5. Discuss the attachments and action of the pectoralis minor.
6. Discuss briefly the contents of the axilla and their relations.
7. Describe briefly the portal circulation.
8. Describe the dorsalis pedis artery and its relations.
9. Name from without inward, the coverings of the testicle.
10. Describe the microscopic structure of the ovary.
11. Describe fully the frontal sinus.
12. Briefly describe the heart and its topographical anatomy.

PHYSIOLOGY.

(Answer ten questions only.)

1. Discuss the retina and its physiological properties.
2. Discuss the physiology of the blood leucocytes.
3. Describe general physiological conditions influencing blood pressure and blood velocity.
4. Discuss the contraction wave of the heart.
5. Discuss vaso-motor regulation and explain its importance in relation to function of organs, giving three examples.
6. What is intracranial pressure? Discuss the causes and effects of variations in this pressure.
7. Discuss the negative pressure prevailing in the thoracic cavity. Explain what influence it has on the organs in the mediastinal space.
8. Describe how the respiratory reflexes are protective, give examples and trace the reflex.
9. Discuss the events that occur during a single cardiac cycle beginning with the closure of the semilunar valves.
10. What relation should the quantity of vegetable food including starch and sugar bear to animal food consumed in 24 hours?
11. Describe myenteric reflex or the law of the intestines.
12. Describe the nervous mechanism of vomiting.

MATERIA MEDICA, THERAPEUTICS, PHARMACOLOGY AND PRESCRIPTION WRITING.

(Answer ten questions only.)

1. What is incompatibility in medicine and what are the different kinds of incompatibles? Give examples.
2. Outline the treatment of a typical case of "Spanish Influenza" in a young adult. Write prescriptions for all drugs used.
3. Discuss briefly the indications and contraindications for the use of digitalis in affections of the heart.
4. Describe pituitary extract and discuss briefly its uses and abuses.
5. Describe origin, physiological action, and give dose of salicyclic acid.
6. Why is adrenalin used in solutions of novocaine for local anesthesia?
7. Give physiological effects, therapeutic application and mode of administration of oxygen.
8. Name drugs which administered to the mother produce a therapeutical action in the nursing child. What substances increase the flow of milk and what decrease it?
9. What is dichloramine-T? Describe its methods of application and its effect in infections.
10. Give treatment with prescription (written without abbreviation) for acute rheumatism.
11. Outline in detail the non-operative treatment of acute cholecystitis.
12. Discuss psycho-therapy, its relation to and its uses in the modern practice of medicine.

ANSWERS.

ANATOMY AND HISTOLOGY.

1. The inguinal glands are situated between the two layers of the superficial fascia and consist of two groups: (1) A horizontal group, roughly parallel with Poupart's ligament, and (2) a vertical group lying along the upper part of the internal saphenous vein. The superficial glands are about ten to twenty in number. Since syphilis is a *general* infection, and not a *local* disease, any lymphatics may be involved. The above, with the epitrochlear and the cervical, are among those most commonly involved.

2. The *pancreas* is long and irregularly prismatic in shape; it has been compared to a human or dog's tongue. The right extremity is called the head, which fits into the curve of the duodenum; the left end is called the tail and reaches to the spleen. The stomach lies in front of the body of the pancreas, and the transverse colon and its mesentery crosses the lower end of the head, which is also in relation to the superior mesenteric vessels. Behind the pancreas are the superior mesenteric artery and vein, portal vein, inferior vena cava, aorta, crura of diaphragm, left kidney with its suprarenal capsule. Below are the jejunum, the duodenojejunal junction, and the splenic flexure of the colon. Above the neck is the pyloric end of the stomach. The pancreas lies across the front of the first and second lumbar vertebræ, behind the stomach, and in the epigastric and left hypochondriac regions. Its canal is the duct of Wirsung, which extends transversely from left to right and opens into the duodenum in common with the ductus communis choledochus.

3. In making a *lumbar puncture* the following structures are penetrated (in order): Skin, fat and fascia, latissimus dorsi muscle, the posterior layer of lumbar fascia, the erector spinæ mass of muscle, ligamentum subflavum, spinal dura, and arachnoid.

The *skin* consists of (1) epidermis and (2) dermis. The *epidermis* is made up of three principal layers: (*a*) The horny layer, or *Stratum corneum*, is the most superficial and consists of layers of flattened cells, which are dry and horny without any nucleus: (*b*) the *Stratum lucidum*, composed of several layers of nucleated cells, which are more or less indistinct, and in section appear as an almost homogeneous layer; (*c*) the *Rete mucosum*, or Malpighian layer, contains, in its upper part, layers of "prickle" cells, and its inferior layer consists of a single stratum of columnar cells. Pigment is principally found in the lowest layer.

The *dermis*, or true skin, is made up of an interlacing network of connective tissue, formed of white fibrous tissue, yellow elastic tissue, corpuscles, vessels, and nerves. In some parts of the body, as in the skin of the scrotum, perineum, penis, the cutis vera contains unstriated muscular fibers. There are also small muscular fibers in connection with the hair follicles. Beneath the skin the subcutaneous tissues contain abundant adipose tissue.—(From Ashby's *Notes on Physiology.*)

The *fascia* is an inelastic fibrous membrane, composed mainly of white fibrous connective tissue.

Voluntary muscle is composed of long, narrow fibers, with cross striations, surrounded by sarcolemma, and has many nuclei beneath the sarcolemma.

The *dura* consists of dense fibrous tissue containing connective tissue cells.

The *arachnoid* is composed of areolar tissue with few elastic fibers, and is covered by a layer of endothelium.

4. The skin of the *ala nasi* is of the structure given in question 3, but it is thicker than usual and is furnished with an unusual number of sebaceous follicles. It is firmly connected to the underlying structure.

The *skin of the eyelid* is loosely connected with the underlying muscle, it has no fat in its subcutaneous tissue, and the sebaceous glands are very small; the skin is thin.

5. The pectoralis minor has its *origin* in the upper border and outer surfaces of the third, fourth, and fifth

ribs, near the anterior extremity; also from the fascia which covers the external intercostal muscles in that region. It is *inserted* into the coracoid process of the scapula, where it is connected with the origin of the coraco-brachialis and the short head of the biceps. *Action*: It draws the scapula downward and forward and depresses the point of the shoulder; acting from the insertion, it elevates the third, fourth, and fifth ribs (as in forced inspiration).

6. Contents of the axilla and their relations: "It contains the axillary vessels, and the brachial plexus of nerves, with their branches, some branches of the intercostal nerves, and a large number of lymph nodes, all connected by a quantity of fat and loose areolar tissue. The axillary artery and vein, with the brachial plexus of nerves, extend obliquely along the outer boundary of the axilla, from its apex to its base, and are placed much nearer the anterior than the posterior wall, the vein lying to the inner or thoracic side of the artery and partially concealing it. At the fore part of the axilla, in contact with the pectoral muscles, and along the anterior margin are the thoracic branches of the axillary artery, and along the lower margin of the pectoralis minor the long thoracic artery extends to the side of the thorax. At the back part, in contact with the lower margin of the subscapularis muscle, are the subscapular vessels and nerves; winding around the outer border of this muscle is the dorsalis scapulæ artery and veins; and, close to the neck of the humerus, the posterior circumflex vessels and the circumflex nerve are seen curving backward to the shoulder. Along the inner or thoracic side no vessel of any importance exists, the upper part of the space being crossed merely by a few small branches from the superior thoracic artery. There are some important nerves, however, in this situation, viz., the long thoracic or external respiratory nerve, descending on the surface of the serratus magnus, to which it is distributed; and perforating the upper and anterior part of this wall, the intercostohumeral nerve or nerves, passing across the axilla to the inner side of the arm."—(Gray's *Anatomy*.)

7. *Portal circulation:* The hepatic artery and the portal vein convey blood to the liver. The artery carries arterial blood, and the vein food-laden venous blood from the walls of the alimentary canal, and from the spleen and pancreas. Both vessels enter the liver at the transverse fissure, and they ramify in its interior, breaking up into small terminal branches which run between the lobules and send fine capillary branches into their substance; from these latter branches the blood passes into the capillary tributaries of the intralobular veins, thence to the sublobular veins, and from the sublobular veins to the hepatic veins which terminate on the posterior surface of the liver in the inferior vena cava.

8. The *dorsalis pedis artery* is the continuation of the anterior tibial artery, and extends along the dorsum of the foot, from the anterior ligament of the ankle joint, midway between the two malleoli, as far as the first intermetatarsal space, where it divides into the dorsalis hallucis and the plantar or perforating. *Relations.—Superficial:* Skin, fascia, anterior annular ligament, and innermost tendon of extensor brevis digitorum. *Deep:* Astragalus, navicular, middle cuneiform, and their ligaments. *External:* Vena comes, anterior tibial nerve, extensor longus digitorum. *Internal:* Vena comes, extensor proprius hallucis.

9. *Coverings of the testicle, from without inward:* Scrotum (skin and dartos), intercolumnar fascia, cremasteric fascia, infundibuliform fascia, tunica vaginalis.

10. The *ovary* consists of a covering of *germinal epithelium, a stroma* and the *Graafian follicles*. The *germinal epithelium* is a layer of tall columnar cells on the surface. The *stroma* is a fibroelastic structure with many spindle-shaped cells and *interstitial cells*. Some of the latter are derived from the germinal epithelium, some are cells of luteal tissue. Near its attachment to the broad ligament there are numerous plain muscle fibers. The *Graafian follicles* are scattered throughout the stroma. They are small towards the surface, large towards the interior, but the ripest enlarge to such an extent as to reach the surface again. Each follicle is enclosed in an outer tunic of fibrous tissue of the stroma and an inner more cellular tunic.—(*Aids to Histology*.)

11. The *frontal sinuses* are two irregular shaped air cavities, situated between the two lamellæ of the vertical part of the frontal bone. They are separated by a thin septum; and each sinus has trabeculæ of bone. They are not present at birth, and occasionally do not develop at all. The right sinus is generally the larger. The floor is thin, and is over the orbit and upper part of the ethmoid. The sinuses are lined with mucous membrane, and communicate with the middle meatus of the nose by a duct called the infundibulum.

12. The *heart* is located obliquely in the thorax, between the lungs, and enclosed in the pericardium. A line from the lower border of the second left costal cartilage (one inch from sternum) to upper border of third right costal cartilage (half inch from sternum) represents the *base line;* the *right side* will be a line drawn from right side of upper limit to seventh right chondrosternal articulation; the *lower limit* is a line from this last point to the apex (in fifth left intercostal space three and one-half inches from mid-line); the *left side* from left end of upper border to left of apex. The heart lies opposite the fifth, sixth, seventh, and eighth dorsal vertebræ.

Its walls consist of muscle fibers, with some connective tissue to which many of the fibers are attached. The heart is divided by a septum into a left and right heart; and each side is further divided into an upper chamber (auricle) and a lower chamber (ventricle), connected with valves so arranged that circulation of the blood only occurs in one direction. In the *right auricle* are the Eustachian and coronary valves; the former is situated between the anterior margin of the inferior vena cava and the auriculo-ventricular orifice. In the right auricle are also found the openings of the superior and inferior venæ cavæ, coronary sinus, foramina of Thebesius, the auriculo-ventricular opening, the fossa ovalis, annulus ovalis, tubercle of Lower, and the musculi pectinati. In the *right ventricle* are the tricuspid and semilunar valves; also the columnæ carneæ, chordæ tendineæ, and the auriculo-ventricular opening and the opening of the pulmonary artery. In the *left ventricle* are the mitral and semilunar valves, the columnæ, chordæ tendineæ, and the aortic and auriculo-ventricular opening. The heart is about 5 x 2½ x 3½ inches, and weighs about ten ounces. It is supplied with blood by the right and left coronary arteries. The nerve supply is from the superficial and deep cardiac plexuses, and from the vagus and sympathetic system.

PHYSIOLOGY.

1. The *retina* is composed of several layers, from without inwards, as follows: (1) Layer of pigment cells; (2) layer of rods and cones; (3) the external limiting membrane; (4) the outer nuclear, or granular, layer; (5) the outer molecular, or reticular, layer; (6) the inner nuclear, or granular, layer; (7) the inner molecular, or reticular, layer; (8) the layer of ganglion cells; (9) the layer of nerve fibers; and (10) the internal limiting membrane. These structures are bound together by sustentacular fibers or neuroglia. The portion concerned in most acute vision is the macula lutea, and especially its central portion, the fovea. The *blind spot* is that part of the retina at which the optic nerve enters; it is occupied entirely by fibers of the optic nerve, and is devoid of any elements of the retina; it is insensitive to light. When the retina is suitably stimulated by light, there are produced sensations of light, of color, and of form.

"Of all the layers of the retina, the rods and cones appear to be the most essential to vision. It is only this layer that is capable of receiving the light stimulus and of transforming it into some specific form of energy, which in turn arouses in the fibers of the optic nerve the characteristic nerve impulses. A ray of light entering the eye passes entirely through the various layers of the retina, and is arrested only upon reaching the pigmentary epithelium in which the rods and cones are embedded. As to the manner in which the objective stimuli—light and color, so called—are transformed into nerve impulses, but little is known. It is probable that the ether vibrations are transformed into heat, which excites the rods and cones. These, acting

as highly specialized end-organs of the optic nerve, start the impulses on their way to the brain, where the seeing process takes place. As to the relative function of the rods and cones, it has been suggested, from the study of the facts of comparative anatomy, that the rods are impressed only by differences in the intensity of light, while the cones, in addition, are impressed by qualitative differences in color. The nerve-fibers themselves are insensible to the impact of the ether vibrations, and require for their excitation some intermediate form of energy."—(Brubaker's *Physiology.*)

2. The white blood cells are spheroidal masses, varying in size, having no cell wall, and containing one or more nuclei; there are about 7,000 to 10,000 of them in each cubic millimeter of blood. They differ much in appearance, and are divided into (1) small mononuclear leucocytes, or lymphocytes, (2) large mononuclear, (3) transitional, (4) polynuclear, or polymorphonuclear, or neutrophile, and (5) eosinophile. They are all more or less granular, particularly the last two varieties named. They are probably formed in the spleen, lymphatic glands, and lymphoid tissues. Their *functions* are (1) to serve as a protection to the body from the incursions of pathogenic microorganisms; (2) they take some part in the process of the coagulation of the blood; (3) they aid in the absorption of fats and peptones from the intestine, and (4) they help to maintain the proper proteid content of the blood plasma.

3. *Blood pressure* is the pressure of the blood due to the ventricular systole, the elasticity of the arterial walls, and the resistance of the capillaries. The normal arterial blood pressure varies; the systolic pressure being (in males) about 120 to 150 mm. of mercury, and the diastolic from about 90 to 120 mm. of mercury. In females, the pressure is from 10 to 15 mm. lower. Blood pressure is *maintained* by the contraction of the heart, the peripheral resistance, and the elasticity of the arterial walls.

Blood pressure is estimated by a sphygmomanometer. *Arterial pressure* is produced and maintained by: the force and contraction of the left ventricle; the volume of blood pumped by the heart into the already full arteries; the action of the aortic semilunar valves in preventing regurgitation of the blood into the left ventricle when it goes into diastole; the elastic resiliency of the middle coats of the large arteries; the peripheral resistance exerted by the muscular wall of the arterioles, which are especially controlled by the vasomotor nerves; the increased surface over which the blood flows through the capillaries; and the tension of the extravascular tissues. The *capillary pressure* depends upon the condition of the arterioles. If the arterioles to a part dilate, the capillary pressure rises; if they constrict the capillary pressure fails. If, however, the venous pressure is raised, the capillary pressure must consequently rise too. Gravity very materially influences the capillary pressure. The *venous pressure* is influenced by: The presence of valves, which prevent a backward flow; and respiratory movements.—(From Lyle's *Physiology.*)

The *velocity of the blood flow* is largely influenced by the same factors as the blood pressure, particularly the force of the ventricular systole and the peripheral resistance. The possibilities of the variations in these factors are shown in the following table from Waller, in which the plus sign denotes an increase and the minus sign a decrease in effect:

HEART.	ARTERIOLES.	BLOOD-PRESSURE.	BLOOD-FLOW.
Force constant..	Resistance increased	+	—
Force constant..	Resistance diminished	—	+
Force increased .	Resistance constant	+	+
Force diminished	Resistance constant	—	—
Force increased .	Resistance diminished	+ —	+
Force diminished	Resistance increased	— +	— —
Force increased .	Resistance increased	+ +	+ —
Force diminished	Resistance diminished	— —	— —

4. *Contraction wave of the heart.*—"It seems to be demonstrated that normally the contraction of the heart begins in the sinus tissue of the right auricle, the so-called sino-auricular node or in the neighboring sinus tissue. The tissue of the sino-auricular node is designated sometimes as the pace-maker of the heart, on the assumption that its rhythm sets the pace for the rate of the beat of the whole heart. . . . In the mammalian heart, when exposed to view, it is evident that the auricular systole is not sufficient to empty its cavity, so far at least as the atrium is concerned. The contraction of the auricular appendages is more forcible. The contraction may be regarded as a rapid peristalsis, which sweeps a portion of the blood before it into the ventricle. . . . The systole of the ventricle is to the eye a simultaneous contraction of the whole musculature. Various observers, however, have shown that the wave of contraction travels over the heart with a certain velocity, which for the human heart has been estimated at 5 m. per second. It is probable that this wave starts at the base of the ventricle and travels along the course of the fibers—that is, first toward the apex and then into the interior of the heart. In regard to this point there have been great differences of opinion among different investigators. . . . Between the auricular and the ventricular contractions there is a perceptible interval which for the human heart can be estimated from a study of the records of the jugular pulse. The interval between the *a* and the *c* waves, the *a-c interval* as it is called, marks the time intervening between the contraction of the auricles and of the ventricles. This interval may be valued at 0.2 sec. or less, and is due chiefly to the time necessary for the excitation wave to pass over the conducting system between the auricles and ventricles. In all probability the conduction in this system is slower than in the musculature of the auricles or ventricles."—(Howell's *Physiology.*)

5. *Vasomoter regulation.*—"There are two antagonistic sets of nerve fibers: First, the vasoconstriction fibers, whose action causes a contraction of the muscular coats of the arteries, and therefore a diminution in the size of the vessels; second, the vasodilator nerve fibers, whose action causes an increase in size of the blood-vessels, due probably to a relaxation (inhibition) of the muscular coats of the arteries. . . . The main facts regarding the vasomotor apparatus may be summarized as follows:

Efferent vasomotor nerve fibers.
- I. Vasoconstrictor fibers—distributed mainly to the skin and the abdominal viscera (splanchnic area), all connected with a general center in the medulla oblongata, and in constant tonic activity.
- II. Vasodilator fibers—distributed especially to the erectile tissue, glands, bucco-facial region, and muscles; not connected with a general center and not in tonic activity.

Afferent fibers giving vasomotor reflexes.
- I. Pressor fibers. Cause vascular constriction and rise of arterial pressure from reflex stimulation of the vasoconstrictor center, *e.g.* sensory nerves of skin.
- II. Depressor fibers. Cause vascular dilatation and fall of arterial pressure from reflex inhibition of the tonic activity of the vasoconstrictor center, *e.g.* depressor nerve of heart.
- III. Depressor (or reflex vasodilator) fibers. Cause vascular dilatation and fall of arterial pressure from stimulation of the vasodilator center, *e.g.* erectile tissue, congestion of glands in functional activity.

It may be supposed that under normal conditions the activity of this mechanism is adjusted so as to control the blood-flow through the different organs in propor-

tion to their needs. When the blood-vessels of a given organ are constricted the flow through that organ is diminished, while that through the rest of the body is increased to a greater or less extent corresponding to the size of the area involved in the constriction. When the blood-vessels of a given organ are dilated the blood-flow through that organ is increased and that through the rest of the body diminished more or less. The adaptability of the vascular system is wonderfully complete, and is worked out mainly through the reflex activity of the nervous system exerted partly through the vasomotor fibers and partly through the regulatory nerves of the heart." (Howell's *Physiology.*)

6. *Intracranial pressure.*—"By intracranial pressure is meant the pressure in the space between the skull and the brain,—therefore the pressure in the subarachnoidal liquid and presumably also the pressure in the ventricles of the brain, since the two spaces are in communication. This pressure may be measured by boring a hole through the skull, dividing the dura, and connecting the underlying space with a manometer. Observers who have measured this pressure state that it is always the same as the venous pressure within the sinuses. This we can understand when we remember the close relations between the subarachnoidal liquid and the large veins and sinuses. We may consider that the large veins are surrounded by the cerebrospinal liquid, and consequently an equilibrium of pressure must be established between them; any rise in the intracranial pressure raises venous pressure by compression of the veins. This statement holds true at least so far as the intracranial pressure is due to the circulation. The intracranial pressure is caused and controlled normally by the pressure within the arteries and capillaries. This pressure, by enlarging these vessels, tends to expand the brain against the skull, and exercises a pressure, therefore, upon the intervening cerebrospinal liquid. This pressure, however, cannot exceed that in the veins, since, as said, an excess will be equalized by a corresponding compression of the veins. The venous pressure in the end determines, therefore, the actual amount of intracranial pressure. Conditions which alter the pressure in the cerebral veins affect the intracranial pressure correspondingly. Thus, compression of the veins of the neck raises the pressure in the cerebral veins and also intracranial pressure, and a higher general arterial pressure also results finally in a higher pressure in the cerebral veins and therefore in the subarachnoidal space. Under pathological conditions, such as tumors, abscesses, excessive formation of cerebrospinal liquid, etc., which lead to a general compression of the brain, intracranial pressure may be increased beyond normal limits. Experimental investigations show that so long as the intracranial pressure remains below that of the arteries supplying the brain the circulation through the brain is not markedly affected. If, however, the intracranial pressure rises above general arterial pressure the flow through the substance of the brain is prevented and a condition of anemia results which would presumably cause unconsciousness. In anesthetized animals submitted to such a condition it has been shown that a compensation takes place; the anemic condition of the medulla stimulates the cardio-inhibitory center, causing a slower heart-beat; at the same time it stimulates also the vasomotor center, causing a general vasoconstriction in the rest of the body, the result of which is to raise the arterial pressure and reestablish the cranial circulation (Cushing)."—(Howell's *Physiology.*)

7. *Intrathoracic pressure* is "the pressure in the pleural cavity and mediastinal spaces. This pressure, under normal conditions, is always negative,—that is, is always less than one atmosphere. The reason for this is simply that the lungs are distended to fill the thoracic cavity, and consequently the organs, like the heart, which lie in this cavity outside the lungs, are exposed to a pressure of one atmosphere, minus the force of elastic recoil of the lungs. The heart and other intrathoracic organs are protected from the direct pressure of the air by the thoracic walls; they are pressed upon, however, through the lungs, but naturally the atmospheric pressure is reduced by an amount equal to the elastic force of the distended lungs. Intrathoracic pressure, in fact, may be defined as intrapulmonic pressure minus the elastic pull of the lungs, and since under usual conditions the intrapulmonic pressure is equal to that of the atmosphere, the intrathoracic pressure is less than an atmosphere by an amount equal to the recoil of the lungs. The negative pressure in the thorax is, therefore, equal to the elastic force of the lungs, and is larger the more the lungs are put upon the stretch,—that is, the deeper the inspiration." (Howell's *Physiology.*)

8. *Respiratory reflexes.*—"The mucous membrane of the larynx receives its sensory fibers from the superior laryngeal nerve. When this nerve is stimulated artificially the respirations are always inhibited; the chest comes to rest in the position of passive expiration. The same effect may be obtained from the sensory fibers of the glossopharyngeal supplying the pharynx, and indeed a temporary inhibition of respirations occurs through this nerve during every act of swallowing. The sensory fibers of the nasal mucous membrane (trigeminal) cause a similar reflex inhibition when stimulated by injurious or so-called irrespirable gases, such as HCl, Cl, NH_3, SO_2, etc. We may regard this inhibitory influence exerted by the sensory fibers distributed along the air passages as a protective reflex which guards the lungs automatically from injurious gases. This protective action is made more evident by the fact that, together with the cessation of respirations, the glottis is reflexly closed by contraction of the adductor muscles and, if the stimulation is strong, even the bronchial musculature may be contracted, so that in every way the passage to the alveoli is made more difficult. The reflex is, of course, more or less temporary but it possesses the great advantage of being automatic and may enable the animal or individual to escape unharmed from a dangerous locality before the increasing irritability of the respiratory center breaks through the inhibition. . . . We know also that irritating gases or foreign bodies of any sort that enter the larynx may lead to a coughing reflex,—that is, to a series of expiratory blasts which have a purposeful end in the expulsion of the stimulating object. In this case there is not simply an inhibition of the inspiratory movements, but a reflex excitation of a peculiar type of expiratory movements." (Howell's *Physiology.*)

9. *Cardiac cycle.*—"We may begin with the closure of the semilunar valves. At that moment the second heart sound is heard and at that moment the ventricle is quickly relaxing from its previous contraction. Since the auriculoventricular valves are still closed, the ventricles for a brief interval are shut off on both sides. The blood is flowing steadily into the auricles and dilating them. As soon as the ventricles relax, the pressure of blood in the auricles opens the auriculoventricular valves, and from that moment until the beginning of the auricular systole the blood from the large veins is filling both ventricles and auricles. The venous blood which has been accumulating in the auricles during the ventricular systole flows into the ventricles with some suddenness on the opening of the auriculoventricular valves. The ventricles, therefore, dilate rapidly and the auriculoventricular valves are floated into a position ready for closure. . . . The auricular systole sends a sudden wave of blood into the ventricles, dilating them still further and momentarily blocking or retarding the flow from the large veins. The ventricular systole follows at once upon the auricular systole. As the ventricle enters into contraction the auriculoventricular valves are tightly closed, the first sound is heard, and for a short interval the ventricular cavity is again shut off on both sides. Soon the rising pressure in the interior forces open the semilunar valves, and then a column of blood is discharged into the aorta and pulmonary artery as long as the contraction lasts. During this interval the flow at the venous end of the heart continues, the blood being received into the yielding auricles. . . . At the end of the ventricular systole the excess of pressure in the aorta and the pulmonary artery closes the semilunar valves and completes the cycle."—(Howell's *Physiology.*)

10. One part of raw animal food to three parts of raw vegetable foods is about the proper proportion.

11. *Myenteric reflex, or law of the intestine.*—"The peristaltic movement consists in a constriction of the

walls of the intestine, which, beginning at a certain point, passes downward away from the stomach, from segment to segment, while the parts behind the advancing zone of constriction gradually relax. The wave of constriction may be recorded by the use of suitable apparatus. When thus recorded it is found that the advancing area of constriction is preceded by an area of inhibition or relaxation, so that the peristaltic movement consists of two parts, following in a definite sequence, which seem to combine to facilitate the movement onward of the intestinal contents; for it is obvious that the wave of constriction will be more effective in forcing the contents forward if just in front of it the intestine is relaxed by inhibition of the tonicity of the muscular coat. Bayliss and Starling, to whom we owe the discovery of this two-fold character of the movement, regard it as a reflex which is controlled within the intestinal wall itself through its intrinsic ganglia and their afferent and efferent connections. When a bolus is inserted into the intestine at any point its effect upon the sensory fibers is such as to cause a reflex contraction of the muscle above the bolus, that is, toward the stomach, and a reflex inhibition or dilatation below. They speak of this definite relationship as the *law of the intestine;* it is described also under the name *myenteric reflex.* It is obvious that the circular layer of muscles is chiefly involved in peristalsis, since constriction can only be produced by contraction of this layer. To what extent the longitudinal muscles enter into the movement is not definitely determined." (Howell's *Physiology.*)

12. *Nervous mechanism of vomiting.* — Normally, vomiting is a reflex act. "The *afferent* nerves are principally the fifth, and glossopharyngeal (as in vomiting produced by tickling the fauces), and the vagus (as in vomiting produced by gastric irritants); but vomiting may occur from stimulation of other sensory nerves, *e.g.* those from the kidney, uterus, testicle, etc. The medullary centers may also be stimulated by impressions from the cerebrum and cerebellum, producing so-called *central* vomiting occurring in diseases of those parts. The *efferent* (motor) impulses are carried by the vagi to the stomach, by the phrenics to the diaphragm, and by various other spinal nerves to the abdominal muscles. It is very doubtful whether there is any separate center for vomiting; the center for the reflex coincides with those of the nerves mentioned in the medulla oblongata. *Emetics.*—Some emetics produce vomiting by irritating the stomach; others, such as tartar emetic, apomorphine, etc., by stimulating the medullary centers." (Halliburton's *Physiology.*)

MATERIA MEDICA, THERAPEUTICS, PHARMACOLOGY, AND PRESCRIPTION WRITING.

1. By *incompatibility* is understood the simultaneous administration or combination of substances not suitable for such combination. *Therapeutic incompatibility* occurs when two agents are administered together which have antagonistic physiological actions, such as morphine and atropine; this is often intentional. *Chemical incompatibility* occurs when remedies which are mixed together undergo chemical decomposition or explosion. *Pharmaceutic incompatibility* is seen in compounding a resinous tincture with an aqueous solution.

2. *Treatment of Spanish Influenza.* — The patient should be ordered to remain in bed, and be kept warm; he should be isolated as much as possible. Some stimulant such as aromatic spirit of ammonia may be given in 30 minim doses in water every 3 or 4 hours. The following prescription will prove useful:

℞ Extracti aconiti.....gr. ijss
Acetphenetidini 3j
Quininæ sulphatis.....gr. xxiv
Pulveris Doveri .....gr. xij
Misce et. in caps., No. xxiv.
Signa: Take two every three hours.

The patient should have plenty of water to drink, and liquid food; fresh air is necessary. A tonic will be required when convalescence sets in.

3. Digitalis is indicated in diseases of the heart: (1) when heart action is rapid and feeble, with low arterial tension; (2) in mitral lesions when compensation has begun to fail; 3) in nonvalvular cardiac affections; (4) in irritable heart, due to nerve exhaustion. Digitalis is contraindicated in diseases of the heart: (1) in aortic lesions when uncombined with mitral lesions; (2) when the heart action is strong, and arterial tension high. Digitalis is also a diuretic; and it is also used in some forms of nephritis, exophthalmic goiter, pneumonia, chronic bronchitis, etc.

4. *"Pituitary extract,* containing the principle found in the posterior lobe which acts on unstriped muscle, is now an ordinary article of commerce for many therapeutic purposes. It is a favorite remedy for surgical and toxemic shock, and many observers are convinced that it does good by raising the blood-pressure. A very valuable effect is that it promotes peristalsis even when purgatives fail or are vomited, as in cases of intestinal paralysis after abdominal operations. A third indication is to increase labor pains; sometimes in cases of weak pains the child is expelled very rapidly after an injection. It is a powerful diuretic. As a galactagogue its success so far has been doubtful. Feeding with the gland may be valuable in some forms of amenorrhea. Pituitary extract must not be given frequently at short intervals, or its effect may be reversed."—(Short's *Newer Physiology.*)

In obstetrics, pituitrin should not be given until the cervix is dilated or dilatable, and it should be remembered that sometimes the contractions produced by it are so energetic as to endanger asphyxiation of the child and rupture of the uterus.

5. SALICYLIC ACID. *Origin.*—It is derived from oil of wintergreen; also made synthetically by combination of sodium carbonate and carbon dioxide; this is then treated with hydrochloric acid. *Physiological action.*—"Antiseptic; irritant; strongly cholagogue; antipyretic, diaphoretic; diuretic (markedly increasing the excretion of uric acid). In exceptional instances skin eruptions are caused, and in some individuals a train of symptoms analogous to those of cinchonism, and designated as *salicysm,* results from the use of salicylic preparations." *Dose.*—Twelve grains.

6. *Adrenalin is used in solutions of novocaine for local anesthesia:* (1) To prolong the anesthesia; this is accomplished by the vasoconstrictor action of the adrenalin on the local vessels, and this prevents the rapid removal of the anesthetic by the blood stream. (2) To prevent local hemorrhage; this is also accomplished by the vasoconstrictor action of the adrenalin.

7. OXYGEN. *Physiological effects:* "The inhalation of oxygen causes a sensation of warmth in the respiratory passages and increases the appetite and the mental and bodily vigor. The red blood corpuscles are increased in number and stimulated to greater activity. *Therapeutic uses:* Cardiac disease, pneumonia, pulmonary edema, emphysema, convulsions, chloroform narcosis, asphyxia from toxic gases, and in various other conditions characterized by great lividity or by dyspnea due to causes interfering with the oxygenation of the blood; also in chronic conditions such as anemia, albuminuria, glycosuria, and phthisis." *Mode of administration.*—The oxygen is under compression, and is contained in steel cylinders. It is passed through water in a bottle and conveyed through a rubber tube terminating in a funnel which is held in front of the patient.

8. *Drugs which are excreted in the milk.*—Rhubarb, senna, scammony, castor oil, opium, arsenic, iron, lead, mercury, salts, and potassium iodide.

Substances which increase the flow of milk.—Tonics, good food, pilocarpus, and leaves of the castor oil plant applied locally.

Substances which decrease the secretion of milk.—Belladonna, antipyrine, potassium iodide, colchicum with magnesium sulphate, compression of the breasts, camphor applied locally, and bandaging the breasts with adhesive plaster or belladonna plaster.

9. *Dichloramine-T* is a new chlorine compound containing twice as much chlorine as chloramine-T, and having a more powerful germicidal action. It is generally used in a five per cent. solution, and is applied by means of an oil spray. The solution should be freshly prepared, and applied to the wound once a day. The wound is cleansed and dried, and all devitalized tissues are to be removed, bleeding vessels must be ligated, and the wound surfaces then sprayed with the

solution. Drainage may be necessary; and antiseptic dressings are applied. It acts as a disinfectant; and under its influence wounds heal rapidly. No Carrel tubes are needed; the wound has only to be dressed once a day, and so the patient is saved pain and discomfort; there is also a saving of time for doctors and nurses, and also a saving of material used in dressing the wound.

10. *Treatment of acute rheumatism.*—"The patient must be kept absolutely at rest in bed. He should lie between blankets, not sheets, and should wear a flannel night-gown. The diet should consist of milk, diluted with mineral water; if it does not agree, chicken broth may be given. In convalescence it may be more ample, but red meat should be sparingly used. Salicylate of soda, or salicin, is the specific remedy, the latter being the less depressant form. In severe cases, the salicylate should be given in doses of gr. xx every two hours until the pain is relieved, thereafter every four hours till the temperature falls, and then less frequently and in smaller doses, its withdrawal being gradually accomplished. In less severe attacks gr. xx every four hours may suffice. Should the salicylate disagree, other salicyl compounds (oil of wintergreen, aspirin) may be used. In the view of the majority, the salicylates shorten the course, protect the heart, and lessen the liability to relapse; but some still prefer the alkaline treatment, in which case large doses (℥iss) of sodium bicarbonate are given every three hours. The amount is lessened when the urine becomes alkaline. If the pain in the joints is severe, they should be fomented, and the limb should be put upon a splint. A lotion of carbonate of soda and laudanum, or a liniment of methyl salicylate may give relief; and morphine is sometimes required at first. Hyperpyrexia should be treated by the cold bath."—(Wheeler and Jack's *Handbook.*)

For acute rheumatism:

℞ Sodii salicylatis.....℥iv
Potassii bicarbonatis.....℥iv
Aquæ menthæ piperitæ, q. s., ad.....℥iv
Misce et signa: One dessertspoonful, in water, after each meal.

11. *Non-operative treatment of acute cholecystitis:* The line of treatment to be adopted depends entirely on the cause of the catarrhal inflammation. If it arises from cold and exposure and is seen early a warm bath or a vapor bath, and the use of saline cathartics, or of small doses of tartar emetic, are of service. Full doses of quinine and Dover's powder at bedtime, with a light purge in the morning, will often relieve the general symptoms of "cold," and exert a favorable influence upon the local catarrh. If the cause of the disease is a coexisting gastroduodenal catarrh, a mechanical emetic, repeated twice on each of the first two days, is often of service. Large draughts of hot water, either at bedtime or repeated throughout the day, are grateful and beneficial. They are made more palatable by the addition of some one of the alkaline citrates. At the same time an alkaline purgative, largely diluted, should be employed, and then gastric sedatives or the mineral acids. . . . A mercurial purgative is first administered; from one-twelfth to one-third of a grain of calomel, in combination with from three to ten grains of bicarbonate of soda every two hours, until eight or twelve powders are taken. If the bowels are not acted on freely by this combination, it should be followed by a saline laxative. At the same time light sinapisms are applied to the epigastrium. . . . Alkaline effervescing waters, as the Carlsbad, Vichy, or Hathorn waters, or the salts of ammonium, sodium, or potassium may be used. Bartholow advocates the phosphate of sodium in drachm doses. The muriate of ammonium is one of the most reliable alkalies; it may be given in ten or twenty grain doses, three or four times daily, combined with an equal quantity of powdered licorice, and dissolved in water. Ipecacuanha has been advocated in small doses, as one-half of a grain or one grain, frequently repeated, for the same purpose. To increase the secretion, nitrohydrochloric acid, the vegetable hepatic stimulants, benzoate and salicylate of soda, and alkaline waters are of service. The alkalies should be taken in a large amount of water, preferably hot, on an empty stomach, and by slowly sipping the fluid. Emetics are also used for their mechanical effect, but care must be observed lest their too free use incite a fresh catarrh or aggravate the one already existing.—(From *Reference Handbook.*)

12. *Psychotherapy:* "For ordinary therapeutic purposes, the physician may be content to know only the physical signs and symptoms of his patient's affection. For psychotherapeutics, he must, if he would be successful, know every possible source of worry and annoyance and, as nearly as may be ascertained, every slight phase of physical fatigue that may be a disturbing factor in his patient's life. It is surprising how many things the physician will find to correct when he carefully goes over all the actions of the day and ascertains all the possible sources of worry and anxiety his patient may have. It may happen that in many cases he will be unable immediately to remove these sources of worry. But there is relief in telling them, and then, even when they cannot be completely eradicated, they can often be modified. Every improvement of this kind, however slight, is a fountain of favorable suggestion which makes the patient look on the brighter side of life. From every amelioration, however trivial, there is a reaction on the feelings that gives more and more confidence. . . . Psychotherapy represents one of the important elements in therapeutics, and we must learn to use it in a way suitable to our patients. We have to learn to use our drugs in accordance with the nature and physical make-up of the patient. We have to find out by experience just how to use hydrotherapy for each individual. Varying currents of electricity and varying forms of electrical action are needed for different individuals. Just in the same way, our psychotherapy must be dosed out according to the special need of each individual, the form of the affection and the particular kind of mind that is to be dealt with. To learn the place of mental influence in healing, so that we shall not be attributing to other therapeutic factors what is really due to the mind, will be a great advance in therapeutics. In brief, the applications of the general principles of psychotherapy include all means, apart from the physical, of influencing patients. Drugs will always have a large place in rational therapy. Many physical remedial measures, hydrotherapy, electrotherapy, climatotherapy and others, must be important adjuncts. To these is now added psychotherapy. It has been used before, as have most of the other forms of therapy, but in our day we are trying to systematize therapeutic modes so as to secure the greatest possible information with regard to their exact application. This is what must be done with regard to psychotherapy also. Just now its importance is being exaggerated by ardent enthusiasts. The business of the practicing physician must be to select what is best, and above all what is sure and harmless, from the many suggestions offered, so as to build up a practical body of applied truth."—(Walsh's *Psychotherapy.*)

(To be continued.)

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

INTRAVENOUS INJECTION IN WOUND SHOCK. By W. M. BAYLISS, M.A., D.Sc., F.R.S. 163 pages. Illustrated. Price, $3.00 net. Published by Longmans Green & Company, New York.

INDIGENOUS DRUGS OF INDIA. By J. C. GHOSH, B.Sc. 32 pages. Price, 12 annas, or one shilling. Published by Butterworth Co., Ltd., Calcutta, India.

DIABETES AND ITS DIETETIC TREATMENT. By B. D. BASU. 104 pages. Price, Re. 1-8. Published by The Panini Office, Bhuvaneshvari Ashram, Bahadurganj, Allahabad, India.

REPORTS AND COLLECTED STUDIES FROM THE INSTITUTE OF TROPICAL MEDICINE AND HYGIENE OF PORTO RICO. 253 pages. Illustrated. Published by Bureau of Supplies, Printing and Transportation, San Juan, P. R.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 95, No. 12.
Whole No. 2524.

NEW YORK, MARCH 22, 1919.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

THE ROLE OF CELL NECROSIS AND BACTERIAL INVASION IN SURGERY.*

By FENTON B. TURCK, M.D.,

NEW YORK.

ACCORDING to recent reports of the Allied Medical and Surgical Congress the failure to cure shock, wound diseases, and pneumonia is an admitted fact. The defeat of old theories of healing is as complete and humiliating as the defeat of the German Navy. Men like Bayliss,[1] Gray,[2] Bowlby,[3] Wright,[4] Archibald McLean,[5] Sweet,[6] Goodby,[7] Charles,[8] Crile,[9] and Cannon among the British and Americans were admittedly forced by the facts of their experience to a "change of ideas."†

Among the French many authorities like Quenu,[10] Bertein and Ninier,[11] Soubeyan,[12] Brechot and Claret[13] agree in this change. The withering storm of war forced upon them all the conclusion so well expressed by A. J. Hull,[14] who says: "In spite of the advances in surgery, our wound and shock treatment is no more efficacious than in the days of the Trojan War."

Soubeyan's[15] experiences bear out this conclusion. Among 445 wounded, he states that there were 145 deaths, 93 of which were due to shock. All the inoperable cases died, and of the operable cases only five recovered. "We *had* to change our ideas," says Speed.

The disheartening thing about this statement is that in changing their ideas the surgeons turned backward instead of going forward; they returned to the methods of Larry[16]—the methods of the Napoleonic Wars—"débridement" became the common practice, and while it undoubtedly saved many who otherwise would have perished, it was after all a reversal and not an advance.‡

The treatment of pneumonia, which often follows the wounds, seems to have been left *precisely where it was.* Pneumonia still remains the most terrible scourge of our cantonments.[17] Reports show that the mortality from this disease runs from 41.8 to 89.6, a condition too appalling to permit of any apology. It is a challenge to the entire medical profession.

The Public Health Association reports (Dec. 9-12, 1918)[18] that during the months of September, October, and November 400,000 deaths from pneumonia occurred in the United States alone, and that the microorganism (or virus) responsible for these deaths remains unidentified.*

Colonel Vaughan[19] states the case plainly: "So far as respiratory diseases are concerned we know no more than our ancestors knew one hundred years ago, and we may as well admit it. I say that in the face of the greatest pestilence that ever swept our country, we are just as ignorant as the Florentines were in the plagues described in history."

Resumé of the Writer's Previous Work.—Now in opposition to these startling and disheartening statements concerning the treatment of shock, wound disease, and pneumonia, I beg leave to place before you the results of nearly thirty years of laboratory investigation concerning these diseases. I am confident that we are going forward and that it is possible not only to cure a large percentage of wounded men, but to check the scourge of pneumonia.

Let me begin by stating in the plainest possible way that my work, experimental and clinical, has led me to the conclusion that shock and all other manifestations arising from wounds, as well as other secondary conditions such as ulcer or pneumonia, are produced by the absorption of a poison which is a product of necrosed and disintegrated cellular tissue. In other words, I have found that man's greatest enemy is his own decaying tissue. I have demonstrated that these destructive agents

*Read at a meeting of the Surgical Section of the New York Academy of Medicine, January 3, 1919.

†Cannon, in a paper on "Traumatic Shock," recently read before the Société de Biologie, Paris (*Jour. A. M. A.*, December 28, 1918), reaches the conclusion that apparently the victims of shock are poisoned with toxins which may cause death either by rapid action on the nervous system or by acting on the liver and other organs. Professor Delbet in discussing this paper says: "This meeting will be historic in that it is the first time that biologists, physiologists, internists, and surgeons have met together and agreed almost unanimously on the toxic origin of shock."

‡Larry says: "The effects of commotion ('shock'), far from being aggravated, diminish and disappear insensibly after the operation." Larry's method of débridement obviously resulted from the French surgeon's observations and experience in the American Revolution. Duboys, who served with the French troops in American during the War of the Revolution, states that "American surgeons amputated at once (primary operation) and lost but few, but the French delayed and lost many." This is evidently one of the many original ideas that were developed under Benjamin Rush, the surgeon-general of our armies during the Revolution. We now understand the reason why these operations were so successful. It was because the shock (commotion) could not develop because the disintegrating tissues that cause shock (traumatic shock) were removed.[16]

*Nuzum, Pilot, Stangl, and Bonar[23] state that lung puncture in a large number of cases showed that the lung was sterile. In post-mortems pneumococci and streptococci were found, but they appeared to be *secondary* invaders. The influenza bacillus was isolated in only 8.7 per cent. of the cases.

called polypeptids are the death-dealing forces which act in pneumonia as well as in cases of wound and shock.

Furthermore, I have proven that not only are these products of necrosed tissue the cause of death in wounds and pneumonia, and the factors of such diseases as neuritis and various forms of rheumatism, but that they are the chief means of transmitting disease from man to man. Bacteria merely assist in the process. It is wasted energy to conceive that the poison of the cells is psychogenetic, or that it is the direct result of a foreign body called a germ.

It is true that where necrosis occurs from any injury germs are afforded a chance to grow,[40, 50] and by their catalytic action they undoubtedly speed the progress of disintegration, but they do not furnish the poison. The high viscosity and coagulation of the blood and body fluids which cause sickness and death are due not to germs but to the poisonous products arising from decaying cells.

The reason for the humiliating failure of surgery in this war lies in the fact that laboratory workers in research experimentation were too remote from the empirical and clinical happenings of the field, and that physicians and surgeons in war hospitals were not in a position to reproduce in animals the pathological conditions they found on the field and in the clinics. It was for these reasons that they fell back on traditional theories and practices instead of making the advances which were expected of them.

In all my research work clinical observations have been carefully checked up by means of laboratory experimentation. For twenty-five years I have continued, almost daily, to work in my laboratory and to make immediate and careful comparison between that work and my clinical experience. The value of my conclusions depends entirely upon that method.

My early conception of the fact that the necrosed cellular tissue furnished the most destructive of man's diseases came from the treatment of a patient in 1893 suffering from the effects of alcohol.[34] The use of alcohol had been discontinued for some months and the alcohol had all passed out of the system, and still the necrosis and the effect of the poison of the necrosed cells persisted. Careful investigation led me to the conclusion that no effect of the protein poison took place until it reached the cells in the capillary area. I observed that the cells responded at once to the poison.[35, 43] Coagulation of the tissue fluids took place and this increased viscosity of the blood was passed on to the veins. Later I demonstrated that where this coagulative phenomenon occurred suddenly death was instantaneous.[61, 62] If the process went on more slowly a chronic condition resulted.[38, 63]

In subjecting this conception to experimental test I treated the stomach mucosa of animals with reagents which caused immediate death of the tissue. In these experiments the different agents used to produce cell necrosis included acetic acid, tannic acid, chromic acid, silver nitrate, and mustard oil (in large and small doses administered for months), chloroform, and ether. The result in all instances was a breaking down of the cells and a change in the splanchnic circulation as a result of the absorption of the toxic products from the cell necrosis. In this condition of the tissues, if bacteria were introduced they more readily migrated and caused a further disintegration of the cells.[38, 40, 45, 50] In these experiments I was able to cause gastritis. Small doses acted like a stimulant, large doses caused cellular decay. Where the necrosis was small in amount the resulting agents stimulated; if it was extensive, they caused disease and death.

This conception was then put to further test by means of direct observation of the mouth, nose, throat, and stomach.[39] I demonstrated that only when the necrosis of the cells was well established was it possible to grow germs on the wall or between the gland cells. Examination from time to time showed that the bacteria at no time entered the tissue or blood current. The growth of the germs merely increased the necrosis of the cell. The germ did not make the poison directly; it only aided by its presence and growth the decay of the cell, thus adding to the amount but not changing the character of the poison.[40, 46]

By means of an instrument called the gyromele[40, 41] and by the use of nippers* I secured a specimen of the stomach wall and sections of the small intestines, by means of which I was able to study the progress of the disease on the internal organs. By these methods I proved that ulcers of the stomach were caused by cytolysis and autolysis, processes which in some cases resulted in perforation and death.[36, 46, 61, 66]

In these experiments, together with many others, I proved that it made no difference how the death of the cell was caused, the products of disintegration upon being absorbed produced autolysis, which when occurring in an area rich in ferments (such as the pyloric end of the stomach and duodenum) caused ulcers to form which ultimately perforated the muscle coat of the organ. Other diseases, such as dilatation of the stomach and intestines, were found to be due to a similar toxic influence, not on the nerves but on the *muscle cells* of the stomach and intestines.[57, 58, 69]

Experimental tests also revealed the fact that wound shock was due to a toxin produced by disintegrated animal tissue. I was able to produce the same effect by exposing the viscera to the air and afterward injecting the products of the resulting dead cells of the abdominal and pleural cavity into the animal.[68] The injection of such products caused

*Examination of the dead cells and bacteria was made possible by the invention, in 1893, of an instrument named the "gyromele," or revolving sound, and the "nippers," by means of which specimens of the stomach wall and small intestines could be secured at will in both experimental animals and patients for comparative study. This instrument is a very flexible cable, tipped with a soft sterilized sponge or *swab* placed within a long rubber tube, which could be passed through the stomach and through the pylorus into the duodenum. A small revolving attachment, not unlike a surgical drill, and palpation of the outer abdominal wall, or observation with the *x*-ray, by which the instrument may be directed to the area desired. This method of sounding the intestine has been used by the author ever since its invention. A special instrument was devised for the nose and throat on the same principle.[39] The Rockefeller Institute has adopted this principle for taking cultures. In 1903 emulsions of gastric membrane injected into five animals resulted in all showing necrosis and destruction of gland tissue.[57]

death from shock. Precisely similar results were obtained where the disintegration of the cells was the result of chloroform.[43]

Comparisons between experiments on animals and cases in the hospitals and clinics gave parallel findings.[44, 50] As I studied the clinical conditions side by side with the records of my years of experimental research work, I not only recognized the same phenomena, but determined upon a course of treatment in harmony with the facts. The leadings were clear and decisive. The right treatment was that which would neutralize the poison from the disintegrating cells and stop the process of necrosis. This treatment has been my practice for many years.[66, 67, 68, 69]

The great war which is now closing has brought us face to face with the appalling realization that a great malfeasance has been committed on those of our brave soldiers who were wounded in battle and exposed to the elements. We are confronted with the question, "Are *psychoneuroses* in shock and *germs* in wounds (and in cases of pneumonia) the *only* causes of these diseases?"

Bowlby says[3] it was really a race against time. With the awful tissue destruction in battle wounds autolysis or self-destruction of tissue cells begins the moment the local circulation is destroyed. The shock toxin thus formed is increased by the growth of bacteria. "The transmutation of war is swift" and débridement with primary suture became the exclusive preventive and curative measure against shock and "wound disease." At one stroke it removed the disintegrating tissue that caused the disappearance of shock, the wound disease, and all the train of symptoms.

In order to answer this question for myself and for others, I returned to my laboratory with renewed energy that I might extend my experiments to something like the actual conditions found in battle.[51, 52]

As a result of this recent investigation I have verified all previous experiments and conclusions, and now have an antitoxin (Serum "A") and certain autovaccine methods which prevent shock, or stop it if it has already occurred. By injecting an emulsion of human tissue into a horse I have been able to produce a wound-infection antitoxin. To increase the value of the antigen the human tissue was subjected to the hastening action of bacterial cultures and the resulting serum has been tested and found to be of the highest value in practice. It causes the rapid healing of all types of wounds.

So in pneumonia, an antitoxin "C," formed by the use of lung tissue, appears to have a specific value of the highest importance in the treatment of respiratory diseases. It has proven effective even in asthma and similar anaphylactic conditions.

Conditions Rather than Diseases to be Treated.—It is customary to classify the various injuries which affect the body under the heads "Mechanical," "Physical," or "Chemical," but in the last analysis all injuries register in the same area and in the same way. My experiments have shown that no effect of a blow is apparent until the force of the impact reaches the visceral area. Violent impact results in abrupt change in the visceral circulation, while a series of light percussions on the body surface is followed by a similar but more gradual stasis of the venules of the liver, lungs, stomach, and intestines. Shaking the animal, or discharging a shell in the air or in water in close proximity to it, produced identical symptoms. No matter what the injury might be the results were the same, differing only in degree.

Furthermore, fresh resected portions of the viscera such as loops of the intestines or pieces of the voluntary muscle tissue, when subjected to the same shock impulse, displayed the same coagulation of the tissue fluids and blood. Similarly, muscle tissue rendered liquid after freezinz, fresh blood drawn into a paraffined syringe, liquid gelatin, eggs, milk, and other colloidal substances when put in a "shock box" and subjected to the shell explosion promptly clotted or coagulated precisely as in the case of the live animal's tissue.[51, 52]

My experiments also show that no effect from cell necrosis was apparent until the polypeptids that resulted reached the visceral area, producing the identical condition of the colloids as occurred in impacts or mechanical blows. Precisely the same congestion or stoppage of the blood current in the viscera, *e.g.* stomach, intestines, liver, and lungs, occurred when there was disintegration of the body tissues resulting from mechanical or chemical injury.[35, 45, 51]

This disintegration always resulted in the formation of polypeptids. These polypeptids are specific to the species in which the action takes place, namely, cat tissue is poisonous to the cat more than to the dog, the tissue of the guinea-pig to the guinea-pig more than to any other animal, etc., though it is possible by the use of overwhelming doses and by sensitization to render an animal susceptible to an alien protein. On the other hand, we may regard each species already anaphylactic or sensitized to its own disintegrated tissue cells—polypeptids.

Wound injury may be produced by chemical means such as chloroform, because chloroform causes cell necrosis. Other agents will produce the same cell necrosis, such as burns, cauterization by chemical means; in fact, any agency which leads to cell disintegration will produce identical polypeptid products.

In my experiments many hundreds of animals, ranging in size from amebas to the horse, including mice, rats, guinea-pigs, cats, dogs, monkeys, sheep, goats, pigs, and horses, were used, and no matter what the species of animal might be and no matter what the character of the injury, whether mechanical, physical or chemical, the result was the same—*cell necrosis.* Microorganisms only increased the rate of cell digestion.[35, 46, 51, 66]

It will thus be seen that as disease phenomena occur primarily and principally in the tissue cellular area the coagulation extends from the tissue fluids to the contents of the capillaries, it lies outside of the vasomotor control. (Figs. 2 and 11.) The same may be said of "shock" which is produced in animals in portions of tissues removed from the body and in test tubes of blood. In short, all the facts indicate that the primary phenomena of shock are outside the domain of the nervous system.[43, 44, 51, 52]

With regard to the germ and the theory of its

action in disease and the transmission of disease (except as secondary invaders) all the facts of my experience are in opposition to the present teaching. The ancient belief that the sick man was possessed with a demon which must be driven out has its modern parallel in the belief that the starting point of disease is in the introduction of a foreign agent into the body.

The germ is the modern demon. You have but to substitute the idea of the germ for the idea of the demon and the medical practice of to-day is but a kind of exorcism. Time-honored traditions have a tenacious life and in this case we have a superstition surviving long after the attempt has been made to make medical treatment a science.

That psychoneurosis is the cause of wound shock and that disease can be cured by driving out or destroying a germ are errors arising out of theory rather than from experiment. Methods of treatment founded on these errors have collapsed in the face of the tremendous mortality from shock and wounds, and from pneumonia.

As Lloyd George has said, "The whole world must be remade," and in this reconstruction, medical and surgical practice must *also* be reformed.

(My experiments, with methods and results obtained, are placed at the end of this article. These confirm my previous clinical and experimental observations.)

Pathology.—The general pathology of the condition following absorption of the products of native cell necrosis (iso-autolysis) may be simply summarized in the general pathology of "peptone shock," as expressed many years ago by the writer:" "That we cannot apparently experimentally produce profound shock without the occurrence of *congestion* and that the reduction of such shock does not occur until we reduce the congestion and distribute the blood over the surface" (p. 1163).

Mechanical, physical, or chemical injury results in cell necrosis and autolysis. The absorption by the organism of these products results in the pathological conditions we have described. The symptom complex varies and is determined by the physiological factors involved.

Animals in "shock," with or without the addition of bacteria, all *show* the one fundamental primary change—a stoppage or stasis of the blood current originating in the capillary area of the visceral organs, the stomach, intestines, liver, and lungs. This stasis occurs in the venules and backs down into the larger veins in the portal zone of the liver, pulmonary and arterial zone (venous) of the lung, and submucous zone of the stomach and intestines. In abrupt sudden shock complete coagulation and instant death occur, while in *delayed* shock (subacute and chronic forms) the increased blood viscosity produces the same congestion or blood stasis. This is well shown in Figs. 1, 2, 3, 6, and 8 showing the lung, liver, stomach and intestine. The finer changes taking place appear to originate in contact with the tissue cells with the result that the surface tension produces adsorption of the colloids, the protoplasm of the cells, tissue fluids, and capillary blood. Sections cut from the organs during the progress of shock and microscopically examined in the fresh state indicate that the primary changes are apparently an *adsorption phenomenon* compared with normal tissue.

Section of the liver (Fig. 1) shows not only clotting in the capillaries, but demonstrates that the primary changes occur in the protoplasm of the cells. This coagulation phenomena occurs also in the fluids surrounding the cells and extends into the capillaries and larger veins. (Figs. 2 and 11.)

The lungs show identically the same phenomena and in analogous areas, *e.g.* in the pulmonary arterial zone. (Figs. 3 and 4.)

Sections of the stomach, intestine, liver, and lung, *in vivo* and post mortem, showed that the coagulation phenomena began at the cells and capillaries, and the clotting was seen in the large veins, *e.g.* submucous zone of the stomach and in the intestine —"*zona transformans*," the portal and periportal zones of the liver, and the pulmonary arterial zone of the lungs, this viscus often giving the pathological picture of pneumonia. (Compare Figs. 3, 4 and 7 with 9 and 10.)

The elective or preferential adsorption phenomenon is determined by the organ or tissues, though not absolutely specific.*

The first to show the colloidal character of living tissue and the energy we call surface tension that causes these reactions to occur was Thomas Graham,[25] who said, in 1861, "It may be looked upon as the probable primary source of force appearing in the phenomena of vitality," Jacques Loeb[26] and Pauli[27] anticipated that these ionized and non-ionized proteins would explain the mysteries of many life phenomena. The work of Jacques Loeb[24] on the influence of electrolytes on the precipitation of colloids like gelatin is far reaching in its future application to biology. We may look upon the coagulation of blood and plasma as an interaction between certain colloidal systems "under the influence of electrolytes" (Hardy's rule). "The intervention of surface action is shown by the accelerating effects of rough surfaces and the action of lipoids."[29]

*Thus muscle injected into the animal will produce reactions akin to pneumonia, but classical pneumonia more or less confined to the lungs is produced by the insufflation of lung tissue (cat). (See Figs. 4, 5.) We found this specific character true also when applied to the alimentary tract in the production of gastric ulcer.[57, 46, 61, 66] J. L. Whitney[32a] concludes that in all fatal cases of nephritis death was due to marked *tissue destruction* proved by increase in the coagulable nitrogen estimated at the time of death.

PLATE I.

FIG. 1.—Liver of a Cat: Acute shock and death following the injection of autolyzed cat tissue. Shows portal zone of the lobule in which the portal veins are markedly congested, with coagulation of the blood. The liver cells in the periportal area show coagulation changes of the protoplasm.

FIG. 2.—"Toxic Shock" and death from the absorption of homologous autolyzed tissue products. Liver (high power): Portal and periportal zone of the lobule. Shows the protoplasm of the cells, tissue fluid and capillaries and large veins all coagulated. P, portal vein; C, capillaries congested and blood coagulated; C', the cells in the area where the reaction originates. The cytoplasm is coagulated. Necrosis and autolysis are already established. The nuclei refuse to stain.

FIG. 3.—Lung of a Cat. Shock injury 3 P.M., death 7.45 P.M. This shows capillary blood stasis and edema. Coagulation in the large veins complete stasis, giving the appearance of acute pneumonia.

FIG. 4. Lung of a Cat, injected with autolyzed cat tissue. Blood stasis in the lung. Capillaries in the pulmonary arterial zone of the lung. C', capillaries containing clotted blood.

FIG. 5.—Lung of a Cat. Experimental pneumonia in a cat; insufflation of the larynx with autolyzed lung tissue of the cat; death. Lungs show typical acute pneumonia.

FIG. 1.

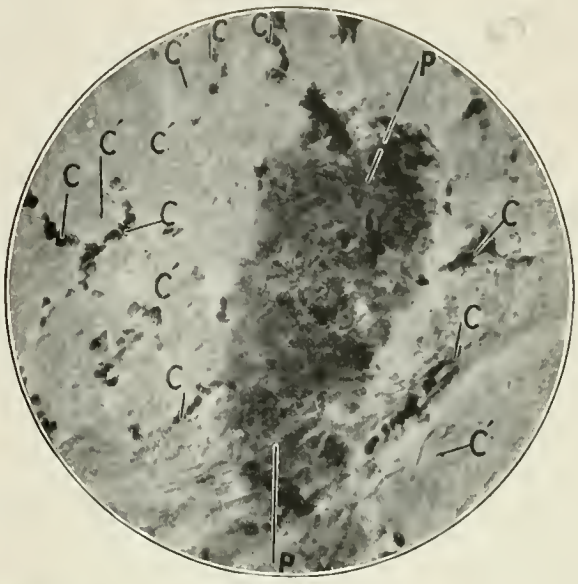


FIG. 2

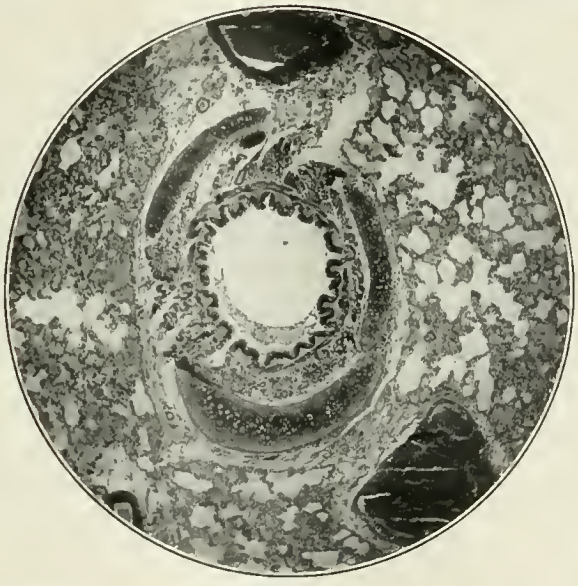


FIG. 3.

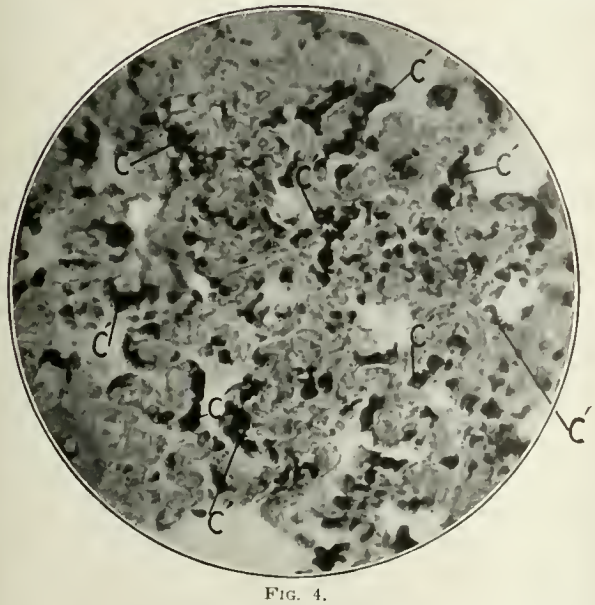


FIG. 4.

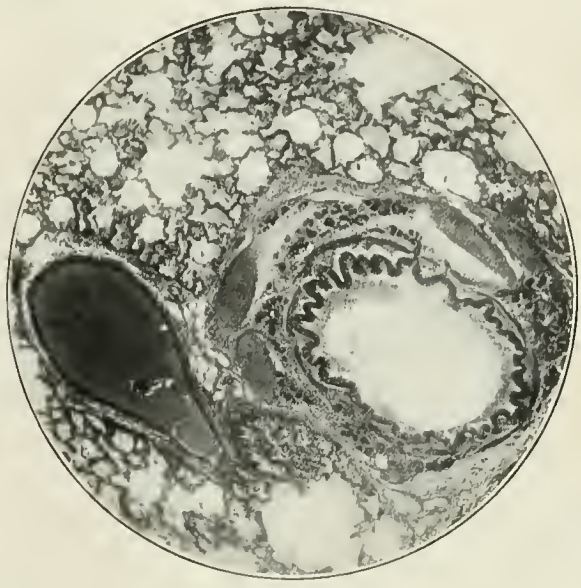


FIG 5

PLATE I

ILLUSTRATING THE PATHOLOGY OF ISO-AUTOLYSIS, OR "PEPTONE SHOCK."

FIG. 6

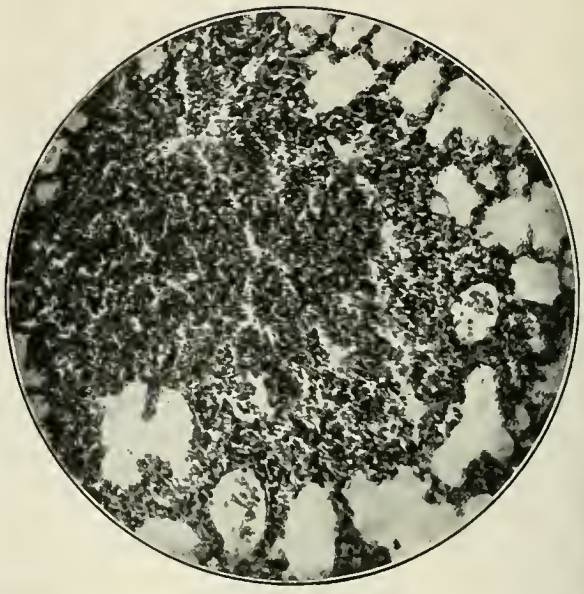


FIG. 7.

FIG. 8.

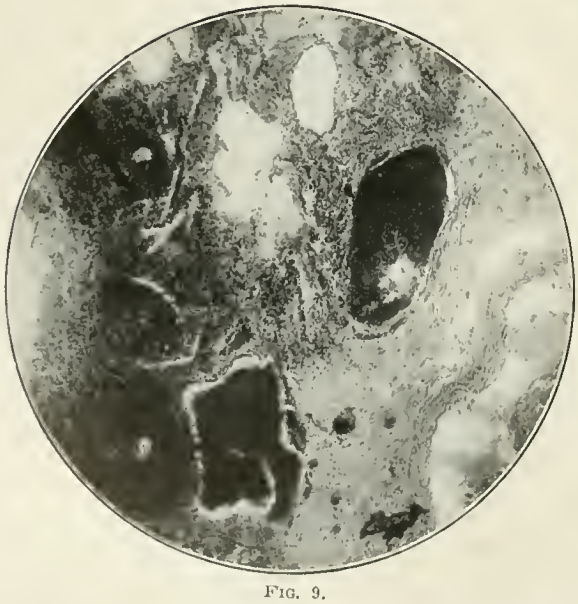


FIG. 9.

FIG. 10.

PLATE II

ILLUSTRATING THE PATHOLOGY OF ISO-AUTOLYSIS, OR "PEPTONE SHOCK."

The relation between these Pathological Conditions and Antibodies.—As we appreciate the specific normal sensitiveness and the normal antibodies that occur in the body of an individual to his own tissue products, we will better appreciate the phenomena of disease and natural and acquired immunity.

Moyer S. Fleisher[30] shows that immunity tissue reactions play a more important part than do reactions produced by body fluids and that there is a difference between the effect of homotransplants and heterotransplants.* In homo-iso-immunization we see an increased leucocytic reaction due to direct action on the leucocytes. The difference that serum plays in the reactions about transplanted tissue is between the effect of immunization against homo-transplants and heterotransplants.

Loeb[31] has shown the absolute specificity of species reactions of the tissues, and states that "we must therefore conclude that this homo-response is produced through the vital, *specific* metabolic activity of the tissues."

Yoskio Suzuki[32] shows that in the tissue cells of the heart was found the neutralizing substance of native immunity.

In experiments *in vitro* W. K. Balls and John H. Korns[33] have shown that anaphylaxis reactions may not be specific, but that hemolysis shows species specificity even in the absence of anaphylaxis. In my work it was shown that specificity was clearly locked up in the animal species. The heart tissue produced the most active antigen in the causation of disease phenomena and was the most active agent in antibody production.

Treatment.—The "side chain" theory of Ehrlich has created a false conception in that while stating the processes of reactions it deceived many into the belief that real products had been formed which acted as specific antibodies, as, for example, "agglutinins" "precipitins," and the names of other substances which do not actually exist, though agglutination and precipitation do exist under certain conditions. Agglutination, clotting, clumping, and coagulation are results which may be caused by a variety of agencies. In the colloidal state in which protoplasm and the fluids of the body exist, mechanical means, such as shaking, may cause precipitation and agglutination, coagulation and clumping, b h *in vivo* and *in vitro*. A shake may therefore b called an "agglutinin," a "precipitin," etc. Heat nay reverse the order by dissociating an adsorption compound and therefore acts as an "antibody."

By placing our conception of the antigen and antibody reaction in the field of colloidal chemistry our knowledge of the "reversible colloids" of the body is better comprehended and applied to the facts we already know. Thus coagulation, clumping, and clotting, and certain other colloidal reactions may be reversed by heat if it is applied sufficiently early, whether the application is made in the body or in the test tube.

When adsorption takes place between two colloids the reaction depends not on the mass of the substances but on the surface. When a substance reaches the surface to which it is to be attached the reaction or the process we call "adsorption" takes place with great rapidity. The action therefore, on the cell processes can be, according to Warburg,[33] excited by substances which do not penetrate beyond the surface of the cell. As Bayliss observes ("Principles of General Physiology," p. 60), "In specific adsorption when the surface of the cell takes up preferentially a particular substance, as iso-autolyzed polypeptids, it seems unlikely that recourse need be had to chemical phenomena." The changes that primarily occur in the splanchnic area in shock and infection and a variety of conditions are congestion, high viscosity, and stagnation of the fluids in the splanchnic visceral area. This colloidal state of adsorption to become reversed must

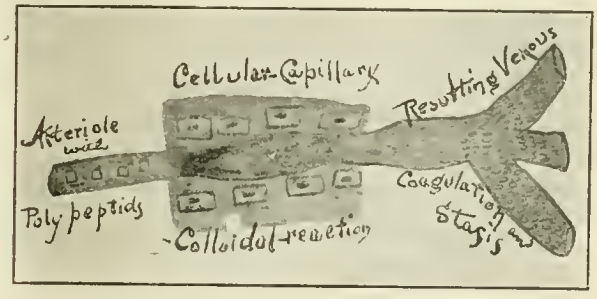


FIG. 11.—Schematic presentation of the pathology. This shows that no action takes place until the polypeptids come into contact with the surface of the cells; then adsorption from surface tension causing the colloidal reaction with the coagulation of the tissue fluid, extending into the capillaries and venules and advancing into the larger vessels. (Compare with Figs. 2 and 4.)

be accomplished during the time when a reversible reaction is possible, and again it is impossible to attempt to produce a reversed reaction by applying the reagent to a locality too remote from the source of reaction.

Nothing is more evident in this war than that for counteracting shock in the badly wounded the only reliable method was the continuous application of heat. In some cases it required forty-eight hours *continuous application*, but the heat should be applied more directly to the splanchnic area, as I have demonstrated, experimentally and clinically,[36, 47, 48, 50] both as a preventive and as a curative measure.

To illustrate: If gelatin has coagulated in a test tube we place it in warm water to cause a reversal of the colloidal reaction, and it again becomes liquid; if we cover the test tube with a non-conducting medium, then, even though placed in hot water, no reversible action can occur. In cases of shock and infection, heat to be effective must be applied as nearly in direct contact with the splanchnic area as possible. The application of hot water

*M. S. Fleisher[29a] makes the following statement: 'There are striking differences between the histological appearance in the pieces of kidney tissue transplanted into immunized animals; furthermore, there are differences in the rate of progress of events."

PLATE II.

FIG. 6.—Stomach. Blood stasis due to coagulation produced in acute shock; the coagulation begins in the capillaries in the mucosa and extends into the large veins in the submucosa ("zona transformans").
FIG. 7.—Lung. Mechanical shock; acute general coagulation.
FIG. 8.—Intestine of a Dog. Subacute toxic shock; dilatation of the veins with contraction of the arteries. The blood congestion begins in the venous capillaries of the mucosa and extends down into the submucosa.
FIG. 9.—Lung of the Human. Hospital case. Shock and death following injuries from an automobile accident. The lung shows the same congestion of "pneumonia pathology" as is found in our experiments on shock in animals.
FIG. 10.—Lung of the Human. Hospital case. Acute pneumonia and death three days after an attack of influenza.

bottles to the surface of the body is too remote to be of value, even though they are applied to the abdominal wall. I have long advocated the use of small thin rubber hot water sacs introduced into the abdomen during surgical operations. The rubber surface is preferable to the injurious gauze, as it causes less trauma to the peritoneum and provides a more constant heat, which to be effective must be of high temperature as well as directly applied.[50, 68]

Where the abdomen is not opened the next approach to the splanchnic area is through the stomach. The small rubber sac above described is attached to a double recurrent rubber tube and introduced into the stomach. The heat is maintained continuously by a constant inflow and outflow as I described in 1896.[67] The heat not only reaches the liver by the gastric veins but the thoracic area through the esophagus is more or less directly affected, thus preventing stagnation in the lung capillaries. These methods can be used throughout surgical operations and have been found to lessen the danger from anesthesia. The colon is the next valuable avenue for heat application to the splanchnic area. Hot water introduced into the colon during surgical operations is not always practicable, but the small hot water bags introduced into the colon can be beneficially used, though heat applied here is not always as effective as by the more direct route, the esophagus and stomach. I have for many years[49] advocated the use of the continuous irrigation of the colon (with the double recurrent tube, giving water of high temperature followed by cold; then repeated) in operative or accident cases and infections of various types. As a control to regulate the amount of water, the outlet tube is connected with a vacuum bottle at the bedside which does not allow the colon to be overfilled. The heat and absorption of the water have been shown to be of great value in all cases of shock and infection. The idea of the absorption of water alone without the heat led to the adoption of this method as the "Murphy drip." The danger of the injection of water by the colon, subcutaneously, or intravenously, was shown early in this work, and hence caution must be maintained by the proper dosage of the fluid intake. The value of this continuous fluid absorption and persistent heat within the abdominal area with the hot water bag will be more appreciated now that we know through our researches in colloidal chemistry that heat dissociates an adsorption compound which occurs in the "colloidal complexes" in the animal organism in shock and infection. The application of heat to the soles of the feet has the advantage of being more direct in affecting the splanchnic area than when applied to the trunk, for the blood in the plantar veins when heated is carried directly by anastomosis through the hemorrhoidal vein into the splanchnic area, portal vein of the liver, etc.[68]

Specific Immunization.—Antitoxin and Antigens: Chemical injuries of the body cause cell necrosis, the products of which evolve a poison—polypeptids. These products cause a *reaction* which produces what are termed *antibodies* against the poison and its effects. Polypeptids, though formed from the tissue of the individual, act not as foreign protein but are specific for that individual. This may cause sickness and death if produced in sufficiently large quantities, but if the poisoning is repeated in smaller doses, it causes certain well known specific reactions associated with the formation of antibodies and the creation of immunity by the individual against his own protein poison. That is, man's own tissue is not only his specific poison but the producer of his specific antitoxin.

Normally there is a physiological equilibrium between the toxins of tissue necrosis and antitoxin production. In disease the mechanism requires a more abrupt stimulation to produce sufficient antibodies which we attempt in our treatment by producing *active* immunity. Passive immunity is also employed. Horses injected with necrosed human tissue produce antibodies, the serum of which injected into patients establishes a specific passive immunity. The combination treatment by active and passive immunity gives the most brilliant results.

Native Protein.—To create active immunity in combination with passive immunity, chloroform is injected into the tissues, about three or four minims (¼ c.c.) at each selective point. Cell necrosis follows each injection and specific active antibodies are created. The *native* protein liberated by the chloroform injections is specific to the individual and is far more valuable than any foreign protein which I have tried over a period of many years.

Many other cauterizing agents were used in our experimental work and found to produce the same results, as were observed with the use of chloroform. The writer found that cauterizing agents, such as silver nitrate, chromic acid, formalin (Attidell' Xl, Cong. Med. Intern., Vol. 111, Med. int., Rome, 1894; Eine neue Methods der Diagnose end Therapie gewisser Magenkrankeiten und bakteriologische Studiem bei denselben, *Wiener Med. Wochenschr.*, Nos. 1 and 2, 1895), mustard oil,[38] chloroform,[43] applied or introduced into the body was followed by varying degrees of intoxication and in sufficient dosage caused death. Death was caused by the absorption of the products of cell necrosis. Repeated small doses finally ceased to produce the effect because the natural antibodies were increased against the cellular toxins in the animal. Mustard oil caused necrosis deep in the tissues and specific immune bodies were formed.[38] To quote from my article describing other experiments: "Repeated injection of the extract from the mucous membrane and an emulsion of the membrane produced no evidence of fatigue of gastric muscle. Examination in five experiments revealed a destruction of *gland tissue* of the *stomach*. The necrosis was especially noted at the lesser curvature and the pyloric region of the stomach."[57]

It was found, in 1903, that the chloroform produced cell necrosis which established the best active specific antibodies. The resulting elaboration of toxins produces symptoms of "autointoxication" associated with hemolytic agglutinating bodies and precipitins."[43] Nitrate of silver, when applied to the mucous membrane of the stomach and duodenum forms the "albuminate" of silver and cell necrosis. Intense hyperemia of the mural structures follows and the products of cell necrosis are carried into the liver, there causing intense hyperemia. Antibodies against cell necrosis are produced and this was found by the writer to be the beneficial effects

of the nitrate of silver treatment in peptic ulcer (MEDICAL RECORD, June 24, 1916), but additional passive immunizing serum must be injected simultaneously to obtain complete cure in peptic ulcer.*

Foreign Protein.—Foreign protein injections in addition to native protein treatment have been used by the writer for many years, in various classes of cases, including peptic ulcer. Diphtheria antitoxin has also been used, "which seems to exert a polyvalent effect." The intestinal flora was also used for the preparation of vaccines in connection with serum treatment.[60]

In 1906 fetal muscle juice, split by bacteria, was injected in cases of peptic ulcer. Autogenous intestinal flora were injected into fetal animals and incubated for 48 hours. The fetal meat juices were then pressed out under heavy pressure and after fractional sterilization this foreign protein was injected into patients suffering from various conditions, among which was peptic ulcer.[64] I attempted to make the foreign protein of bacterial vaccine therapy specific to the individual by autolyzing the patient's serum with autogenous bacteria cultures and injecting the combination.[65]

Although *foreign proteins* injected were found to bring relief in many cases, it was not a reliable form of treatment. In those cases in which improvement in symptoms seems to occur in the course of treatment it was seldom permanent. It lacked the specific effect that is furnished by the individual's own tissues.

We subjected this problem to controlled experiments. A number of cats were immunized with a specific goat serum prepared by intravenously injecting the goat with cats' autolyzed tissue. As controls a similar number of cats were injected with plain goat serum. These cats all received lethal doses of autolyzed cat tissue. All the cats injected with plain goat serum succumbed, with shock symptoms followed by death. The cats immunized with the specific cat tissue serum survived. These experiments were made repeatedly before and after lethal doses, and it has been proved that the specific immunization protects while foreign protein injections do not; they may be a useful adjunct but are unreliable. Cases treated compared with immunity experiments in animals give the most convincing evidence and support to the principle on which the treatment is founded, "For the principle seems to be more than half the question." (Aristotle, Ethics, 1, 7.)

Specific Immunizing Serum.—The immunizing serum is made by the intravenous injection of human autolyzed tissue into horses. Small injections are made into the jugular vein of the horse two or three times weekly for six months until a high titer of antibodies is created. These antibodies are tested against human cell products *in vitro* and further biologically tested. Comparisons are made with animals immunized with goat "antitoxin" serum. This is made by injection of the goat with animal's autolyzed tissue specific to the animal used. Various portions of the human body are used for the antigen. The heart seems to give the most polyvalent effect. Gastrointestinal tissue in ulcer work and respiratory tissue, including lung tissue, are used for antigen for producing a serum used for immutization in respiratory diseases.

Dosage and Number of Injections.—In the beginning of the course of treatment we inject three to four minims of chloroform at each selected point. This is followed by the separate injection of the specific immunizing serum, using 3 to 50 c.c., according to the demands of the condition. The number of injections is also a matter of the physician's judgment. In many acute conditions one or two large injections are all that is required. In subacute and chronic conditions several injections are used, about two or three days apart. After the initial injection of chloroform it may be later discontinued and the antitoxin injected alone. Slight redness will occur and sometimes the usual rash, but this has not been so constant as in the use of ordinary serum injections. We have seen no untoward results and none have been reported. All testify that it is practically harmless.

Cases Treated.—I have used the different specific sera in a large variety of conditions, among which may be mentioned the following: Shock; wounds, recent and old infected wounds; pneumonia, asthma and other respiratory conditions; peptic ulcer; acute neuritis, and multiple and single neuritis; chronic neuritis; rheumatism, muscular and arthritic; arterial sclerosis, with and without kidney lesions.

Twenty-eight cases of shock following various injuries were treated under my direction, all of which recovered except three. Two of these were cases of severe burns which died on the following day, and the third was a compound, comminuted fracture of the skull with hemorrhage and escape of brain substance. Eighteen wound injuries that failed to heal under ordinary treatment were injected with the immunizing serum. This was followed by rapid healing and recovery. Many other cases of fresh wounds that have been injected have shown rapid healing. These cases will be reported separately and in detail.

The following table shows the results obtained in cases that had been previously treated, some over an extended period of time, with foreign proteins injected intravenously and subcutaneously without producing a cure in any instance. These patients had had the best medical care, some being under clinicians of international reputation. The examinations were carefully made and checked up at the different institutions where many of these patients were treated, and included biological tests, *x*-rays, etc. Many of these patients had received treatment in sanitariums and health resorts which had failed to effect any lasting benefit. Nearly all these cases are now permanently cured. All showed relief from their symptoms from the beginning of their course of treatment. The cures reported have been closely followed by physicians in a position to judge of the extent and permanency of our results.

Our treatment consists in the injection of the

*In deep-seated infections and many neuralgias and other pathological conditions chemical cauteries are used, not only by veterinarians, but are repeatedly used by the best surgeons for the same reason that the actual cautery is used, namely, to cause cell necrosis and the specific reaction that follows. By this means the patient has often been spared débridement or amputation. We are now able through our experimental research to place our old empirical methods on a solid scientific basis.[51, 52, 70]

specific antitoxin described in this paper, the dosage being from 2 to 10 c.c. at each injection, and the number of injections running from 3 to 10 in all.

Case.	Sex.	Age.	Findings.	Results.
McL.	Male	57	Railway sickness shock	Cured.
J. B.	Male	..	Shell shock (trenches of France)	Cured.
Col. B	Male	60	Shell shock (trenches of France)	Cured.
F. K.	Male	48	Peptic ulcer	Cured.
R. S.	Female	31	Peptic ulcer and furunculosis	Cured.
T. B. H.	Male	52	Arteriosclerosis	Cured.
S. E.	Male	74	Arteriosclerosis	Relative cure.
A. B.	Male	54	Arteriosclerosis neuritis	All symptoms disappeared.
W. K.	Male	70	Arteriosclerosis arthritis	Cured.
W. C. A.	Male	70	Lumbago and sciatica	Cured.
H. G.	Male	56	Multiple arthritis	Cured.
McD.	Female	69	Chronic neuritis	Cured.
J. T. B.	Female	59	Acute neuritis (influenza)	Cured.
A. J.	Female	28	Asthma	Cured.
K. T.	Female	20	War neurosis and acne (nurse)	Cured.
Dr. L. L. L.	Male	65	War neurosis (in trenches)	Cured.
M. F.	Female	35	Heart, valvular disease. Edema.	All symptoms disappeared.
K. McL.	Male	60	Kidney symptoms and akin pustules. Severe reaction after "606" (Janisch-Herxheimer)	Symptoms immediately disappeared.
M. C.	Female	33	Edema from cardiac dilatation	Cured.
E. L.	Female	44	Osteo-arthritis	All symptoms disappeared.
K. T.	Female		Chronic venous stasis	Cured

Summary.—1. Mechanical, physical, or chemical injuries produce definite pathological conditions of a constant character. Mechanical and physical injuries are followed by changes in the organism that may be indicated by the schematic figure 12.

2. Destruction of tissue results in cell necrosis, cell digestion, and specific toxic products, as shown in schematic figure 13.

3. Destruction of tissue from injuries admits secondary invasion by bacteria which increases the velocity of cell necrosis and cell digestion, augmenting the production of the toxic products, as shown in schematic figure 14.

4. Reactions that now arise in the organism create secondary conditions—the formation of antibodies accompanied by symptomatic variations. (Fig. 15.)

5. When the response of the organism to the reaction is insufficient, active immunity is induced by repeatedly injecting the antigen in small doses. The antigen may be created within the organism by small repeated injuries. This creates cell necrosis and resultant antigen products and finally active immunity. (Fig. 16.)

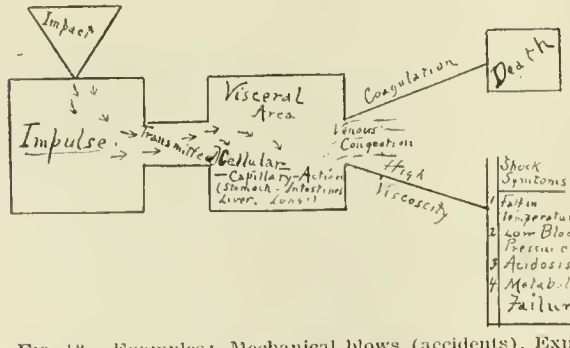


Fig. 12.—Examples: Mechanical blows (accidents), Explosions (sudden air compression and decompression). "Caisson disease," Shaking (car sickness, sea-sickness, etc.)

6. Autoactive immunity cannot be relied upon when the immunity productive power of the organism is weakened by disease or is inherently deficient. The creation of antibodies in an animal by long repeated injections of the human tissue antigen produces a specific serum. This furnishes passive immunity in conjunction with the above active immunity which is specific. (Fig. 17.)

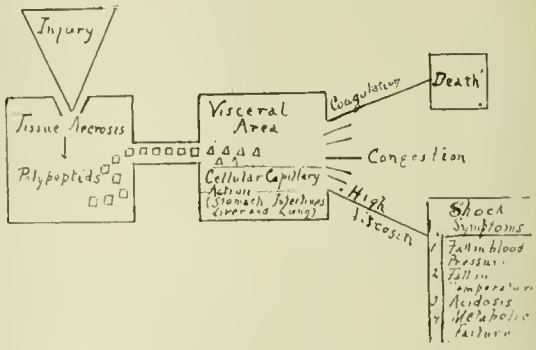


Fig. 13.—Examples: Traumatic injuries, Chemical caustics, or actual burns.

Conclusions.—1. "Shock" wound "disease," with and without infection, and other diseased conditions are caused by cell necrosis, cell digestion, and resulting toxic products.

2. Specific antibodies are normally created and may be artificially produced which are protective and curative.

3. Others[31a] have noted cell necrosis and that its products are responsible for disease, and also that specific tissue immunity can be attained, but we have by twenty years of laboratory and clinical work established a basis by which it may be possible to solve the more intricate underlying etiology of disease and the problems of practical therapy.

EXPERIMENTS.

The primary change which took place in all the following shock experiments was the same in every instance, varying only in intensity, degree, and extent. Observed through a small lens during the progress of shock, the venules showed in all cases the first signs of congestion, while the arterioles contracted somewhat. The phenomena was therefore primarily a venous stasis of the venous current, originating in the venous capillary area.

When the action was abrupt coagulation was immediate, but when less severe the degree of stasis depended upon the degree of hyperviscosity produced. This was observed in the liver, stomach

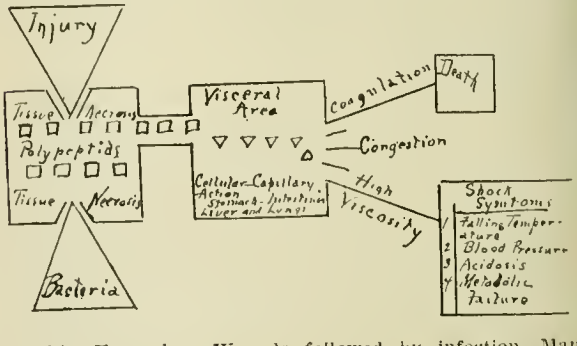


Fig. 14.—Examples: Wounds followed by infection. Many acute and chronic conditions.

and upper intestines, and on opening the pleural cavity the lungs showed the same congestion. Frozen sections, made immediately, demonstrated that the reaction was a colloidal phenomenon of adsorption. The protoplasm of the cells initiate or

take part in this reaction, which is transferable through the fluids and capillary areas, resulting in stasis and checking the return flow of blood to the heart.

In the liver a demarcation zone showed stoppage

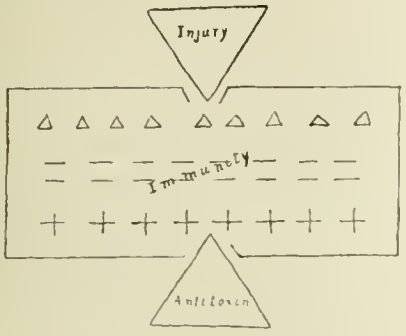


Fig. 15.—Examples: Natural immunity.

of the return flow of blood to the heart, while in the stomach and intestines it took place between the mucous and sub-mucous layers (zona transformans) and on opening the pleural cavity the same congestion of the lungs was seen.

Microscopically I observed in cases that had been long in shock that in addition to the chronic congestion many of the cells were in the early and late stages of autolysis or necrosis.

The following is a resumé of the various methods employed to induce shock and of the changes seen. The protocols for each one have many controls.

1. *Mechanical and Physical.*—(*a*) Blows (accidental falls, intentional tappings); (*b*) shakes (produced in shaking apparatus); (*c*) air compression (explosions, guns, etc.); air decompression.

Series I.—In this series mechanical, physical, and chemical injuries were produced in the animals. Impact against the body, or percussion, or shaking in the "bottle shaking" apparatus, shell explosion in the "shock box," air compression and decompression, all produced similar conditions of shock. When these forces were used with sufficient velocity, the impulse from the impact against the body was transmitted by the body fluids to the visceral area and caused here coagulation, shock, and death.[36] In the less violent procedures primary changes were observed in the open abdomen with a small magnifying lense. The blood stasis was studied in frozen sections or immediately hardened on fixing agents. These demonstrated that the stasis occurred in the capillary areas. The cellular reaction was always manifested by apparent coagulation of the protoplasm, the agglutinating blood backing down into the venules and to the large venous vessels. Sections of the fresh intestine with the retained blood

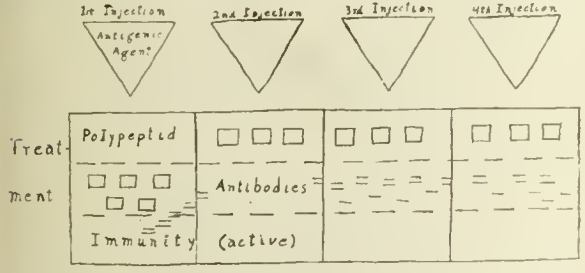


Fig. 16.—Examples: Actual cautery, or Chemical cauteries, etc.

were resected and portions of the fresh muscle when placed in the "shock box" with tubes of gelatin, fresh drawn blood and muscle plasma clotted at once on discharge of a shell. This was due to the impulse imparted to the particles in the colloidal suspension causing the usual adsorption phenomena.

The animals used included cats, rabbits, monkeys, guinea-pigs, horses, and goats. In this series eighty animals were used.

Series II.—In this second series injuries were produced to cause disintegration of the tissue. Instrumental mangling of the *tissue* and also the injection of cauterizing agents, such as chloroform, to produce cell necrosis under *aseptic* conditions. When cell necrosis by either instrumental or chemical destruction of the tissues occurred polypeptids were formed, giving all the usual polypeptid chemical reactions. These polypeptids on absorption caused congestion changes in the vessels, stomach, intestines, liver, and lungs, resulting in shock and death in from three and one-half to twenty-four hours. Removal of the products from the tissue and injection intravenously into the same animals caused instant death or death within three minutes, with acute shock symptoms and characteristic

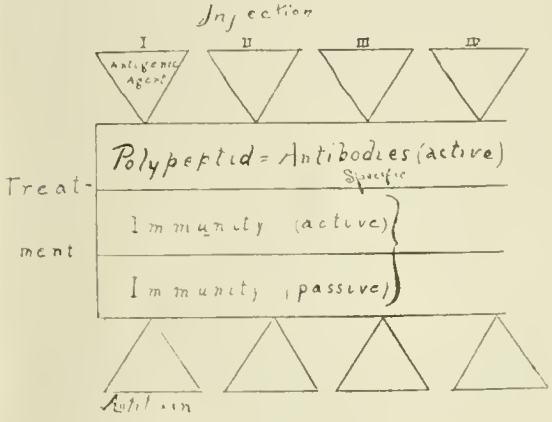


Fig. 17.

pathological congestion in the stomach, intestines, liver, and lungs. Early removal of the disintegrating tissue, either that resulting from instrumental or chemical injury (injection of chloroform) and immediate suture prevented death in many instances. Later efforts at removal were not as successful.

A portion of the animal's tissue was placed in an incubator for several hours and autolyzed under antiseptic conditions. On intravenous injection of an emulsion of 1 or 2 c.c. either instantaneous death or death within a few hours ensued. Foreign proteins injected did not, as is well known, cause death unless the subject was previously sensitized, but autolyzed necrosed tissue cells, taken from the same animal (iso-autolyzed tissue), and injected back into the animal did not require previous "sensitization." The pathological changes that take place from the effect of the "chemical poison" (iso-polypeptid) produced a similar blood stasis to that seen in shock experiments of Series I.

CHLOROFORM INJECTIONS INTO TISSUES.

Cat.	Site of Injection	No. of Injections	Total Quantity, c.c.	Appearance of Shock, Hours.	Death, Hours.
1	Side	2	1.0	4	24
2	Side	1	1.5	5	36
3	Back	2	2.0	4	24
4	Side	3	2.5	5	24
5	Side	1	2.0	4	24
6	Side	2	1.5	4	36
7	Side	3	1.0	5	48
8	Side	2	2.5	5	24
9	Back	2	3.0	4	18
10	Abdomen	3	2.0	5	24

Controls.—Animals injected with small doses, 0.25 c.c., 0.2 c.c., chloroform in repeated doses recovered and finally became immune to their autolyzed tissue after the large chloroform injections.

Cats injected subcutaneously with cat homologous tissue with the addition of chloroform all died from shock in twenty-four to forty-eight hours, as shown by the following table schema:

Injected subcutaneously autolyzed homologous cat tissue plus chloroform	Cat J. J.	Injected subcutaneously homologous cat autolyzed tissue plus chloroform.
	Death in two days.	
Injected homologous autolyzed cat tissue.	Cat K. K.	Chloroform, 1 c.c.
	Death in 24 hours.	
Injected 1.5 chloroform.	Cat L. L.	Injected 1 c.c. chloroform.
	Death in 24 hours.	

SERIES III.—In this third series studies were made of the lung changes in shock experiments. Iso-autolyzed muscle tissue, when injected into the animal, caused immediate hemorrhages in the lungs, with clotting of all the capillaries, followed by death. Small doses often repeated caused more subacute and chronic changes. Very small doses administered subcutaneously produced immunity. Wounds if left open even under aseptic conditions produced similar changes in the lungs. The most characteristic changes in the lungs were effected by spraying or insufflation of homologous autolyzed *lung tissue* into the nasal chamber and larynx of the animals. The autolysis was accomplished under sterile conditions. At the end of eight to ten days a second insufflation of the lung tissue caused acute pneumonia, congestion, and death in a few moments. Smaller doses produced typical pneumonia symptoms, some lasting seven days before death occurred; other animals recovered. The lung changes, as shown in the microphotographs, are the classical changes one sees in pneumonia. Both the bronchial and the lobar types were produced.

Experiments producing special lung congestion: (*a*) Autolyzed muscle (large and frequent dose, causing sustained shock); (*b*) traumatic wounds (severe and unprotected, with continuous shock); (*c*) lung tissue (spraying or insufflation into the larynx; the results varied in degree, some being acute, some lasting seven days, and some recovering).

Controls.—Spraying pneumococci of types I, II, III, and IV, and streptococcus hemolyticus, separately and combined, produced no pneumonia in any instance. Injecting cultures intravenously or subcutaneously likewise yielded negative results. Cauterizing agents, such as insufflation with acids or chloroform, might cause pneumonia symptoms. This is due to the autolyzed necrosed tissue of the respiratory tract, the microorganisms found later being only secondary invaders.

SERIES IV.—*Infection and Immunity.*—The fourth series of experiments were similar to the ones just cited, with the exception that bacterial cultures were added to the injuries. The primary effects of bacterial invasion showed no difference in the symptoms or pathological changes produced in the animals other than an increase in the rate of formation of polypeptids by supplanting the digestion of the cells. As the writer's previous experiments showed,[42] cell necrosis and shock are necessary conditions to insure rapid bacterial growth in tissues.[43, 50]

Injuries produced by instrumental means, actual cauterys (burns), or chemical cautery prepared the soil for bacterial growth. By first causing injury to the muscle tissue, an open wound, as in the ordinary production of aseptic shock, was inoculated with cultures of *B. coli, B. welchii,* staphylococci, and streptococci, previously grown on homologous necrosed muscle tissue, by injecting and spraying into the wound and allowing to further develop. After this procedure animals succumbed within a few hours with the identical conditions of shock-fall in temperature, fall in blood pressure, and stupor. Heart and lung puncture showed no bacteria and no bacteria were found in the blood. The post-mortem gave the same pathological findings demonstrated in aseptic shock.

A.—*Experiment.*—1. After cleaning the surface of the mucosa of the duodenum and jejunum of rabbits, the mucous membrane was scraped off from the muscle wall and discarded. The submucosa was then removed, so that none or but little of the gland elements remained. The submucous tissue and fluid was recovered. To this a culture of *B. coli* was added to a 2 per cent. suspension and incubated. Injection into rabbits of this product of homologous cell autolysis of rabbits caused shock and death.

Controls.—Injecting submucous substance in the fresh state in large quantities shock and death did not occur. The same *B. coli* cultures when injected alone gave negative results.

2. Injection into fetal pigs (as fetal animals are sterile) of *B coli* and *B. welchii* and incubated for twenty-four hours caused rapid autolysis of the tissue cells. Injection of this product, pressed out from the tissues, caused death from shock.

Controls.—Injection of *B. coli* and *B. welchii* alone have negative results. Injection of fresh fetal cells gave negative results.

B.—*Infection and Immunity Experiments.*—1. Active.—Animals immunized by several injections of their own tissue under aseptic conditions.

Results.—(*a*) Wounds and infections of *B. welchii,* streptococcus, and *B. coli,* staphylococcus aureus, could gain no hold and the wounds healed without treatment. (*b*) Normal animals as controls succumbed to shock produced by the rapidly autolyzing "infected" tissue.

2. Passive.—Animals made passively immune by the shock antiserum produced in goats.

Results.—(*a*) Similar to those of the actively immune, no autolysis, no infection, no shock, rapid healing of wounds. (*b*) Normal controlled animals succumbed to rapid disintegration of tissue, bacterial growth and shock.

The results of these experiments make the fact stand out boldly that the rôle played by the bacteria is simply to increase the amount of toxins produced by increasing cell digestion, and that the cell toxins produced are the agents causing the further necrosis and against which immunity is to be established and not against the bacteria.

The animals used in similar experiments and the details of the protocols are so extensive that it is not feasible to publish them all in the space at our command. It may be recalled that illustrative protocols have been published by the writer in connection with several previous communications along these lines.[51, 52]

REFERENCES

1. Bayliss: *British Medical Journal,* May 18, 1918; MEDICAL RECORD, June 22, 1918, p. 1101.
2. Gray: *New York Medical Journal,* February 9, 1918, Vol. CVII, No. 6, pp. 264-266.
3. Bowlby: *British Medical Journal,* May 23, 1918.
4. Wright: *Lancet, London,* June 15, 1918, I, No. 4946, p. 831.
5. McLean and Archibald: *Annals of Surgery,* September, 1917.
6. Sweet: *American Jour. Medical Sciences,* May, 1918.
7. Goodby: *British Medical Journal,* May 25, 1918.
8. Charles: "Gunshot Wounds at Casualty Clearing Stations," *British Medical Journal,* March 23, 1918.
9. Crile: *Canadian Medical Association Journal,* November, 1918, 8, No. 11, p. 961; *Jour. A. M. A.,* December 14, 1918, p. 2020.
10. Quenu: *Presse médicale,* February 7, 1918, 26, No. 8, p. 69.
11. Bertein and Ninier: Masson et Cie., Paris, 1918, Abst.; *Surgery, Gynecology and Obstetrics,* June 19, 1918, p. 65.
12. Soubeyan: Bulletin et Mem. de la Société de Chir. de Paris, 1918, XLIV, p. 672.
13. Brechot and Claret: "Traumatic Shock," Bulletin de l'Académie de Medecine, May 28, 1918.
14. Hull, A. J.: *British Medical Journal,* July 15, 1918, 1, 2928, p. 664.
15. Soubeyan: Bulletin et Mem. Soc. de Chir. de Paris, 1918, XLIV, p. 672.
16. Senn: Practice of Surgery, 1901, p 38.
17. Soper: *Jour. A. M. A.,* December 7, 1918, Vol. 71, No. 23.
18. Public Health Association: *Jour. A. M. A.,* December 21, 1918, Vol. 71, No. 25.
19. Vaughan: *Jour. A. M. A.,* December 21, Vol. 71, No. 25, p. 2100.
20. Jastrow, Morris, Jr.: Annals of Medical History, 1917, Vol. I, No. 3.
21. Herrmann: *Jour. Infectious Diseases,* November, 1918, Vol. 25, No. 5, p. 469.
22. Lord, Fred.: *Jour. Med. Research,* October, 1908, Vol. 19, No. 2, p. 295.

23. Nuzum, Pilot, Stangle, and Bonar: *Jour. A. M. A.*, November 9, 1918.
24. Loeb, Jacques: *Jour. Biology and Chemis.*, Vol. XXXIV, No. 3, June, 1918.
25. Graham, Thomas: Philos. Trans., 1861, I, 184; *Amer. Jour. Physiology*, 1900, 237.
26. Loeb, Jacques: *Archives of Physiology*, 1899, LXXV, 303.
27. Pauli: *Archives of Physiology*, 1899, LXXXVIII, 314.
28. Loeb, Leo: "The Organization of Blood Clots After Auto-, Homo- and Heterotransplantation." *Jour. Med. Research*, Vol. XXXVII, No. 3, p. 377.
29. Bayliss: Principles of General Physiology, London, p. 707.
29a. Fleisher, Moyer S.: "Immunity and Tissue: Reaction Occurring About Tissue Transplanted Into Heterologous Animals," *Journal Med. Rescarch*, Vol. XXXVII, No. 3, p. 993.
30. Fleisher, Moyer S.: "Immunity and Tissue," *Jour. Med Rescarch*, Vol. XXXIX, No. 1, September, 1918, p. 13.
31. Loeb, Leo: *Jour. Med. Res.*, Vol. XXXVIII, No. 3, June, 1918, p. 377.
31a. Metchnikoff: Ann. de l'Institut Pasteur, 1899, XIII, 737; 1900, XIV, 369.
Bezredka: Ann. de l'Institut Pasteur, 1900, XIV, 402.
Dungern: Münch. med. Woch., 1899, XLVI, 1228.
Delezenne: Semaine médicale, 1900, XX, 290.
Liepmann: Deutsche med. Woch., 1902, XXVIII, 911.
32. Yoskio Suzuki: "The Study of the Problems of Immunity by the Tissue Culture Method," *Jour. of Immunology*, Vol. III, No. 3, May, 1918, p. 246.
32a. Whitney, J. L.: "The Immediate Cause of Death and Remarks on the Acidosis of Nephritis," *Archives of Internal Medicine*, Vol. XX, No. 6, December 15, 1917.
33. Balls, A. K., and Korns, John: "Mode of Action in Vitro and the Preparation of Hemolytic Antibodies," *Jour. of Immunology*, Vol. III, September, 1918, No. 5.
33a. Warburg, Otto: "Boebachungen über die Oxydationsprozesses im Seegelie," *Zeitschr. physiolog. Chem.*, 57, 1-16.

The Writer's Literature.

34. Turck: *North Amer. Practitioner*, May, 1893, pp. 227-231.
35. ———: "The Effect of the Injection of Gastric Contents Into Animals. Effects Shown in Periportal Circulation. Comparisons Made with Diphtheria Toxins," Trans. Chicago Patho. Soc., 1903, pp. 263-4.
36. ———: "Experimental Study of the Splanchnic Circulation and Its Relation to the Stomach and Intestines." Trans. Amer. Gastroenterological Assn., May, 1900; *Amer. Therapist*, 1900.
37. ———: "Experimental and Clinical Observations of Erosions of Stomach." *Fort Wayne Med. Jour. Magazine*, Jan., 1897.
38. ———: "Experimental Gastritis," *N. Y. Med. Jour.*, Oct. 25, 1902.
39. ———: "Diseases of the Mouth, Nose and Throat as Etiological Factors in Chronic Glandular Gastritis, with Bacteriological Studies of the Pharyngeal Vault." *N. Y. Med. Jour.*, Nov. 23, 1895.
40. ———: "Method of Treating Certain Diseases of the Stomach by Cleansing and Massage, Based on Pathological Indications." Atti. del'XI, Cong. Med. Inter., Vol. III, Med. Int. Rome, 1894.
41. ———: "Improved Gyromele." *N. Y. Medical Journal*, Feb. 8, 1896.
42. ———: "Atonic Dilatation of the Stomach, Based on a Study of the Physiology of Gastric Movements." *Jour. A.M.A.*, March 26, 1904.
43. ———: "Shock Produced by General Anesthesia." *Jour. A.M.A.*, May 2, 1903, p. 1209.
44. ———: "Surgical Shock." *Jour. A.M.A.*, 1897, pp. 1160 to 1163.
45. ———: "Toxins of the Stomach." *N. Y. Med. Jour.*, Feb. 22, 1896.
46. ———: "Ulcer of the Stomach, Pathogenesis and Pathology. Experiments in Producing Artificial Gastric Ulcer, and Genuine Induced Peptic Ulcer." Trans. Inter. Med. Cong., Lisbon, 1906. Sev. 5, 2me Fasc. 428, p. 461.
47. ———: "Modern Method of Treatment of Diseases of the Intestines." *N. Y. Medical Jour.*, March 13, 1897.
48. ———: "Treatment of the Abdominal Viscera Through the Colon." *Jour. A.M A.*, Oct. 7, 1899.
49. ———: "Further Observations of the Treatment of the Abdominal Viscera Through the Colon." *Jour. A.M.A.*, May 5, 1900.
50. ———: "The Care of Patients During Surgical Operations; with Some Methods of Preventing Shock and Infection." Int. Med. Cong., Paris, 1900. MEDICAL RECORD, Aug. 11, 1900.
51. ———: "The Primary Cause of Shock. Additional Experiments Induced by the War." MEDICAL RECORD, June 1, 1918.
52. ———: "Wound and Shell Shock and Their Cure." *New York Med. Jour.*, Nov. 23, 1918, p. 901.
53. ———: "Experimental and Clinical Obervations on Erosions of the Stomach and Intestines." Trans. Amer. Gastroenterological Assn., May, 1900, *American Therapist*, 1900.
54. ———: *Jour. Med. Research.* Vol. XVII, No. 4, Feb., 1908.
55. ———: International Med. Cong., 1906; Chicago Pathological Society, March 21, 1906.
56. ———: Trans. Amer. Gastroenterological Assn., 1914.
57. ———: "A Study of Fatigue in Gastric Muscle." Trans. Amer. Gastroenterological Assn., Wash., May, 1903. *Medical Standard*, Chicago, Dec., 1903, p. 627.
58. ———: "Immediate and Remote Causes of Death in Operations on the Stomach. Treatment Before, During, and After Operation." *Chicago Medical Recorder*, May, 1902, pp. 450-451.
59. ———: "Fetal Serum; B. Coli." Internat. Med. Cong., Budapest, 1909, Sect. III.
60. ———: Proc. Chicago Medical Society, 1908, *Ill. Med. Jour.*, Vol. XIII, No. 6, 1908, pp. 631-634 and 684.
61. ———: "Experimental Studies on Round Ulcer of the Stomach and Duodenum." *Jour Med. Research*, Vol. XVII, No. 4, Feb., 1908.
62. ———: "Etiology and Pathology of Gastritis Upon Which Is Based Rational Therapeutics." *Chicago Clin. Rev.*, Jan.-Feb., 1896.
63. ———: *Zeit. f. Exp. Path. u. Therap.*, Bd. 7, 1910.
64. ———: International Clinics, Vol. II, Series 21.
65. ———: "Intestinal Venous Stasis. Diffusion of Bacteria and Other Colloids." *Bost. Med. & Surg. Jour.*, May 10, 1917.
66. ———: "Etiology and Pathology of Gastric and Duodenal Round Ulcer." Sec. 3, Internat. Med. Cong., 1909.
67. ———: "New Double Tube with Stomach Bag. Methods of Treatment with Hot Water Bag Introduced in Stomach. Use of Same with Cold Water and Electric Light." *Jour. A.M.A.*, Jan. 11, 1896.
68. ———: "Improved Methods and Details in the Care of Patients During Surgical Operations." *Jour. A.M.A*, June 9, 1900.
69. ———: "Alimentary Dilatation, with Special Regard to Dilatation and Atomy. Experimental Data. Tissue Changes Involved." Medical and Surgical Faculty of Maryland, Dec., 1916, No. 6.
70. ———: Proceedings Chicago Academy of Medicine. *Med Recorder*, XXV, 1903, p. 222.

14 EAST FIFTY-THIRD STREET.

Pappataci Fever.—Interest in this affection has been aroused by the influenza pandemic. Gabbi states that it is known to occur in Switzerland as well as in Italy and the Balkans. Its nature is fairly well understood since it is due to a filtrable virus and transmitted by the sandfly. It is transmissible only during the 3 days febrile period. It comes on without prodromes, with fever, severe headache and myalgia. In about one-fourth of the patients there are anorexia and vomiting. There is a very slight angina and in the more severe cases slight albuminuria. The skin is dry and burning and the conjunctivæ injected. The blood presents typical leucopenia. Complications sometimes seen include bronchitis and hemorrhagic nephritis. A fatal case has never been recorded.—*La Presse Médicale.*

SUGGESTIONS FOR A NATIONAL MUSEUM OF MEDICINE.

By R. W. SHUFELDT, M.D.,

WASHINGTON, D. C.

THIRTY years or more ago I contributed a paper to *Mind in Nature*, of Chicago (February-March, 1886), entitled "Science and the State." It was republished in full by *The New York Medical Journal* of May 22, 1886 (separata 50, repaged), under the same title and without change. No sooner had it appeared than the press gave it great publicity by taking up its subject matter, and, still without change of title, discussing it from various viewpoints. Likewise, in England, it deeply interested Sir Lyon Playfair, who promptly exploited the questions touched upon in the contribution in certain publications in London, and, further, favored me with a letter, in which he expressed his appreciation of the part I had taken in the discussion. Sir Lyon was interested for the reason that London, or rather the British Parliament, had under consideration at the time identically the same problems that confronted us in this country, and these were gone over in considerable detail in the article referred to above, entitled "Science and the State." In the main, the attempt was made to point out the unnecessary waste that was annually taking place with respect to the handling of the Federal bureaux; the use and disposition of scientific researchers in the Government's employ, and the remedies for adjusting all such and allied matters. Very fully it was shown that an enormous waste was continually going on upon account of the duplicature of buildings, of collections, of libraries, and the various necessary concerns attached to them. There were also in operation many archaic regulations and laws that made directly for the suppression of scientific work, when undertaken by officers of the Government, whether in the army or naval service, or other departments. Even when it in no way interfered with their prescribed duties, officers were sometimes severely handled and even persecuted with great cruelty for utilizing their spare hours in carrying on some special research work or other in technical science. The recorded history of our military organization in the past contains quite a number of instances to exemplify such practices during the last century, as will be appreciated through a reading between the lines of "Science and the State."

Several changes making for economy and greater efficiency are pointed out in the above-mentioned article; and, although many years have elapsed since its appearance, but very slender improvement has been made in such premises.

The great world war, now apparently drawing to a close, has revolutionized, to their very bases, many of our institutions—public as well as private. It has opened our eyes to many states and conditions in our national organization that we either saw but dimly, prior to the outbreak, or else did not appreciate at all. Indeed, the various effects produced are so radical, and in most instances so far reaching, that to touch here upon even a few of them would be quite out of the question—or were the selection made among those that obviously fall within the limitations of the field suggested in the title of this article. This being true, I will at once enter upon what I have in mind to discuss, namely the propriety of establishing a National Museum of Medicine at Washington—and the suggestion is made distinctly in the light of what was, so long ago, pointed out in my "Science and the State" contribution.

To many it is a well-known fact that we have, in Washington, a curious array of army, navy, and other medical institutions, each supporting expensive plants or equipments and libraries, ranging all the way from a thousand volumes or so to one carrying more than three hundred times that many on its shelves. Such an arrangement calls for a professional personnel in each case, with a standing force of clerks, messengers, and general helpers of various classes. These several institutions support, in not a few instances, working laboratories; large collections of material, or museums, established and conducted along lines leading to public and professional instruction; morgues; dissecting-rooms; research-tables, and the requirements to meet forty and one other ends. These dissociated centers, taken as a whole, rarely or never act in unison upon any Federal demand on them, or offer to the public, in their entirety, an accessible, centralized resort, where any desired class of information may be secured with the maximum amount of convenience and the minimum loss of time and effort. As now constituted, they present a state of affairs the very reverse of this, for we have a dozen or more centers of the kind, located at widely separated points in the city.

As an example, we may take the institution long known as the Museum and Library of the Surgeon General's Office of the Army. Over thirty years ago, this truly unique, and to some extent distorted concern, consisting of really a wonderful library and a heterogeneous collection of medical, surgical, biological, and miscellaneous specimens, came to occupy its present quarters—a very unmuseum-like building at the corner of B and Seventh Streets in Washington. Taking into consideration the way in which this institution came into being, and considering also the nature of its growth, it is not at all to be wondered at that the Medical Department of the Army tenaciously clings to the right of having it wholly under its control and domination. In reality, however, this inherent right rests more upon a foundation of sentiment than upon what in truth should come to pass, as a step to vouchsafe the greatest amount of benefit to the people as a whole. The library is now one of the most splendid assets of this nation; and the heterogeneous collection of specimens in the museum, numbering thousands, has interested, instructed, and amused the profession as well as the general public for half a century or more. Extensive as it is, however, this collection by no means illustrates the subject of medicine, when taken in its entirety, as a museum most emphatically should do, be it a civil or a military one; this especially in view of the fact that, in the instance cited, it is supported and provided for by the Federal Government.

Take, for instance, the important branch of materia medica; practically no attention has been paid to the subject at this Army Medical Museum, while in the National Museum—near at hand, to be be sure—is one of the finest collections of the kind in ex-

istence, the assembling of which was largely due to the energy of Dr. James Flint, of the Navy. And so it goes for a number of other departments—indeed, as a matter of fact, for altogether too many others.

The very important subject of Hygiene seems to have been taken care of by the Navy—with another added medical library. There are Government chemical bureaux, with chemical libraries forming a part of several of their main departments—a most expensive arrangement for the Government; while a far more economical and efficient one would be to have one extensive chemical bureau, equipped in all particulars to meet any demand the Government might make upon it, and that bureau occupying a suitable building, with its various sections, in the immediate neighborhood of our National Museum of Medicine. The Chemical Museum should form a part of the main National Museum, and the material placed on exhibition in it should illustrate every imaginable appliance used in every line of chemical research as well as the science of chemistry as a whole.

The same arrangement should apply to medical entomology—a most important branch of not only military medicine but as affecting public hygiene. In fact, a department of Public Health and General Sanitation, with an up-to-date series of laboratories and every possible facility for research and demonstration work, should be confined to another building near the chemical one, and harmoniously worked into the general group. Its library should be a sectional one in the general library of the main central building. This offers a special advantage, as research students in medical chemistry frequently find it necessary to consult other works in connection with those on their own science; and it ought to be unnecessary to be compelled to go to some entirely different section of the city to find the other required works, to say not a word as to the loss of valuable time and cost of transportation. Apply this to the Regular Medical Corps of the Army to-day, with its Dental, its Sanitary, its Psychological, its Veterinary, and its other Corps; add to these the corresponding ones in the Navy, Marine, and other Departments, and it would be difficult to conceive of a more expensive arrangement, in so far as the Government is concerned, or a more inefficient one with respect to loss of time and opportunity for concentration of effort on the part of the various officers and researchers.

Consider for a moment what an advantage it would be to the various departments of veterinary science to nationalize them as a whole; to have an entire section in the main museum building given over to their collection, and to have a complete veterinary library in the main National Medical Museum library, with a group of buildings harmoniously disposed in the general plan—close at hand—where dissecting rooms, serum laboratories, operating rooms, with quarters for the veterinary pathologists, anatomists, and physiologists may be found; in fact, separate buildings—where necessary—for every modern line of veterinary work and inquiry. A moment's thought is sufficient to convince any professional man of the supreme advantage of this arrangement over what obtains at the present time in this field in the Army.

There should be identically the same plans for the comparative anatomists and physiologists, including the college of experimental researchers, morphologists, and those engaged upon vivisectional investigations. In connection with the latter, there should be a section to supply promptly the various animal forms so constantly required in such work.

Among the museum halls in the main museum building there should be one in which an extensive and complete collection and exhibit, demonstrating vivisectional work in each of its departments, should be found; this to be so arranged and scientifically displayed as to not only forcefully demonstrate the absolute necessity for the work done in that department, but also the enormous aid it has been in elucidating some of the most important problems in general and special diseases and their treatment, as well as solving problems in human physiology and adding materially to our knowledge in special lines of research, that have for their purpose the advancement of those sciences, the relief of human suffering, and the treatment of our domestic stock.

The Army and Navy Medical Schools should occupy the necessary buildings in the main group; and the advantages following upon their being associated in that way are altogether too obvious to require any discussion.

As to the site for this National Museum of Medicine, it should not be less than twenty-six acres in extent, with an accessory acreage for the Veterinary Department. The whole should be attractively situated, and chosen to meet all the requirements of the institution. A special line of cars should connect it with the street railways of Washington; it should be extremely easy of access at all hours, and require but a brief time in which to reach it from any central point.

As to the Library of the Surgeon General's Office, at present installed in the aforesaid Army Medical Museum, magnificent as it is in the matter of the number of books, journals, pamphlets, manuscripts, photographs, and other precious belongings, it now stands sadly in need of a complete rearrangement. This subject, however, does not fall within the limitations of this article for discussion. It is not altogether an easy matter to find a good, scientific librarian nowadays, one who has mastered all that modern librarianism means, and who has the physique and the necessary training to apply it.

Added to the main offices in the Administratior Building of this National Museum of Medicine, there should be an up-to-date Auditorium, with all the modern fittings for lecturers and demonstrators, including the best of motion picture equipments and other appliances. There should also be a first class photographic gallery and art department, capable of producing every conceivable class of photographic work, micro-photographs, and all that has been perfected up to the present time, including radiograph work, enlargements, copying processes, and so on. The art department should be equally complete, and so arranged as to successfully work hand in hand with the corps in the photographic gallery and rooms.

The dissecting rooms should be of the most modern order possible, and every convenience and contrivance for the highest class of work installed. There is at this time, I am told, a very superior dissecting room at the Army Medical School, which

latter is situated at a considerable distance from the Army Medical Museum. How much more efficient would this arrangement be were it on the same grounds with the Museum, where the students could, in a few moments, compare specimens in the Museum with the material under their hands on the dissecting tables.

The present Museum building has very little to recommend it for the purpose for which it was erected. Although four stories high, it has no elevators of any kind; most of its work-shops are in a dark and poorly ventilated basement; its stairways are of an uncomfortable type; the lighting is faulty; the dissecting room small and otherwise inadequate for the purpose for which it was designed; there is no proper auditorium, nor shops for preparateurs, not to mention other shortcomings.

Let us build for the future; and when Congress comes to appropriate with the view of placing these most necessary sciences on a substantial footing, in keeping with America's aims in such matters, let it be for a National Museum of Medicine, rather than perpetuate a decidedly one-sided institution, such as now exists.

3356 Eighteenth Street, N. W.

THE MEDICAL TREATMENT OF APPENDICITIS.

By ALBERT ABRAMS, A.M., M.D., LL.D.,

San Francisco, Cal.

In the presence of abdominal pain, the surgeon who uses his head as well as his knife thinks of appendicitis, but, when he uses his knife to the exclusion of his head, he thinks of nothing else. Every physician has his visceral fetish and the tendency to patronize definite organs and methods of treatment is rampant. There is the gynecologist whose conception of disease is limited to the uterus and adnexa, and there is the oculist with mental astigmatism, who reflects his subjectivity in the examination of his patients.

Thus it has come to pass that the treatment of appendicitis has been preempted by the surgeon as his prerogative and the delinquencies of the medical art already rebuked by satirists is accentuated by the attitude of the surgeon. Eliminating errors of diagnosis, notably conditions specified by the writer as pseudo-appendicitis,[1] one must concede that, as a rule, acute appendicitis is a surgical disease for which there should be no medical treatment. This much the writer concedes but he is reluctant to subscribe to the impotency of medical intervention in all cases of chronic or recurring appendicitis.

The methods of spondylotherapy have been firmly intrenched in medical practice and Jarvis,[2] Snow,[3] and others have definitely shown by skiagrams the effects of these methods when correctly executed. In brief, spondylotherapy[4] concerns itself with the excitation of the functional centers of the spinal cord by different methods. Each segment of the cord is a unit endowed with motor, sensory, vasomotor, trophic, and reflex functions. In the cord there are centers for the contraction and dilatation of the viscera. Practically all the visceral reflexes described by the writer have been elicited by Jarvis[5] at the operating table in anesthetized subjects with a strong sinusoidal current as described in spondylotherapy. The writer has shown that the manipulations of the osteopath and chiropractor yield results not by reason of replacing so-called displaced vertebræ but by the unconscious elicitation of visceral reflexes.

Referring specifically to the reflexes of the gastroenteric tract, Dr. Patrick O'Donnell and other expert roentgenoscopists have shown that, after the ingestion of the conventional bismuth meal, it takes approximately one hour and fifteen minutes for the stomach to void its contents but if the fifth dorsal spine is percussed (which opens the pylorus), the stomach voids the bismuth in one and one-half minutes.

Lebon and Aubourg presented before the *Société de Radiologie Médicale de Paris* comparative radiographs showing modifications of the large intestine after stimulation of different verterbral spines by my methods. They had ascertained upon administering castor oil, then a bismuth suspension, and finally examining the subject with the *x*-rays, that electrical stimulation of the right vagus in the neck caused contractions of the ascending colon, sufficiently marked to be plainly visible on the screen at each excitation of the nerve. Similar stimulation of the crural or sciatic nerves produced little or no change in the colon. Vigorous percussion of the seventh cervical spinous process caused the cecum to rise and the ascending colon to become broader; such effects were observed in all persons examined excepting one—a woman with marked enterospasm and constipation. Percussion of the dorsal spines had no effects on the colon until the lowest ones were reached; percussion of these, or of the lumbar spines, brought about contractions of the colon in all its divisions.

Desirous of determining whether one could similarly influence the appendix, the writer sought the assistance of expert radiologists and the results of his investigations may be briefly summarized as follows: In subjects having previously ingested bismuth or after enemas of barium sulphate, the appendix could be directly observed with the fluoroscope. It was noted that *percussion of the 10th dorsal spine emptied the appendix of its contents and concussion of the 1st lumbar spine caused it to refill.*

In rare instances, appendicitis is a local manifestation of a general infection (owing to implication of its lymphatic tissues). In the majority of instances, however, it is superinduced by the retention of feces, foreign bodies, and microorganisms which are discharged with difficulty.

At one time in his medical career, the writer was an ardent advocate of lavage for therapeutic purposes. Now the tube has passed into desuetude for this purpose and recourse is had to the more expeditious and less offensive method of percussing the fifth dorsal spine to evoke the pylorus reflex of dilatation.[1] The patient ingests several glasses of water after which, the fifth dorsal spine is gently percussed for one-half minute. This procedure is repeated several times just like in the conventional procedure of washing the stomach.

It occurred to the writer that evocation of the

appendix reflex of contraction might be of service in recurring appendicitis and the results achieved by many of his students and himself have justified this hope.

It would be puerile to anticipate any results in obliterated appendices and the method suggested should be limited to the chronic catarrhal forms of appendicitis.

The method in brief consists of percussion of the 10th dorsal spine: the daily *séance* should not exceed three minutes, and to avoid exhaustion of the reflexes the three minutes *séance* should occupy only one-half minute of treatment followed by one-half minute of rest. In other words, the three minutes treatment consists of one and one-half minutes of treatment and an equal period of rest. A like procedure is indicated in all the methods of spondylotherapy for eliciting the reflexes. A percussion hammer and pleximeter suffice for executing the method. If an apparatus is employed one yielding a blow and not vibration is indicated. The latter fact cannot be sufficiently emphasized and it is a disregard of this injunction which may bring the methods of spondylotherapy into disrepute. It suffices to say that the clinician elicits his reflexes by blows and not by vibration.

REFERENCES.

1. Abrams: Spondylotherapy, 6th edition, 1918.
2. Jarvis: International Clinics, Vol. 1, 23d series, 1913.
3. Snow: International Clinics, Vol. 4, 23d series, 1913.
4. Abrams: Reference Handbook of the Medical Sciences, Vol. 7, 3d edition.

2135 Sacramento Street.

SOME OBSERVATIONS ON THE NATURE OF SHOCK.

By HOWARD CRUTCHER, M.D.,

TULAROSA, NEW MEXICO.

Human life is destroyed through the operation of three agencies, shock, poison, and starvation. While these three destructive elements may combine to shorten or destroy life, they never unite to prolong or preserve it. Old age means sclerosis or hardening, which is but another term for progressive starvation. The rise and development of sarcoma afford a typical illustration at times of the union of these three elementary forces of destruction: the location of the growth may entail starvation through pure mechanical obstruction; degenerative changes may be accompanied by mixed infectious elements the absorption of which induces poisoning; and copious bleeding may terminate life almost instantly from shock.

Shock, as its influence involves the issues of human life, may be defined as any exhibition of force that disturbs or destroys the functions or tissues of the living organism. In a word, shock is violence, arising from any source, of any degree whatever, of sufficient power to exert an unfavorable influence upon the processes of life. Contrary to some false teaching arising from a misconception of scientific terms, shock has a definite pathology, regardless of whether or not the changes due to its influence leave a record in morbid anatomy. It must be borne in mind that the term pathology is abstract, and refers not to tissues but to processes, although the proper term pathological anatomy is often confounded with it. The very word shock instantly admits the existence of pathology, but not necessarily the confirmation or proof in the way of altered tissues.

The proper scientific comprehension of shock requires us to look beyond those pictures of physical violence, in which some of its great powers are so vividly illustrated, and well into those delicate and far-reaching effects that may not be properly assigned to any other cause. To see a human being struck by a rapidly moving locomotive and hurled through the air, to land a mass of mangled tissues, appeals so powerfully to our imaginative faculties that we take little note of what effect may have been produced upon some sensitive bystander, whose march to the grave begins then and there. One body is struck with tremendous violence and is shocked to instant death, whereas another body is also shocked by the mere sight of the disaster into a state of helpless and fatal invalidism. That sudden death may, and often does, result from a violent shock to the emotions is perfectly well known and is as freely admitted; but that the effects of shock may be prolonged over a period of years is just as true, but is not so well understood nor so frankly conceded. The matter is one of such importance in our every day practical attendance upon the sick that I purpose to submit some convincing illustrations of what may not altogether improperly be termed delayed or chronic shock.

During the early Nineties of the preceding century, I knew somewhat intimately a talented, energetic, and highly successful business man of 55 years. He was in the full prime of his vigorous powers of mind and body, abounding in advanced ideals and aggressive policies, full of that genial dignity of character that can praise without flattering, and reprove without wounding, a subordinate. I knew him to have been a man of the most correct physical and mental habits. He never touched alcohol in any form, and smoked a mild cigar only on rare occasions. One day he said, with a smile, "Buttermilk is my principal intoxicant, but once in a while I take a spree on coffee." On one occasion he escaped by the narrowest of margins a horrible death from burning, although he suffered not the slightest physical injury from the accident. From that time, however, his powers of mind and body declined in almost equal pace, until, a few years later, his whole being appeared to be dissolved in a cloud of timidity. A mind singularly keen and a will of peculiar strength were supplanted by whims of temper and vacillation of purpose. While I cannot in this place be more specific, it is the simple truth to say that this man's decline brought disaster and ultimate ruin upon an institution of national importance. At this time I do not doubt that his decline and death were as much due to the effects of shock as if he had fallen from his office window to the sidewalk below and had knocked his brains out in the impact.

Twenty years or more ago the official head of a large institution became the innocent victim of a domestic scandal aggravated by a social horror the precise nature of which cannot be repeated. Overwhelmed by a sense of shame and grief, he sank into

the depths of mental gloom and physical decay from which nothing could ever arouse him. The boundless sympathy of devoted friends and the immense resources of a powerful will were alike impotent in the face of a dark tragedy whose gloomy outlines could be effaced only by the total darkness of the grave. The darker pages of human history are filled with such instances.

Instances of persons "frightened out of their senses," or "frightened to death," are much too common to excite extended comment; they occur every day, in all climes and among all nationalities. But it ought to be well understood that shock to the emotions is capable of producing long-sustained and ultimately fatal alterations of tissue. It is no rare thing to learn of persons who "have not been quite right ever since" such and such an occurrence of a shocking character took place.

Nor must the prolonged and ultimately fatal effects of physical shock be ignored. The most celebrated editor of the Middle West, who passed away a generation ago, had undoubtedly been the victim of progressive cerebral sclerosis for years before his death; but the total wreck of his mental powers was clearly brought about through the effects of physical shock. As narrated by his biographer, the aged editor, laboring under some delusive "revelation" from a supposed "spirit," filled a large bathtub with ice-cold water and immersed his body in the chilling fluid, where he remained helpless for nearly an hour. According to the narrative of the biographer, "the shock destroyed the last particle of his intellect and left him idiotic." Instances of a similar character might be multiplied. A man of 29 years, of apparent vigorous health, had his left arm and forearm so seriously crushed in an accident that amputation became necessary. Perfect union followed the operation, yet the patient never recovered from the shock of the accident. Within a few months, acting upon the advice of his family physician, he journeyed to the more genial climate of the southwest, but died quickly from acute nephritis of which there had been no previous evidences.

The careful and thoughtful student of the phenomena of shock will soon learn that there are many facts and incidents connected with human life that are insoluble alike in the laboratory and upon the operating table. Cancer of the uterus, so well fixed in our minds as being associated with spontaneous bleeding, does not appear during the period between fifteen and forty, when the uterus is usually and periodically a far greater center of vascular activity than it is either before or after that period of life. Masses of scar tissue imbedded in the uterine cervix cannot be viewed otherwise than as a source of possible mischief, yet cancer does not arise from scar tissue. I have heard well-informed physicians express a belief that "a purulent uterine discharge will often cause cancer of the cervix," yet it is certain that the student of pathology will search long and patiently before he will discover a case of urethral cancer in the male subject due to such a discharge.

In no case demanding surgical interference must we lose sight of the interdependence of the various bodily structures, nor of the peculiar and unaccountable freaks of tissue for which no acceptable rational cause can ever be assigned. It is certain that we cannot observe too closely, study too carefully, and report too candidly, all the known phenomena of the intricate machinery whose care and restoration when disordered depend so largely upon our individual efforts.

Medicolegal Notes.

Heat Prostration an Accident.—In a proceeding for compensation under the Pennsylvania Workmen's Compensation Act, the rule is affirmed that the term "personal injury" in that act is confined to injuries of accidental origin and such diseases as naturally result therefrom, and must be held to include any form of bodily harm or incapacity accidentally caused by either external violence or physical force. A stroke by lightning, a stroke from the direct rays of the sun, a heat stroke, or heat prostration, are untoward unexpected mishaps, and accidental injuries within the meaning of the act. It is immaterial whether the heat prostration is produced by artificial heat, or by the natural heat of the sun, directly or through the heated atmosphere, if the exhaustion comes from heat in the course of employment. Ordinary or occupational diseases developed during the course of the employment are not within the contemplation of the statute. The court held that an employee, overcome by heat while working at his employer's lunch counter on a hot day, and who died within two hours, suffered an "accidental injury in the course of his employment" within the act.—Lane v. Horn & Hardart Baking Co., Pennsylvania Supreme Court, 104 Atl. 615.

Evidence as to Impersonation of Insurance Applicant.—In an action on a life policy, where the defense was impersonation of the applicant before the medical examiner and false statements as to health, a doctor who attended the applicant prior to the issuance of the policy testified that at the time of his examinations he found her suffering from serious heart trouble. He was then asked, "Was her condition at that time such that a doctor, using ordinary care in making a medical examination, would have discovered this heart murmur that you speak of?" It was held that the evidence sought to be elicited by this question was relevant, as bearing upon the question whether or not the deceased was the woman examined.—Suravity v. Prudential Ins. Co., Pennsylvania Supreme Court, 104 Atl. 754.

Necessity for Demand for Autopsy.—In a proceeding for compensation for the death of a workman from strangulation of the intestines found by the Industrial Board to have been caused by hernia resulting from a strain while at work, it was contended that the applicants for compensation were not entitled to an award because they refused the employers the benefits of an autopsy, and that such examination of the body was necessary to determine the cause of death. There was conflict in the evidence as to the necessity for the autopsy, and also on the question of the time of its demand. Whether the refusal of a demand for an autopsy, made after the burial of the workman, will in any case deprive his dependents of their right to compensation under the Workmen's Compensation Act the Indiana Appellate Court did not determine. A demand therefore must, however, be made at a reasonable time and place. The evidence being conflicting the finding of the Industrial Board on the question was conclusive on the appellate court.—Vonnegut Hardware Co. v. Rose (Ind.), 120 N. E. 608.

Expert Evidence—Different Schools of Medicine.—In an action against a homeopathic physician for alleged malpractice the Iowa Supreme Court held that an "allopathic" physician should not have been allowed to say that the patient should have had some medicine producing a physiological effect. In calling a physician one is presumed to elect that the treatment shall be according to the school to which the physician belongs, and his care cannot be measured by the sort of treatment a physician of another school would have given. It was held that in such an action an "allopathic" physician could testify as to what the customary treatment in such cases in that locality was, but could not make comparison with the treatment given by the defendant.—Van Sickle v. Doolittle (Iowa), 169 N. W. 141.

Military Medicine.

A New Method of Gunshot Wound Treatment.—Dr. Robert Donaldson, in a thesis published in *The Edinburgh Medical Journal* for January, 1919, deals with a new method of wound treatment evolved by him. The thesis in fact is an account of his discovery or isolation of a spore-bearing anaerobe from wounds undergoing successful salt pack treatment, with a description of the manner in which this anaerobe acts and a comparison between the healing properties and those of other methods in vogue in the treatment of infected wounds. The organism he named the "Reading bacillus." It is described as a spore-bearing anaerobe possessing strong proteolytic properties. Its behavior in a medium of cooked meat at once suggested to Donaldson the possible rôle it played in septic wounds, viz., that it broke down or hydrolyzed dead protein tissue and by so doing destroyed pabulum on which pathogenic organisms flourished. Given suitable conditions for active growth and proliferation, it probably did in the dead tissues of the wound what it obviously did *in vitro*, viz., it digested them. According to Donaldson, the superiority of the Reading bacillus in the treatment of septic wounds is that it is able to dissect away, as it were, not only the macroscopically but also the microscopically dead material in a way that no surgeon's knife ever can, and accomplishes this without at the same time inflicting any fresh trauma. The Reading bacillus acts, in short, as a bacteriological scalpel.

The technique of the Donaldson method of treatment is as follows: First it must be laid down as an axiom that all gunshot wounds should be freely opened up and thoroughly explored. Every pocket should be laid open, so that the subsequent packing shall come directly into contact with all parts of the wound surface. As such wounds are frequently of an irregular and burrowing character to do so efficiently will call for ingenuity on the part of the surgeon. All foreign bodies ought, if possible, to be removed and care should be taken to ensure that no adjacent collection of pus has been missed. The interior of the wound is now irrigated with very hot sterile water or saline solution to wash away obvious pus or blood and to assist in checking capillary oozing. By means of a pipette the whole surface of the wound is liberally sown with a living culture of the Reading bacillus, commencing with the deeper parts. The cultures which Donaldson is in the habit of using have been grown in cooked meat broth. It is perhaps an advantage for some reasons to use a three-day-old culture, but one many months old will serve equally well. Immediately after sowing, the packs, whether of salt or sphagnum moss slightly moistened with sterile water or saline, are introduced and so arranged that they fill the wound cavity completely, leaving only the tails of the bag projecting. In some cases it may be found more convenient to distribute the culture over various parts of the wound in turn, packing each section as it is sown. When all the packs are *in situ*, several layers of plain sterile gauze, moistened with sterile water or saline, are laid over the packing, in such a way that they overlap the edges of the wound. The whole is then enveloped in thick layers of cotton wool and firmly bandaged. It is an additional advantage if some form of splint can be applied to aid in steadying the part. Just how long the packs require to be left in will probably depend on the size of the wound and the amount of dead tissue present, but in human beings the period ought probably to be at least seven to nine days. At the end of this time the packing may be removed without the aid of an anesthetic. After gently detaching the board-like upper dressings, the actual packing, be it salt or moss, comes out easily en masse, bathed, as a rule, in bright yellow pus, from which the Reading bacillus can be recovered if desired. The wound surfaces are then irrigated with eusol or with warm sterile saline to wash away all clinging pus and débris, after which the wound will be found, as a rule, perfectly clean.

Donaldson summarizes his article as follows: (1) He gives the name of the biological method to this new treatment of gunshot wounds to distinguish it from the antiseptic, the physiological and the surgical. (2) It is based on revised ideas which Donaldson has found regarding the relative importance to be attached to the various factors which prevent wound healing. (3) The new method depends on the introduction to the wound of a spore-bearing anaerobe of a saprophytic character belonging to the proteolytic group of organisms. (4) It is non-pathogenic when introduced into gunshot wounds and in the course of its activities does not give rise to toxic products injurious to the patient. (5) The Reading bacillus is probably to be found in the majority of gunshot wounds, but is unable to exert its beneficial action except where anaerobic conditions obtain. Hence the reason for its appearance in salt packed wounds. (6) The biological method is not synonymous, however, with the salt pack method of treatment, although the latter is dependent upon the Reading bacillus for success. Salt is not only not essential but may actually impede proliferation of the organism. Spagnum moss or anything indeed that will secure anaerobic conditions in the wound may be substituted for the salt packs with equally good results. (7) All the methods of wound treatment hitherto in use have been directed almost solely toward destruction of the infecting flora and arrest of proteolysis in the wound. Their relative efficiency actually depends, however, on their influence if any, on the necrotic tissue present. (8) Special emphasis is laid on the great danger resulting from dead and damaged tissue in a wound, and Donaldson has attempted to show that this should be the chief point to which treatment should be directed. (9) The antiseptic and physiological methods fail to realize this, and consequently find themselves in process of being supplanted by the surgical method of wound excision. The superiority of the latter over the two first named depends not so much on the speedy removal of infective organisms, for which purpose it was originally intended, but on the fact that it removes a large part of the dead

tissue as well. (10) The surgical method, however, is not always anatomically possible, may fail to remove all the dead tissue present, is a mutilating form of treatment, and by its very nature inflicts a fresh trauma leaving a zone of death behind to form a base for fresh organismal activity. (11) The biological method, on the other hand, belongs to quite a different category, inasmuch as its avowed object is to hasten proteolysis. (12) The Reading bacillus has a twofold action. It not only disintegrates the dead tissue upon which pathogenic organisms live and from which as a base they are able to keep up a continual bombardment of the patient's body by means of toxic degradation products, but to judge from Donaldson's experimental work, it is probably able to destroy these toxins so that they are no longer absorbed. (12) The former action brings about a local improvement in the wound which is rapidly, automatically, and easily freed from all necrotic material, while the latter puts a stop to continued toxemia, as is proved by the rapid constitutional improvement which takes place. Pending removal of the supply base by the Reading bacillus, the further absorption of toxins by the patient is prevented. (13) Both results are achieved by reason of a proteolysis action produced by the Reading organism. This enzyme acts as a living-catalyst which is able to hydrolyze not only dead protein but also the toxic degradation products of other organisms. Once introduced into the wound and given suitable conditions for development, the Reading bacillus will go on forming enzymes as long as there is any dead protein to hydrolyze. For these reasons, therefore, it differs from all other known methods of wound treatment hitherto employed, and while opening up new possibilities for the more efficient treatment of toxic absorption in general, raises other side issues of considerable importance. It becomes, in short, a problem in colloid chemistry. (14) The advantages claimed for it include simplicity of application, the avoidance of daily dressing and daily disturbance of the wound, the rapidity with which a sloughy wound becomes a healthy granulating surface, the absence of secondary hemorrhage, together with the remarkable and speedy improvement which takes place in the general condition of the patient. All of which means considerable curtailment of the time generally spent by a wounded man in hospital.

New Figures on France's War Losses.—New figures on the French war losses have been given out by the French Foreign Office which bring the number of French dead to more than 1,600,000. The new compilation shows that more than 300,000 colonials died in the fighting, the greater part of this loss having been borne by the Algerians. This report is interesting in that it notes the contribution to casualties by classes. The French nobility suffered greater losses than any other classes. Next to the nobility, the professional classes were the greatest sufferers, the percentage of artists, physicians, dentists, architects, writers, sculptors, musicians, poets, and actors being a little over 9 per cent. The financial and industrial classes contributed least to the nation's casualties, though a large percentage of them were in the industrial army behind the lines.

Test Air Ship Ambulance.—Lieut. David Grey of the Royal Air Forces, a convalescent aviator, who was wounded overseas, was recently transported from the Naval Aerial Station at Far Rockaway, L. I., to St. Luke's Hospital, Manhattan, by airplane. The airplane made the trip from Far Rockaway to the foot of Ninety-sixth Street in sixteen minutes, where the patient was transferred to a motor ambulance, which covered the remainder of the distance to the hospital. The patient was bound to the stretcher, which was then fastened in the airplane. Further tests along these lines are to be made, with a view to ascertaining the practicability of an ambulance air service during actual warfare.

Women Physicians Decorated.—Dr. M. Louis Hurrell of Rochester, N. Y., director of the American Women's Hospital at Luzanoy, France, and several physicians and nurses on her staff, have been decorated by the French Government for their work in stamping out typhoid fever in certain cantons of the Seine, the Marne, and the Aisne.

Army Officers Banquet Their Chief.—Officers of the Hospital Division of the Surgeon General's office tendered a farewell dinner at the Shoreham Hotel on March 6, in honor of Col. Winfred H. Smith, who is retiring as chief of the Hospital Division, and to Col. L. B. Baldwin, in charge of the administration of the Hospital Division.

Deaths in the Service.—Lieut. HENRY REUBEN WESTON, M. C., U. S. Army, a graduate of New York University and Bellevue Hospital Medical College, in 1903, died on November 27, 1918, of gangrene of the lungs, while on duty in the Philippine Islands, at the age of 40 years. He was a member of the Association of Military Surgeons of the United States.

Lieut. JOHN AWVILL PENNINGTON, M.C., U. S. Army, of New York City, a graduate of the University of Tennessee, Nashville, in 1918, died from pneumonia, on October 4, aged 26 years.

Lieut. LEO CASSIUS MILLER, M. C., U. S. Army, of Champaign, Ill., a graduate of the University of Illinois, Chicago, in 1906, after serving at Camp Greenleaf, Ga., and at the Embarkation Hospital at Camp Stewart, Va., died at his home of pneumonia, following influenza, on December 14, aged 36 years.

Lieut. DAVID HALSEY PARLIAMENT, M. C., U. S. Army, of Covington, Ga., a graduate of the Georgia College of Eclectic Medicine, Atlanta, in 1913, and professor of chemistry and urinalysis in his alma mater, died of pneumonia at Camp Dix, N. J., October 2, aged 35 years.

Capt. ELIAS CAMERON CRUMMEY, M. C., U. S. Army, of Jesup, Ga., a graduate of the Atlanta College of Physicians and Surgeons, in 1905, died from bronchopneumonia, while on duty at Camp Wadsworth, Spartansburg, S. C., on November 26, aged 47 years. He was secretary of the Wayne County Medical Society from 1915 to 1917.

Lieut. BLANEY WILLIAM COX, M. C., U. S. Army, of Goldesboro, N. C., a graduate of the North Carolina Medical College, Charlotte, in 1915, died from pneumonia following influenza, on October 8, aged 30 years.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, March 22, 1919.

THE TREATMENT OF WAR WOUNDS.

A SPECIAL number of the *U. S. Naval Medical Bulletin*, issued recently, contains a report on medical and surgical developments of the war by William Seaman Bainbridge, Lieutenant Commander, M. C., U. S. N. R. F. In view of the wide differences of opinion which exist even now as to the relative value of antisepsis and asepsis in the treatment of infected wounds, it is instructive to note what the author says on this subject. He relates that meeting Professor Kocher late in September, 1915, this celebrated authority said to him, "The great lesson of the war so far is, back to antiseptic surgery. Asepsis is not enough." In contrast to this statement, three years later Major A. L. Lockwood, R. A. M. C., who had one of the largest experiences in acute war surgery in the present conflict, said, "One of the greatest lessons of the war is that aseptic surgery and not antiseptic surgery should be practised, the former in all cases, the latter associated with it in selected cases." Bainbridge, after going from hospital to hospital and station to station, and hearing each of these many methods acclaimed or criticized, became convinced that the obtaining of satisfactory results depends far more upon the surgeon himself than upon the agent which he employs. He therefore holds the view that the lesson to be learned from all this diversity of opinion is that those who are to be given charge of this surgical work should have, first, a thorough knowledge of surgery; second, sufficient experience to give them an adequate technique; and third, the necessary judgment to select and employ such of these methods or agents as may seem best for the particular case at the given time.

From the purely therapeutic viewpoint the surgery of wounds in the present war may be grouped under fairly approximate chronological headings, as follows: (1) The period of ordinary antiseptic agents; second half of 1914 and first half of 1915. (2) The period of wound drainage combined with antiseptics, 1915. (3) Introduction of hypochlorites; later in 1915. (4) Evolution of the Carrel technique of intermittent wound instillation; early in 1916. (5) Ascendency of bipp method. (6) Period of approximately equal use of the Morison and Carrel methods; 1916-1917. (7) Prominence of flavine and colored wound pastes, such as brilliant green; 1917. (8) Progressive general adoption of wound incision method, which had its beginnings early in 1916; late in 1917. (9) Period of primary wound suture, immediate or delayed; 1917-1918. (10) Period of attempted selection, adaptation and standardization; late 1918.

Of the various methods described in this exhaustive and lucidly written report, some, as wound suture, the Carrel-Dakin method, and bipp, have been so thoroughly dealt with already that it would be tiresome to recapitulate; also the salt pack method has been explained on several occasions.

With regard to flavine, it is noted that it is preferred by Sir Anthony Bowlby, as a dressing with sterilized gauze, after excision has been done, before suture, for the reason that it has no toxic or irritating qualities, and the gauze soaked in it, and kept moist by jaconet and absorbent wool, does not stick to the tissues, and leaves a good surface for suture. Of course, the lymphagogic agents are described.

According to Bainbridge, heliotherapy or sunlight treatment of war wounds deserves to be more extensively employed as a physiological curative method, the routine adoption of which is urged by Dr. M. Cazin as a measure capable in many cases of greatly abridging the duration of the treatment of war wounds and essentially reducing the number of war invalids. In the experience of Cazin, atonic and indolent wounds, on exposure to the sun, became regularly covered with a layer of healthy granulations. Excellent results were obtained in infected fractures, and in several cases where the bony lesions were such as to endanger the preservation of the limb, heliotherapy led to complete consolidation and perfect recovery.

Attention is drawn to phenolization and embalming of war wounds advocated and practised by Dr. L. Mencière, the Médecin-Chef of the Hôpital de la Compassion in Rheims in 1916. Mencière recommends this method on the basis of favorable experience in wound treatment, including the gravest articular traumatisms and especially in the treatment of gas gangrene. The performance of primary suture, immediate or delayed, is often made possible by the employment of this procedure.

Bainbridge is in favor of oxygenation of infected wounds and points out that oxygen, far from damaging the cells, has been shown to stimulate cellular activity, to activate phayocytosis, and to aid all defensive reactions such as diapedesis and secretions. Aside from its effect on anaerobes, it has no destructive action upon microorganisms, but by stimulating the activity of the natural defensive forces furthers the power of resistance and in this way becomes a valuable physiological assistant in the fight against infection, upon the winning of which depends the success of surgery in general and war surgery in particular.

A portion of the *Bulletin* of considerable interest is that which is concerned with the treatment of war wounds by Germans. In the summer and fall

of 1915 Dr. Bainbridge made a fairly extensive tour of the hospitals in Germany and was much impressed with the efficiency of the ambulance and hospital organization. Perhaps the feature of this organization which made a special impression upon him was the great attention paid to physical therapy. Before the war German medical men had made great progress in this direction, and in many of the hospitals departments of physical therapy had been established. At that time in Germany no one method of controlling wound infection had been adopted. Although irrigation with dilute antiseptic solutions was employed by German surgeons, opinions differed widely as to the value of antiseptic agents. Irrigation with hydrogen peroxide has been extensively used in their military hospitals and is claimed to be especially efficacious in the treatment of infected fractures.

In opposition to the antiseptic method of wound treatment, and in analogy with the physiological lymphagogic method indorsed by Sir Almroth Wright, some German writers on early wound treatment at the front have proposed the use of nitric salts, which on coming into contact with organic substances are at once reduced to nitrous salts. The object aimed at is to increase the hyperemia in these invariably infected wounds and to produce a free flow of lymph. It is pointed out that Germany has given considerable attention to the after-care of the wounded soldier, with a view to returning him to the ranks if possible, or if he must be sent back to civil life, making him self-supporting and not a burden to the community.

This special number of the *Naval Bulletin* is profusely illustrated by excellent photographs and provides a mine of information as regards surgery, medicine, and physical therapy relating to the war.

THE COMATOSE FORMS OF INFLUENZA.

It is interesting to see how a medical phenomenon may sometimes exist for a long time unnoticed until suddenly it is brought to public or professional attention by some more or less trivial incident, and then everyone says, "why, of course." The present newspaper talk of "sleeping sickness" is an instance. Some one discovered a number of cases of the comatose form of influenza in Chicago and at once cases were found to exist in New York, Washington, and other cities. Inquiry among practitioners generally would doubtless reveal the fact that cases with comatose symptoms had occurred every now and then all through the course of the influenza epidemic. They are observed in nearly every epidemic of this disease and are as truly influenza as are the cases with pulmonary, gastric, or cardiac symptoms. Ditmar Finkler, in his incomparable treatise on influenza published in the "Twentieth Century Practice of Medicine," in 1898, and still the most comprehensive and best work on this subject in the English language, describes this form as follows:

We may also mention the so-called comatose form of influenza. Occasionally in the beginning or during the course of an influenza we may see a marked somnolence, increasing perhaps to coma, without any other cerebral symptoms. Friedrich Müller in Pforzheim observed a case of this form of coma which lasted fourteen days. In the spring of 1890 the newspapers were filled with reports that a new disease, called noma or sleeping sickness, had broken out in some parts of Italy. This disease presented symptoms which were similar to the observations of Krannhals, in which the clinical picture resembled that of a cerebrospinal meningitis which was not yet fully developed. According to the description of these cases of somnolence, appearing in an epidemic form, the greatest probability is that they were cases of influenza in which these comatose conditions were pronounced, as they may also be in hysteria. That they had accumulated in certain parts of the world need not seem more remarkable to us than the fact, already frequently mentioned, that other forms of influenza have shown an inclination to make their appearance in a cumulative manner in certain localities at a certain time. Leichtenstern insists that this noma should be clearly distinguished from cerebrospinal meningitis, especially as pneumonia was a frequent complication.

Finkler also describes the encephalitic form of influenza which is a much more serious condition, often ending fatally. It is marked by more or less pronounced paralysis—mono- or paraplegia—and often by grave cerebral symptoms such as coma, convulsions, or delirium. The paralysis is not constant, however, for if the encephalitic foci do not affect the motor centers and paths, signs of motor irritation and paralysis will be absent, high fever, unconsciousness, and coma being the only symptoms. These forms were first noted during the epidemic of 1889-92, no allusion to them being found in the literature of previous epidemics.

The history of medicine is a subject deserving of much more assiduous study than it receives to-day. If it were made a part of the curriculum of every medical college, the future practitioner would be saved from the commission of many errors and the science of medicine would be advanced mightily.

THE MENTAL STATUS AS AN ETIOLOGICAL FACTOR IN HYSTERO-TRAUMATISM.

The mental status of the subject is of capital importance in the etiology of hystero-traumatism. Traumatic hysteria is frequently met with in hysterical subjects as well as in individuals who had offered no evidence of the neurosis until the receipt of the trauma, although they were strongly predisposed to it by their familial antecedents. Finally, although exceptionally, the neurosis develops after trauma in subjects absolutely free from any neurotic stigmata. The exact part played by trauma in hystero-traumatic accidents may be summed up as follows: The trauma does not create hysteria and usually does not cause the hysterical accidents in hysterics. The injury has as an effect only to disturb the nervous system of the subject, thus rendering him more impressionable and, consequently, more sensitive to suggestion. In the hystero-traumatic accident, suggestion or autosuggestion is the one great factor in the creation of the phenomenon.

As Forgue and Jeanbrau have pointed out in reference to Charcot's theory of the pathogenesis of hysteria, a dangerous and unforeseen accident provokes two effects, namely, a physical and a psychical shock. The former suspends the functions of the limb which remains painful, benumbed, and impotent for several days. The fright and anguish, occasionally a retrospective sentiment of terror, felt by the patient when he awakens after having lost consciousness, provokes a psychical shock which suddenly disturbs the cerebral functions, suspends perception, and as a consequence the faculty of controlling the sensations starting from the injured region. Briefly, for Charcot and his school, hystero-traumatism consists in a traumatic suggestion in a latent hysteric. This suggestion causes the subject to forget movements or sensations or both (hemiplegia with hemianesthesia) in a given region.

The late Prof. Grasset applied his doctrine of inferior psychism to the pathogenesis of hystero-traumatism and his theory would seem to throw a perfectly clear light on this much mooted question. As is known, Pierre Janet distinguishes two kinds of psychic functions, the one superior, comprising the consciousness or responsible ego, which has no known cortical localization; the other termed the inferior or subconscious psychism, comprising the cortical centers of hearing, sight, speech, writing, general sensibility (tactile center), and coordinated movements, as well as their tracts of association. The inferior psychism, whose centers and ways of communication may be figured by a polygon, carries out its functions automatically without the interference of consciousness, and is placed ideally in an O-center communicating with all the centers of the polygon. Thus, according to Grasset, when writing a sentence we create the idea in the O-center and direct the movements of the hand for the formation of the letters and words from the polygon in a way that habit has rendered unconscious and automatic. During sleep the polygonal life is not suppressed, only the consciousness sleeps.

Now, if under the influence of a sharp emotion, a psychical shock, the consciousness (O-center) is suddenly annihilated at the same time that a region of the body is injured, the image of the lesion may become fixed in the polygon and when consciousness returns the patient may no longer be able to move the injured limb. He has forgotten his movements unless, as in an arthropathy, the entire region is the seat of a severe pain which is increased by the slightest contact. The phenomenon of hystero-traumatism is established and it can readily be conceived that the longer it has been present the greater will be the difficulty of doing away with it. However, a trauma similar in nature to that which produced the hystero-traumatism may quickly unmake it. Consequently, by Grasset's ingenious theory can be explained not only the hystero-traumatism itself, but likewise its evolution, sudden recovery under some given influence or its relapse in circumstances quite independent of an accident.

INFANT WELFARE IN GERMANY DURING THE WAR.

In all Europe, and, of course, more especially in those countries engaged in war, infants and children have suffered severely, and this constitutes one of the most important after-war problems. Conditions in Germany during the war have been largely veiled in obscurity, or camouflaged, as they seemed to suit military exigencies or the wishes of the ruling caste. The reports from Germany itself in the past four years have been so contradictory that no reliance whatever could be placed on them, and even now it is very difficult to arrive at the truth. When the war was going on it was usually declared that infants and children were not very adversely affected by the blockade; but now that Germany is beaten, and it is the policy of the country to appeal to the sympathies of the world at large, it is asseverated that hundreds of thousands of infants and children were wiped out by Great Britain's cruel blockade. The truth appears, as is generally the case, to lie between these two extreme statements, and probably Germany suffered in infant mortality to about the same extent as the other big warring countries, and less than the smaller countries, as Belgium, Poland, Serbia, and Roumania. It must always be borne in mind that for a considerable part of the war the blockade was notoriously inadequate.

The real facts of the condition of infants in Germany while the war was in progress are beginning to leak out. Recently an instructive summary concerning infant welfare in Germany during the war has been given in a report prepared by the intelligence department of the British Local Government Board in 1918, which has just been published. The summary was reproduced in Public Health Reports for February 14, 1919.

The most striking feature of the information set down in the document is the heavy decrease shown in the number of births. Some 40 per cent. fewer babies were born in 1916 than in 1913. On the whole, the infantile death rate was well kept down. According to the British report, the reduction in the rate was due partly to the special measures taken and partly also because of the cool summers. The chief measure adopted in Germany to promote infant welfare during the war was the distribution of imperial maternity grants. One of these grants is given only to women who feed their babies at the breast, the encouragement of breast feeding being regarded as one of the most powerful agencies for furthering infant welfare.

Illegitimacy increased greatly in Germany in the past few years. The proportion of illegitimate births in the entire German Empire is between 9 and 10 per cent., and in certain districts the rate is much higher. The care of foster children was interfered with by the war on account of the mobilization of medical men appointed to look after them. However, when affairs had become settled on a war basis, illegitimate children were cared

for better than ever before. Foster children and children whose mothers were working outside were taken care of both in homes and in institutions. It is claimed by those concerned in the welfare of infants and young children that these are better cared for by trained and supervised workers in crêches or infants' homes than in the houses of foster mothers, especially in view of the difficult food conditions that must still prevail for a considerable time.

A discussion of the subject of infant welfare in Germany recalls the recent request of workers in this field to the British Government for permission to import from England a supply of rubber nipples for nursing bottles. The petitioners urged that this was imperatively necessary to save the lives of thousands of infants, and to clinch the point by an unanswerable argument they added that if this request was refused, by 1933 there would be no men fit for army service. The naiveté of this statement is delicious, and is on a par with many other manifestations of the utter humorlessness of Teutonic efficiency. With minds set on the goal, they are absolutely blind and deaf to all side issues.

Bacteriological Findings in Epidemic Influenza.

The cause of influenza remains obscure, and the investigations of bacteriologists appear to have been almost barren of results so far as deciding its origin is concerned. The Pfeiffer bacillus has largely fallen into disrepute as a causative agent, and bacteriologically we are as far from the solution of the influenza problem as ever. Dr. S. E. Howard of the medical clinic of the Johns Hopkins Hospital records in the *Johns Hopkins Bulletin*, January, 1919, some investigations made by him with the object of tracking the causative germ of influenza to its lair. He confesses that he is unable to do so, and states that he and his coworkers feel conscious that none of the organisms isolated by them may be regarded as the cause of epidemic influenza. Their results, together with the results reached by the majority of European investigators, convince them that the *B. influenzæ* of Pfeiffer is merely a secondary invader, although in some localities it may be a frequent cause of terminal bronchopneumonia. The other organisms isolated may also be regarded either as normal inhabitants of the mouth or as secondary invaders. The conclusion arrived at by Howard and fellow workers is that the primary cause of epidemic influenza is still unknown. With this conclusion most investigators will probably sorrowfully agree.

Influenza and Epilepsy.

The epileptic has always shown considerable natural immunity to infections of certain kinds, and his wounds often show a surprising readiness to heal, even when he is under the influence of bromine. It will therefore be of interest to note how he reacts to grippe, and Maillard and Brume of the Bicêtre, Paris, have reported the interrelations of the two maladies in *La Presse Médicale* for February 10. The pandemic passed over the hospital region in two waves, in June and October respectively. The first fact established was the severity of the course of the grippe in the epileptics, while the second was the verification of the old observation that severe infections diminish the number of seizures. Third, the first wave of grippe immunized the victims against the ravages of the second wave. During the course of the grippe all of the patients remained almost free from epilepsy. Thus, in patients who showed collectively 105 seizures the total was reduced to 14 during the corresponding period. The convulsions returned with their old frequency after defervescence. In regard to type and mortality, of 63 epileptics attacked, 22 presented simple and 41 complicated cases, all but one of which were pulmonary. The deaths numbered 32, or just over 50 per cent. In all but 2 of 32 the cause was either croupous pneumonia, bronchopneumonia, or pulmonary edema.

News of the Week.

Medical Aeronautic Congress.—The first interallied medical aeronautic congress opened in Rome on March 11. Its object is the study of medical problems arising from aviation. Resolutions dealing with physical and psychological tests applicable to applicants for pilot's licenses, the control of flights to high altitudes, and the use of oxygen by aviators, were presented. It was decided to form a permanent committee to present the views of the medical profession in matters pertaining to aviation. Dr. L. G. Roundtree of Minneapolis represented the United States.

High Mortality of German Babies.—Herr von Braun, Under Secretary of State, has recently given out figures showing the great increase in mortality among infants under a year old for the last three months of 1918. The deaths during this quarter amounted to 6,142, as compared with 4,176 for the same period of 1917. Medical experts attribute the increase entirely to the inability of the mothers to nurse children on their scanty diet, or to keep them alive on the one quart of milk of poor quality to which the milk ration of infants has been reduced. During the first three years of the war the infant mortality of Germany was decreased as compared with peace years. This was attributed to the tendency of mothers to nurse their children during the years of war privation. For the year 1917 the deaths of children from one to five years of age was 49 per cent. higher than in the last peace year—1913—and the deaths of children from five to fifteen years of age 55 per cent. higher. It is said that unless immediate and adequate relief in the way of food comes, the rising generation is condemned either to death or weakened maturity.

New York's Baby Death Rate Low.—Statistics issued recently by the New York Health Department show that in 1918 New York had the lowest infant mortality rate of any of the ten largest cities of the United States, and the second lowest ever recorded in the history of the city. New York's lowest infant death rate was 88.8 for 1917, while the 1918 ratio was 91.7. St. Louis ranked second with a rate of 94.4, while Baltimore was last with an infant death rate of 147.7. The Chicago death rate for infants was 131.3. The Health Department con-

siders this showing as exceedingly gratifying in view of the war, with its resultant economic conditions, and the influenza epidemic, which carried off many young mothers and deprived their children of care and nourishment.

New City Hospital for New York.—At a mass meeting of Washington Heights physicians, held on March 10, the temporary committee, called the Washington Heights Physicians' Campaign Committee for a City Hospital, was made a permanent organization, called the Washington Heights Physicians' League. The purpose of this organization is to secure a hospital for this section of the city. It is said that the hospital is practically assured, and a committee on site will soon be appointed. Dr. M. Joseph Mandelbaum is president of the league.

Brooklyn Diagnostic Institute.—An institution has been opened at 867 St. Marks Avenue, Brooklyn, N. Y., which has as its sole purpose to prosecute for the clinician such diagnostic investigations as are necessary in order to unerringly interpret all the morbid phenomena of a given case and to pursue a rational course of treatment. The directorate announces that the facilities of this institution for chemical, bacteriological, roentgenological, and allied research for the active practitioner are unsurpassed. Dr. Jacob Gutman is at the head of the institute, Dr. Max Kahn is the director of the biochemical laboratories, and Dr. I. Seth Hirsch is director of the roentgenological department.

Dr. Julieta Lanteri de Renshaw is a candidate for the Chamber of Deputies of the Argentine Republic. She is the first woman candidate for Parliament in the history of Argentina.

Dr. Alice Hamilton of Chicago has been elected to the position of assistant professor of industrial medicine in the Harvard University Medical School. She is the first woman to be elected to the Harvard University Faculty.

The Clinical Society of the Hospital and Dispensary for Deformities and Joint Diseases will hold a stated meeting on Tuesday evening, March 25 at the dispensary, 41 East 123d Street. Dr. Joseph Roth will send a paper on "Bone Lesions" and Dr. Howard Lilienthal will relate his "Personal Experiences with Surgery in the American Expeditionary Forces."

In Aid of Crippled Soldiers.—A meeting to further reconstruction work for those crippled in the war will be held at the Hippodrome on Sunday, March 26. A number of addresses will be made and there will be a chorus of 3,000 voices. Tickets may be obtained from the N. Y. County Chapter of the American Red Cross, 389 Fifth Avenue.

Booth Memorial Hospital.—The Booth Memorial Hospital on Stuyvesant Square, New York City, has recently been opened under the joint auspices of the Salvation Army and the American Red Cross. Its establishment marks the enlargement of an important phase of the war work which will probably continue during the coming year, namely, the giving of medical and surgical care to the families of soldiers, sailors, and marines, and in many instances, as demobilization continues, to the men themselves. This institution provides a kind of hospital service which the city has lacked hitherto—private rooms at a moderate cost. A large share of this part of the work is being done by the Salvation Army. The Red Cross conducts a medical station in connection with the hospital, which cares for selected cases and gives special attention to maternity cases and infant welfare work.

New York Hospital Asks for Help.—The New York Hospital, for the first time since its organization, 140 years ago, is making an appeal to the public for funds to make good a deficit of $100,000 incurred last year. In addition to its main hospital in West Sixteenth Street, the institution operates the Hudson Street Hospital and the Campbell Cottages and a hospital at Bloomingdale. The combined hospitals have treated 1,700,000 patients, and during the war maintained a fully equipped base hospital at Chateau Roux.

Pennsylvania State Board of Health.—Dr. S. Leon Gans of Philadelphia has been appointed chief of the State Genitourinary Dispensaries; Dr. John Laird of Reading chief of the laboratory dispensaries, and Dr. Howard L. Hull chief medical inspector.

Obituary Notes.—Dr. William Robert Arlington Carley of Brooklyn, N. Y., died in the Long Island College Hospital, following an operation, on March 11, aged 55 years. He was a graduate of Bellevue Hospital Medcial College, in 1888, and a member of the staffs of the Long Island Medical College Hospital, Bethany Deaconess Hospital, and the Brooklyn Hospital. He was a member of the Associated Physicians of Long Island and the Kings County Medical Society.

Dr. Alfred Whitehead died after a long illness at his home in Baltimore, on February 27, aged 70 years. He was a graduate of Queen's Hospital and the Royal College of Surgery, London, in 1871. He came to this country in 1882 and soon afterward became professor of children's diseases in the Baltimore School of Medicine. He later became professor in anatomical and clinical surgery at the same institution. He was a member of the American Medical Assocation, the Medical and Chirurgical Faculty of Maryland, and the Baltimore Medical and Surgical Society.

Dr. Edgar L. Griffin of Atlanta, Ga., died from the result of injuries received in an automobile collision on March 3. He was a graduate of the Southern Medical College, in 1894, and was 48 years of age at the time of his death. Dr. Griffin was recently designated by Surgeon General Blue to assist in combating the epidemic of influenza in Georgia.

Dr. William Shackelford died at his home in Dalles, Ore., on February 21, at the age of 80 years. He was a graduate of Jefferson Medical College in 1859, and served as surgeon in the Northern Army throughout the Civil War. He served several terms on the City Council of Dalles, and until recently served as city health officer.

Dr. Joseph Clinton Beard, a graduate of the New Orleans School of Medicine in 1861, and a graduate of the University of Paris, died at his home in New Orleans on March 3, aged 90 years. He served during the Civil War as a military surgeon in the Confederate Army, being on the personal staff of General Beauregard. For many years he was city physician, and also held the position of coroner of a New Orleans parish. He owned, and for many years personally conducted, the City Hospital for Contagious Diseases.

Correspondence.

REPORT OF CASES OF ENCEPHALITIS LETHARGICA REQUESTED.

To the Editor of the Medical Record:

Sir:—Reports have been received from various European cities which indicate the prevalence in epidemic form of a disease which has been named encephalitis lethargica. The first case of the disease in this city was reported to this department on March 12, 1919, and information has since been received from authoritative sources that there are eight other cases under observation in which this disease is suspected. In view of the fact that it is essential for us to be apprised as promptly as possible of the occurrence of cases of this disease, so that we may take such measures as may in the premises be necessary, I would earnestly request the cooperation of the physicians of this city in making prompt report to the Director of the Bureau of Preventable Diseases of any case in which encephalitis lethargica is definitely diagnosed or suspected.

The situation at the present moment does not seem to warrant our making this disease reportable by a Sanitary Code enactment, and I look forward with confidence to the cordial and helpful cooperation of your readers in giving us prompt information as to cases of this disease.

Royal S. Copeland,
Commissioner.

Department of Health, City of New York.

COMPULSORY HEALTH INSURANCE.

To the Editor of the Medical Record:

Sir:—The following resolutions were passed at a meeting just held by Rensselaer County Medical Society. The various county medical societies that are still to pass upon the subject of health insurance, as suggested by the president of the State Medical Society, might well take them as a model for their findings. They can hardly be improved upon, either in spirit or in form.

Resolved, That each and every practising physician, surgeon, nurse and dentist in the County of Rensselaer pledge themselves to oppose the passage of the bill; that each one of them visit in person or write the Governor, Senator and Assemblyman of their respective districts protesting against the bill; that they pledge themselves under no circumstances to enter into any contract under this health insurance law.

Every physician in the State might well follow this example if he wants to preserve his right to practise medicine as an independent calling, and to protect 80 per cent. of the population from a form of contract medicine forced upon them without their knowledge or consent by labor politicians anxious to pose as benefactors of their class and as dispensers of medical charity by the State.

New York. John P. Davin, M.D.

OUR LONDON LETTER.

(From Our Own Correspondent.)

London, February 20, 1919.

The Ministry of Health Bill.—Dr. Christopher Addison, the new president of the Local Government Board, presented to the House of Commons this week a bill "to establish a Ministry of Health and a Board of Health to exercise in England and Wales and in Scotland respectively powers with regard to health and local government and for purposes connected therewith." The bill, which was read for the first time, followed almost exactly the lines which I was able to surmise in a previous letter (see Medical Record, Nov. 9, 1918), in that it provided primarily for an assortment, under one government department, of duties which are at the present moment discharged by six or seven departments, with consequent waste of time, overlapping of energy, and aggravated expense. The third clause of the bill provides for the transference to the Ministry of Health of (*a*) all the powers and duties of the Local Government Board, (*b*) all the powers and duties of the Insurance Commissioners and the Welsh Insurance Commissioners, (*c*) all the powers of the Board of Education with respect to attending to the health of expectant mothers and nursing mothers and of children who have not attained the age of five years and are not in attendance at schools recognized by the Board of Education; (*d*) all the powers of the Privy Council and of the Lord President of the Council under the Midwives Acts, 1912 and 1918; (*e*) such powers of supervising the administration of Part I of the Children Act, 1898 (which relates to infant life protection), as have heretofore been exercised by the Secretary of State.

This is an immense pooling of intercurrent and concurrent activities, and must lead in the immediate future to consolidation and improvement in much that counts for sociological progress as well as scientific reform. The reasons for wide and anomalous distribution of medical duties have disappeared, and as none of the existing government departments wished to be confirmed in their medical work it is certain that no objections will be raised on the part of the old bureaus so long as the new bill gives promise of an equally adequate or more promising discharge of the necessary functions.

The following clause has distinct scientific significance: "The power conferred on the Insurance Commissioners by the proviso to subsection 2 of section sixteen of the National Insurance Act, 1911, of retaining and applying for the purposes of research such sums as are therein mentioned shall not be transferred to the Minister of Health, but the duties heretofore performed by the Medical Research Committee shall, after the date of the commencement of this act, be carried on by or under the direction of a Committee of the Privy Council appointed by His Majesty for that purpose, and any property held for the purposes of the former committee shall after that date be transferred to and vested in such persons as the body by whom such duties as aforesaid are carried or may appoint, and be held by them for the purposes of that body."

The Medical Research Committee, a powerful and discriminating body, with Sir Walter Fletcher as secretary, has hitherto been an appendage of National Insurance, paid out of money raised for National Insurance, and presumably working for national health through the Insurance Commissioners. This delimitation of its scope, always an unfortunate one, has been removed, and under the Privy Council the Medical Research Committee will have greater opportunities for wider work.

Clause 4 of the bill brings medical science into close cooperation with the Ministry of Health: "It shall be lawful for His Majesty by Order in Council to establish Consultation Councils for giving, in accordance with the provisions of the order, advice and assistance in connection with such matters affecting or incidental to the health of the people as may be referred to in such order. Every such Council shall include persons of both sexes, and shall consist of persons having practical experience of the matters referred to the Council."

This means that in every step taken the new ministry will have the prompt advice of the members of the medical profession, of those most fitted to give it, if (and if only) the personnel of the Consultative Councils are well selected. The difficulties which lie in the way of the government are largely met if the provision in the bill for medical Consultative Councils results in the assistance in public health legislation of medical men who are truly representative of professional interests.

Sir George Newman, at the present moment principal medical officer to the Board of Education, has been offered and has accepted the post of principal medical officer to the Local Government Board, and on him will devolve, as a secretary of the board, the administrative duties of the new department. The appointment is a practical step toward that coordination of public medical service which was avowedly the primary object of the Ministry of Health. With one medical man as minister, and another as chief of the executive staff, the new bureau should have no difficulty in adjusting the interests of medicine and those of the public rightly.

Death of Miss Eva Luckes.—The Matron of the London Hospital has died this week, to the great sorrow not only of the institution with which she had been so long connected but of the whole nursing world. Miss Luckes' death occurs at a position in nursing in which not only all hospital administration but the public also is deeply interested. Miss Luckes was appointed matron of the London Hospital 37 years ago, at the then extraordinarily young age of 26. The London Hospital, in the early eighties, though already the largest or the second largest charitable institution of the kind in the metropolis, was as far behindhand in all decent amenities for its nurses as any smaller or more struggling institution. The nurses were hardly worked, badly paid, coarsely fed, and insufficiently accommodated; their strenuous activities and grave responsibilities were discharged in a terribly trying environment. Miss Luckes at once proved herself a reformer, and during her thirty-seven years of tenure the women under her charge were steadily treated on a juster and humaner plan, until both in daily environment and future prospect they had every reason to be satisfied. But *pari passu* with the improvements in the nursing conditions at the London Hospital similar improvements were made at all the great charitable institutions, while the vast developments in medical and surgical nursing made the avocation of a hospital nurse a more dignified and scientific affair. Nurses, under such conditions, had to be technically educated to a high pitch, and from a body of women so equipped a movement sprang that they should receive the protection of State Registration. While the nurse at the great general hospitals was not considered to be fully equipped for her delicate and arduous duties until she had undergone a severe training as domestic servant, probationer, nurse, and head nurse, at hundreds of other institutions any young woman with no special education whatever acquired the right to the title of "Nurse," and, having done some sort of training, or no sort of training, at her institution, could then go to the public and demand large fees per week as a "trained hospital nurse." The movement for the registration of nurses had for its object the standardization of the nurses' calling. It was a demand that the woman who had undergone training of a certain duration and character, and this training in a hospital having a certain number of beds giving the necessary range of experience, should receive from the State a place on a registration roll, and should thereby be entitled to treat with the public for private professional service as a registered hospital nurse. It was also demanded that no woman who had not been thus registered should use the title of "Hospital Nurse" or sell her services to the public as such. The movement was, however, not unanimous among nurses, and Miss Luckes, the pioneer in the improvement of her order, stopped short of desiring State registration, no doubt largely because her own personal efforts at her own institution had convinced her that thoroughly capable nurses who would be most valuable to the public in all conditions of disease could be turned out on the more flexible pattern imposed by the authorities of the London Hospital. Of several points at variance between the two parties one alone need be mentioned. It is the principal one: How long should the training be of the competent nurse? Miss Luckes considered two years at a good hospital was sufficient. Those who were defining the process of registration desired three years' training at least. At the present moment the nursing world is still unsettled in its mind as to exactly what methods of training and what form of registration are required in the interests alike of the public and themselves. But the probability is that the more progressive party will win. One bill for the Registration of Nurses has already received the necessary parliamentary support, and this, or an analogous measure, may at any time be revived. A recognized curriculum of nursing training extending over at least three years, and protected by qualifying examinations and the registration of such qualifications, are things that are sure to happen in the near future. Miss Luckes was justified in her own attitude by her own personal success, but she too modestly considered that all sorts of large institutions could lay their hands on a leader of broad sympathies and strong capacity similar to her own, so that a homogeneous pattern of nursing would evolve from a large number of widely differing centers. She did splendid work, and this work will be carried on rather in spite of than because of her latest attitude toward nursing questions. Such matrons as Miss Luckes cannot be obtained by advertisement, but only by training. The whole nursing world, however, is extending deep sympathy with the London Hospital in the loss sustained by her death. She received official recognition during her lifetime which made her practically the head of the nursing world. She was appointed Lady of Grace to the Order of St. John of Jerusalem, she received the First Class of the Royal Red

Cross, and quite recently the C. B. E. Her "Textbook of Nursing" and her "Lectures to Sisters" are well known and appreciated.

Program of the National Council for Combating Venereal Diseases.—The following are some of the more important resolutions which have been passed at a recent meeting of the Council, presided over by Sir Thomas Barlow, late president of the Royal College of Physicians, London, who is particularly well qualified to guide the Council. For Sir Thomas Barlow was the president of the last International Congress of Medicine, held in London the year before the war, and on the international evidence received at that congress the British National Council for Combating Venereal Diseases arose: That the Local Government Board should authorize the appointment of whole-time venereal officers (a man and a woman) on the staffs of the medical officer of each county or county borough. (The women could usually combine venereal and infant welfare work.) That the present hospital accommodation should be supplemented by "ad hoc" clinics under the supervision of such venereal officers in every town of over 10,000 inhabitants, and also in the county boroughs, such clinics to be open for continuous and early treatment both for men and for women, and visited at frequent intervals by the venereal officers, who should be empowered to call in practitioners resident in each locality to assist them. It is suggested that a subsidiary appointment of clinical assistant could be given to a resident practitioner in each center, who would supervise the continuous and early treatment in the intervals between the visits of the venereal officer. That the Local Government Board should be asked to consider immediately whether some modified form of confidential notification of infective cases could be adopted under existing powers, and whether at a later date fresh powers could be obtained from Parliament. That hospitals and medical schools be requested to arrange special post-graduate courses for the training of medical women in the modern methods of treatment; a strong appeal is made to medical women to specialize in this subject. That some means should be devised whereby medical practitioners are encouraged to diagnose venereal disease in patients and also to give early preventive treatment. In the meantime the Local Government Board could secure the services from the Military Medical Department of three or four of the recognized authorities on venereal disease, and arrange for them to hold conferences with the local medical men in various parts of the country, with a view to devising the best means of securing efficiency and continuity of treatment.

A fourth resolution postulated that men serving in the Navy and Army, if in an infective condition from venereal diseases, should be retained in the service until their cure is complete, and not allowed to return to civil life in a dangerous plight to themselves and the community; while a fifth postulated a statutory obligation upon all men and women, whether within or without Government service, to continue treatment for venereal diseases *until cured*. (In the case of gonorrhea in the female this is a very large demand.)

Other resolutions dealt with the protection of young women and mental defectives, and the last one ran as follows: That the Home Office be asked to encourage each town and county to appoint an adequate number of women police without delay. The comprehensive nature of the program is obvious, and the desire to obtain female assistance and to develop the service of female patrol is commendable.

Progress of Medical Science.

New York Medical Journal.

March 8, 1919.

1. The Rôle of Focal Infections in the Psychoses. Henry A Cotton.
2. Eradication of Tuberculosis in Localities. Edmund Souchon.
3. Social Diseases in the Army. Edwin S. Cooke.
4. Pneumonia Influenza. Alfred C. Reed.
5. Postinfluenza Alopecia. Oscar L. Levin.
6. Hospital Abuses. J. W. Kennedy.
7. Inactivity Means Waste. Report of a Case Illustrating How This Natural Law Is Exemplified in Man. Robert H. MacNair.
8. Physical Education and National Health. The Value of Exercise in Medicine and Education. J. Rudis-Jicinsky

5. Postinfluenza Alopecia.—Oscar L. Levin draws attention to the frequency with which alopecia occurs as a sequela of influenza. It appears from three to eight weeks after the influenzal attack, and is characterized clinically by the sudden thinning and falling of the scalp hair and occasionally by areas of incomplete baldness. The prognosis is usually good. Treatment includes the improvement of the general nutrition and local stimulation. The ultraviolet rays from the mercury vapor lamp are of value in the local treatment.

Journal of the American Medical Association.

March 8, 1919.

1. The Early Diagnosis of Syphilis: A Correlation of Clinical and Laboratory Methods. Joseph V. Klauder.
2. A Group of Interesting Syndromes Resulting from Multiple Emboli: Observations in a Case of Chronic Bacterial Endocarditis. C. Saul Danzer.
3. Hookworm Infection Among Troops: Treatment with Oil of Chenopodium. R. H. Knowlton.
4. Vaccination of Tuberculous Patients Against Smallpox: Results in Two Hundred Cases. Louis Mark.
5. Streptococcus Pneumonia. James G. Cumming, Charles B. Spruit, and Ernest J. Aten.
6. Two New Diagnostic Methods for Patients with Cardiac Disease. Julien E. Benjamin and Ernest R. Brooks.
7. Treatment of Influenzal Pneumonia by the Use of Convalescent Human Serum: Second Report. L. W. McGuire and W. R. Redden.
8. Meningeal Conditions Noted During the Epidemic of Influenza. Josephine B. Neal.
9. Lethargic Encephalitis: Preliminary Report. O. L. Pothier.
10. Vestibular Reactions in Five Hundred and Forty-One Aviators. Louis Levy.
11. The Bacteriology of Epidemic Influenza and Pneumonia. Ralph A Kinsella.
12. Pathology of the Pneumonia Following Influenza. W G. MacCallum.
13. The Migratory Appendix. J. E. Allaben.
14. Bronchopneumonia Due to Hemolytic Streptococci Following Influenza. Ernest W. Goodpasture.
15. Appendicitis at Camp Logan as a Sequel to Influenza and Pneumonia. J. N. Hall and Frederick G. Dyas.
16. Postmortem Cesarean Section Following an Influenzal Bronchopneumonia: Successful Delivery of a Living Child. Maurice Heppner.

10. Vestibular Reactions in Five Hundred and Forty-One Aviators.—Louis Levy calls attention to the fact that an excellent physical equipment is demanded of the flying man, and therefore the rigid examination that is given includes the usually accepted methods of examining for vestibular apparatus. In view of the discussion that has arisen concerning these tests and the doubts that have been cast upon their value, Levy gives the results of observations made during a year's work in the Air Service Division of the Surgeon-General's office. Statements have been made that repeated stimulation, such as experimental whirling or flying, lessens the reactions. The author points out that if this were so it would be an important point in considering aviation since aviators are subject to constant stimulation of the vestibular apparatus during flight. With this in view a series of examinations were made of fliers from Barron, Carruthers and Taliaferro fields, the

examinees varying from cadets to officers who had flown 1,000 hours. It was found that nystagmus is not diminished by repeated turnings. Although vertigo was not timed, past-pointing and falling were slightly diminished in fliers of 100 hours' or more experience, being most noticeable in fliers who have had the greatest number of hours. As past-pointing and falling are objective signs of vertigo, this diminution was due to the fact that the flier had learned to interpret this vertigo and for the same reason more rapidly recovered his poise.

13. The Migratory Appendix.—J. E. Allaben refers to the fact that there are certain types of tumors in the abdomen, usually cystic in character, that become attached by adhesions at a point distant from their origin and finally become detached entirely from their original locality, their nutrition being maintained through blood vessels in the new adhesions. The fact that these are known as migratory tumors suggested the caption of the present article. He points out that it is not difficult to understand that the appendix might be subjected to a similar condition, and he reports a case in illustration of this. The patient, a woman aged 23, had been treated for a gonorrheal infection for nine months. She recovered sufficiently to discontinue treatment, but a year later reappeared, complaining of pain in the right iliac region. The pain became so acute that she was confined to bed. There was nausea, elevation of temperature, increase of pulse rate, and tenderness in the right iliac region on pressure. An exploratory examination revealed a considerable mass of omentum adherent in the right iliac region, the intestines being kinked and firmly adherent to each other, and covered with a yellow plastic exudate. The right fallopian tube was distorted and adherent, and upon its removal the distal end of the appendix was observed protruding about half an inch through a mass of adhesion in the right iliac fossa. The appendix was dissected out as thoroughly as possible, and 4 ounces of ether poured into the pelvis and right iliac fossa. Patient made a good recovery without complications. Commenting on this case, the author says that it is difficult to tell whether the appendix or the tube was primarily the offending organ. It is interesting to speculate as to what pathological condition would have followed if such an appendix had been left entirely to nature. In his own opinion, the appendix and the adhesions would ultimately have been absorbed without causing any trouble, but a tube with a patulous extremity periodically leaking pus into the peritoneum might have caused serious complications. He adds that this condition of the appendix may account for some of the cases reported in which no appendix was found.

The Lancet.

February 15, 1919.

1. Hunterian Lecture on the Surgery of the Spinal Cord in Peace and War. Delivered before the Royal College of Surgeons of England on February 3, 1919. A. J. Walton.
2. The Treatment of Gunshot Wounds. Report of Acriflavine Used as a Paste and in Solution. Colonel A. H. Tubby, C.B., Major G. R. Livingston, and Captain J. W. Mackie.
3. A Treatment for Trench Fever. Major J. E. Sweet and Lieutenant H. B. Wilmer.
4. Adhesions of the Sigmoid Associated with Congenital Abnormality of the Mesentery Causing Constipation. J. P. Lockhard Mummery and Drury Pennington.
5. A Problem in the Treatment of Whooping Cough Cases. N. Macleod.
6. Biology and the Medical Curriculum. T. G. Hill.

1. Hunterian Lecture on the Surgery of the Spinal Cord in Peace and War.—A. J. Walton states that in choosing the subject of his lecture he has been guided by the fact that our knowledge of the symptoms of spinal injury has been enormously increased during the war, and the indications for operation more clearly defined. On the other hand, the prognosis after operation, and especially after the purely exploratory operation so often advised, when really contraindicated, has been so poor that its value in civilian lesions is tending to be unjustly depreciated. The pathological changes in the cord are extremely variable, and in the case of extra and intradural tumors consist at first of simple compression, followed by inflammatory changes. Our knowledge of such cases is slight, as those which do not recover and progress to a fatal termination have already passed on to a later stage when the opportunity for studying them occurs. In more advanced cases the consistence of the cord alters; the affected part becomes grey in color and on microscopic section will show a general increase of interstitial tissue, degeneration of the nerve elements, and abundant masses of myelin. In extreme cases all the fibers may be destroyed but there is never actual division of the cord itself. Although described as inflammatory in nature, these changes are in reality reparative and only a means of replacing by scar the destroyed tissue; they therefore do not tend to spread. The onset of these destructive changes is not due to the site of the lesion, but to the rapidity of its progress. In malignant disease of the vertebra the inflammatory change is always more marked than the compression, whereas with slowly growing tumors and in tuberculosis of the spine compression is the more marked factor. It is well recognized clinically that the more rapid the onset of paraplegic symptoms the worse the prognosis. The same law holds good if the pathological process is situated in the substance of the cord itself. Elsberg has evolved a technique for the removal of intramedullary tumors and has recorded several recoveries. In one of the lecturer's cases, which he believes to be unique, a centrally situated tubercular abscess gave rise to a partial paraplegia; the abscess was opened and complete cure followed. If, then, the general principle be true that the amount of destruction of the cord, and therefore the prognosis, is dependent neither upon the site nor upon the nature of the lesion, but upon the rapidity of its progress, marked changes would be expected from a traumatic lesion where the whole course of the disease is almost instantaneous, and the present war has shown this to be the case. Holmes has found that where the cord has been directly injured a portion may be disintegrated, so that on excision of the pia a semifluid, custard-like material may escape. Around this there are marked edema and multiple minute hemorrhages chiefly into the grey matter. The edema may extend to several segments, and bears no definite relation to the severity of the wound. There are also distant lesions and irregular patches of focal necrosis. Holmes also found that in cases where no direct injury of the cord had taken place and the dura was unopened, changes occurred which could only be attributed to concussion or commotion. In such cases microscopically there were punctiform hemorrhages with edematous swelling and diffuse or focal necrosis, and even complete destruction of all the functional elements of the cord. Collier believes that injury in these cases is due to a sudden rise of pressure and states that the changes are more marked in the lower part of the cord, as it is more closed below. He describes two other pathological changes that may occur, namely, organization of clot around the roots of the cauda equina and total necrosis of the distal portion of the cord, which Walton considers to be extremely rare. In cases of gunshot concussion where there was no visible injury of the cord or meninges, Claude and Lhermitte have found local patches of necrosis which they describe as insular necrosis. Such patches are usually situated at the level of the injury, the nerve elements being in process of destruction or completely transformed, while the neuroglial elements are proliferating and new blood vessels are being formed. In some cases the interstitial elements die and the focus is absolutely necrotic. In addition there are diffuse changes, which they have called "acute primary degeneration of the spinal tracts." Here the axis-cylinders are seen broken up in larger or smaller fragments and the nerve fibers for the most part have lost their parallelism. Around the broken fibers are grouped the granular bodies of neuroglial origin. In the grey matter the ganglion cells are loaded with lipochromes and the protoplasm appears full of chromophile granules fused in large irregular clumps. Clinical symptoms in spinal tumors are relatively slow in onset and tend to be focal in nature. The difficulty is therefore rather that of diagnosing the nature and site of the lesion than of determining whether or no a portion of the cord is destroyed. If pressure can be removed the cord will probably recover. In cases where disease commences in the vertebræ specific symptoms gener-

ally antedate those of interference with the function of the cord or its roots. In tuberculosis, for instance, pain, rigidity, and deformity will usually have been in existence long before the onset of paraplegia. In the later stages this localized pain will be replaced by the characteristic root pain. However, every case showing an onset with such localized pain should be examined for the presence of a primary focus, which is most commonly in the breast. The presence of root pains, which are the first of the actual cord symptoms to appear, has been taken to mean that the tumor is extramedullary; but this is by no means always so, the symptom being not uncommon with intramedullary tumors. Hunt and Woolsey have found that in intramedullary lesions such pains are likely to be unilateral; in one of Walton's cases, however, an extramedullary tumor was associated with unilateral root pain. It will probbaly be found that in the latter case the motor loss is confined to one leg, while the central tumor is more prone to cause bilateral paralysis. In the same way the presence of root pain is not a true indication that the tumor is situated posteriorly or laterally. The position of the pain may lead to errors in diagnosis of the level of the lesion. Although the level of the initial root pain is of the first importance in determining the site of the lesion, later symptoms may suggest a much higher level owing to stasis of the cerebrospinal fluid. A careful history must therefore be taken of early symptoms. Hunt and Woolsey have described cases of extramedullary tumors in the cervical region with distinct girdle sensation or constriction at the umbilical level which disappeared after removal of the growth and Reynolds has shown that the explanation of this may be that the pain is due to pressure on the sensory fibers in the cord, in which case it is referred to an area considerably below what one would expect from the situation of the cord lesion. It must be remembered also that in cases of chronic spinal meningitis there may be a band of hyperesthesia extending over a relatively wide area. Motor symptoms depend to a certain extent upon the site of the lesion. In extradural disease the pressure is usually more diffuse and the symptoms are frequently bilateral; when the lesion is situated within the dura, on the other hand, symptoms are generally unilateral. As a rule paralysis below the lesion is of a spastic type. Later the limbs may become flaccid with loss of tone. It is on such cases that the older views of association of a complete lesion with flaccidity and loss of tone were based. Recent experiences of war surgery show that it is possible, however, that this condition of flaccidity may pass off and be followed by a condition of extensor spasm, if the disease be not associated with sepsis of the urinary tract. At the level of the lesion itself there will be a segmental paralysis of the lower neuron type with wasting and complete flaccidity; this symptom is of great value in locating the level of the lesion in the cord, and may, indeed, be of more value than the level of the sensory changes, which are rarely found below the level of the lesion. The amount of sensory loss varies with the site and rate of growth of tumor; extradural lesions usually give rise to more diffuse pressure on the cord and hence all types of sensation are likely to be affected. In tubercular lesions there is loss of sensation only in the later stages, but in cases of secondary carcinoma the reverse is true. Before the war the condition of the reflexes in lesions of the cord was regarded as settled. It is in regard to the reflex changes with complete lesions that our views have undergone the greatest change. Walton points out, therefore, that neoplastic formations interfering with the functions of the cord give rise to focal symptoms which may remain localized for a prolonged period. The destruction of cord will vary with the rate of growth, and in slowly growing tumors may be relatively slight, while in the more rapidly growing ones, although of relatively small size, much permanent damage may be done. Owing to the comparatively slow progress of the disease treatment will probably be sought long before there are symptoms of a complete transverse lesion. In determining the site of tumor, it is essential that each group of symptoms be considered. The apparent limitation of the lesion to one or more tracts is not a certain indication of the site of the neoplasm, although it is well to remember that intramedullary lesions tend to spread up and down the cord, whereas in the case of an extramedullary tumor more and more tracts are involved. With a traumatic lesion of the cord the problem is very different. Owing to the acuteness of the lesion there is at first complete loss of function of the portion of the cord below the injury, giving rise to a flaccid paralysis. Even in case of only partial destruction of the cord by the passage of a missile, the lesions are widespread and recovery unlikely. If the paraplegia remains complete, therefore, prognosis is poor. *X*-ray examination is of value as an aid in determining whether the cord has been in part or wholly divided. Since the whole question of operative interference depends upon the diagnosis of an incomplete lesion it becomes a matter of considerable practical importance to determine upon what symptoms such a diagnosis can be made. In the early stages it would appear that there are no distinctive symptoms. In either case there may be, within a day or two of the wound, a complete flaccid paralysis to the level of the lesion, sensory loss to a similar level, absence of all reflexes, and retention of urine. In those cases where there is return of some form of sensation and of motor power it is evident that the lesion is incomplete. It is in the less well defined cases where there is alteration in the reflexes alone that the greatest errors have arisen, operation having been performed in the belief that the lesion was incomplete whereas there was a complete division of the cord. On the other hand, the change in the nature of the reflexes is often the first indication of partial injury and that an operation should be undertaken. It is the failure to recognize these points of distinction that has brought discredit upon this branch of surgery. The changes in the reflexes have been fully described by Riddoch, who shows that in cases of acute trauma there are three stages: the period of flaccidity, when no distinction can be made between a complete and an incomplete division; the stage of reflex action, during which the differential diagnosis can be made; the stage when septic complications are present, onset of which may be delayed for a long period. Before undertaking operation the surgeon must have clearly in mind what benefit is likely to accrue to the patient from such intervention; it is useless to remove an aseptic bullet when the cord has been completely divided, or a tumor when the functions are irrevocably destroyed. In neoplasms and other lesions, even when the symptoms of paraplegia are complete, provided they are of short duration and there are no septic complications, removal of pressure is likely to be followed by complete cure. The rule is therefore to operate as early as possible, before permanent damage has been done to the cord. When the lesion commences in the bone, however, laminectomy is contraindicated; this is the case also when the symptoms are due to acute myelitis or a softening of infectious origin, or in cases of disseminated sclerosis. In traumatic cases, whatever damage there is, is done at the time of the injury and removal of depressed bone or metal will do nothing to restore the portion of cord destroyed. Operation should therefore not be undertaken until there is evidence that the lesion is incomplete, but when such evidence is present interference should not be delayed. It is of considerable importance, therefore, that the points of distinction between a complete and incomplete lesion, as enumerated by Riddoch, should be clearly understood. Symptoms which develop at a later date are due either to the collection of inflammatory exudates, to the contraction of scar tissue, or to the excessive formation of callus. In each case they are directly due to pressure, for the relief of which an operation should be performed without delay. In certain cases an operation performed for the relief of severe root pains may be justifiable. Operation should never be undertaken for the purpose of repairing an injured cord, either by suture or grafting; in such cases recovery could not be expected and intervention constitutes a risk to the life of the patient, is a source of disappointment to him and his friends, and is likely to bring the operation of laminectomy into considerable disrepute. As regards the technique of the operation the first essential is a wide exposure of the lesion. If the dura is thickened and shows no pulsation it should be opened. With an extradural lesion and an apparently normal dura and

cord, if there is no septic extradural focus, it is better to examine the cord, for the lesions of the war have shown that even with an uninjured dura there may be gross change in the underlying cord. Little can be done of a curative nature in such cases, but there is no increased risk and help may be obtained in reaching an accurate diagnosis. If there is a definite septic focus outside and no visible lesion of the cord or dura, it is better not to open the latter. In operating for the relief of root pains care should be taken that a sufficient number of roots are divided. Reports of a number of cases are given to illustrate the various points brought out in this lecture.

3. **A Treatment for Trench Fever.**—Major J. E. Sweet and Lieutenant H. B. Wilmer have obtained very encouraging results with collargol in the treatment of trench fever. They state that though fully aware of the history of the drug and of the fact that it, with other colloidal preparations, had failed to do all that it was claimed of it, it seemed to them that a trial was worth while for the following reasons: the drug differs considerably from other colloid silvers and there is no great evidence of particular worry about trench fever in the enemy literature. In the medical supplement of the "Daily Review of the Foreign Press," issued by the General Staff, War Office, and dated February 1, 1918, the following statement was made: "According to Richter, intravenous injection of collargol (10 c.c. of 1 per cent. solution) is a specific remedy comparable to quinine in malaria. Three injections at two or three-day intervals cure acute cases." The authors have tried this remedy in thirty-five cases, with uniformly good results. They point out that, of course, the number is too small to substantiate Richter's claim for specificity, and that such a claim cannot be decided until after general trial, but they hope that the treatment will be tried by other workers. In all the cases treated the collargol was immediately followed by marked improvement and recovery, the only point open to question being whether in some of these cases spontaneous recovery occurred. The authors state that as yet they have learned of no method of distinguishing between a case that will recover spontaneously and one that will spend the next six months in hospital. They point out that a pronounced reaction follows the intravenous injection of 10 c.c. of 1 per cent. solution of collargol, made in sterile distilled water, and that the patients often compare this reaction to their initial attack. They do not consider this reaction harmful, however. If the injection does not enter into the vein but passes into the cellular tissue, a decided inflammatory reaction may follow and may even lead to abscess formation. In the present series of cases injections were not always carried out at two or three-day intervals; but when this was done the reaction seemed to be less marked when the second injection followed the first after a short interval. Charts are given of seven of the cases treated.

British Medical Journal.

February 15, 1919.

The Pathogenesis of Deficiency Disease. Lieutenant-Colonel Robert McGarrison.
Placenta Previa. Professor H. Briggs.
The Prevention of Posterior Bowing in Compound Fracture of the Femur. Captain C. Beresford Alexander.
Delayed Primary Suture of Wounds. Major H. H. Hepburn.
The Detection of Saccharosuria, Inosituria, and Lactosuria by a Mycological Method. Lieutenant-Colonel Aldo Castellani and Frank E. Taylor.
The Bridge-Head. Sir Andrew Macphail, Kt.

1. **The Pathogenesis of Deficiency Disease.**—Lieutenant-Colonel Robert McGarrison, as a result of clinical, morbid, anatomical, histological, and bacteriological observations upon the pathogenesis of deficiency disease, has come to the following conclusions: (1) The absence of certain accessory food factors from the dietary—improperly termed "anti-neuritic"—leads not only to functional and degenerative changes in the central nervous system, but to similar changes in every organ and tissue of the body. The morbid state to which their absence gives rise is not a neuritis. (2) The symptom complex resulting from the absence of these substances is due (a) to chronic inanition; (b) to derangement of function of the organs of digestion and assimilation; (c) to disordered endocrine function; (d) to malnutrition of the nervous system, and (e) to hyperadrenalinemia. (3) Certain organs undergo hypertrophy; others atrophy. Those which hypertrophy are the adrenals. Those which atrophy, and in the order of severity named, are the thymus, the testicles, the spleen, the ovary, the pancreas, the heart, the liver, the kidneys, the stomach, the thyroid, and the brain. The pituitary gland showed in adult birds a slight tendency to enlargement in males only. (4) The enlargement of the adrenals is a true hypertrophy in so far as it is associated with a proportionate increase of the glands' adrenalin content. The quantity and quality of adrenalin in the hypertrophied organ is, area for area, approximately the same as that found in the adrenals in health. The hypertrophy is equally well marked in both sexes. (5) Edema has invariably (100 per cent.) been associated with great hypertrophy of the adrenal glands, while 85 per cent. of all cases having great hypertrophy of these organs had edema in some form. The amount of adrenalin, as determined by physiological methods, in such cases has been considerably in excess of that found in cases not presenting this symptom, and greatly in excess of that found in normal adrenals. (6) Inanition gives rise to a similar state of adrenal hypertrophy, and to a similar state of atrophy of other organs, the brain excepted. (7) The edema of inanition and of beriberi is believed to be initiated by the increased intracapillary pressure which results from the increased production of adrenalin, acting in association with malnutrition of the tissues. Failure of the circulation and venous stasis may subsequently contribute to it. Age is an important factor determining its occurrence. This finding is held to account in great measure for the occurrence of "war edema" among prisoners of war in Germany. (8) Wet beriberi and dry beriberi are essentially the same disease; the former differs from the latter in the greater derangement of the adrenal glands. (9) Gastric, intestinal, biliary, and pancreatic insufficiency are important consequences of a dietary too rich in starch and too poor in "vitamines" and other essential constituents of the food. It is suggested that some of the obscure metabolic disorders of childhood might be examined from this viewpoint as well as from that of endocrine gland starvation. (10) A state of acidosis results from the absence of socalled "antineuritic vitamines"; this state is due to the imperfect metabolism of carbohydrates and to acid fermentation of starches in the intestinal tract. Clinically it is evidenced by progressive slowing and deepening of the respirations. (11) Great atrophy of muscular tissue results from deficiency of accessory food factors; it is due in part to the disturbance of carbohydrate metabolism in consequence of disordered endocrine function, in part to the action of the adrenals in supplying blood to the vegetative organs of the body at the expense of the muscles. (12) Profound atrophy of the reproductive organs is an important consequence of "vitaminic" deficiency. It leads to the cessation of the function of spermatogenesis. In the human subject such degrees of atrophy would result in sterility in males and in amenorrhea and sterility in females. This finding is held to account in great measure for the occurrence of "war amenorrhea." (13) The central nervous system atrophies little; paralytic symptoms, when they occur, are due mainly to impaired functional activity of nerve cells; much more rarely to their degeneration. (14) It is thought that because of their atrophy out of all proportion to other tissues, the thymus, the testicles, the ovary, and the spleen provide a reserve of accessory food factors for use on occasions of metabolic stress. This reserve, however, is rapidly exhausted. (15) The bones are thinned, and there is a loss of bone marrow. (16) The red cells of the blood are diminished by about 20 per cent. (17) The whole morbid process is believed to be the result of nuclear starvation of all tissue cells. Even the adrenals, which alone of all organs of the body undergo enlargement, show on section changes in some of their cells indicative of nuclear starvation. Accessory food factors are nuclear nourishers. (18) Finally, although deficiency of certain accessory food factors is the essential

etiological agent in the genesis of beriberi it is held that infectious and parasitic agencies are often important causes determining the onset of symptoms. "Vitaminic" deficiency renders the body very liable to be overrun by the rank growth of bacteria. The full details of the research which led to these conclusions will appear in the *Indian Journal of Medical Research.*

Western Medical Times.

February, 1919.

1. Some Abdominal Tumors. Fred W. Lux.
2. The Consulting Physician and the Physician with Whom He Consults. Eli G. Jones.
3. Preventive Medicine on Hygiene. E. Stuver.
4. The Value of the "No Good"—Minor Surgery and Influenza. Douglas H. Stewart.
5. Influenza. W. E. Bremser.
6. Surgical Pathology and Peripheral Nerves. Sidney M Cone.

1. The Abdominal Tumors.—Fred W. Lux deals in this paper with abdominal tumors from the diagnostic aspect only. With regard to ascites he points out that it is not usually difficult to diagnose when the amount of fluid is equal to three pints or more; smaller quantities produce no definite physical signs. If the quantity of fluid is large the abdomen presents a rounded, globular appearance, the umbilical region being most prominent. If the quantity of fluid is large, but its accumulation gradual, bulging of the flanks is the most prominent feature. By placing the hand on the abdomen in the right or left hypochondriac regions, and depressing it suddenly, the fluid is displaced and the surface of the liver or spleen, provided they have been enlarged, can be felt. This phenomenon of "dipping" is considered pathognomonic of ascites. Less than three points is often difficult or impossible of determination as the fluid spreads itself in the abdomen and pelvis and occupies the interstices between the viscera without producing any sign of its presence. Unusually large and mobile cysts of the ovary, mesentery, omentum, peritoneum, and liver sometimes simulate ascites. The distinguishing characteristic of ascitic fluid is the readiness with which it changes its position in obedience to the laws of gravity and the change in the patient's posture. As for phantom tumors, they all disappear under an anesthetic. Most do so when the patient is asleep. In cases where a tumor disappears suddenly a displaced organ is probable. In enlargement of the kidney, which may be due to a tumor in the kidney, palpation, which is of far more importance than inspection, is best performed when the intestines have been emptied thoroughly. The area of dullness runs from the lateral aspect of the plain to the median line posteriorly. The tumor usually retains the shape of the kidney, and in the process of its enlargement it projects forward and downward. It may be felt easily, as a rule, bimanually. Exploratory puncture of renal tumor in the lumbar region has often been recommended, and in certain affections, such as hydronephrosis, echinococcus cyst or cystic kidney, it is certainly of advantage upon the condition that an operation is carried out immediately. In discriminating between the various enlargements of the liver we have to consider the form and shape that the liver takes, and whether the edge is altered. The consistence of the liver is of great diagnostic importance, whether it is hard, very hard, or only just about the normal consistence. The character of the surface has also to be taken into account. The general enlargements of the liver are usually of a uniform character, such as nutmeg liver, enlargement due to obstruction, and distension of the bile ducts. Cirrhosis of the liver is less often uniform, especially the hob-nailed atrophic form, but syphilitic cirrhosis and unilobular varieties may be quite uniform. Cancer of the liver gives the hardest liver and a cirrhotic liver offers great difficulty of diagnosis from cancer of the liver. Appendicitis is the most frequent abdominal emergency, manifesting sometimes a tumor, which the physician is called upon to diagnose. In the typical cases the diagnosis may be said to be never in doubt. In a case of tumor in pyloric obstruction, one has to distinguish between malignant and benignant growth. History of the case is often of great aid in diagnosis. Of all the causes of pure menorrhagia, fibromyoma of the uterus stands out by itself as the only important growth associated with the symptom, and a bimanual examination, as a rule, suffices to show that such a tumor exists, the chief characteristic of such a growth being an asymmetrical enlargement of the uterus, the typical shape of the organ being altered. The only physical method of examination which is of any assistance in determining an enlargement of the gall bladder is palpation. As in the diagnosis of gall bladder enlargement, so with diagnosis of spleen enlargement palpation is the best means of detection. A tumor of the head of the pancreas generally causes jaundice by invading the orifice of the common bile duct. A pancreatic tumor is situated back of the stomach, and to distinguish it from a tumor of the liver we have to dilate the stomach. One very important diagnostic sign of a pancreatic tumor is that no definite edge and no notch can be felt.

4. The Value of the "No-Good"-Minor Surgery and Influenza.—Douglas H. Stewart says that if one were to piece together and to formulate all the various opinions and guesses at opinions about the disease termed "the Flu," the final statement would be something like this: The general practitioner and his treatment must be belittled and made of no account, for many general practitioners are making good in the prevailing epidemic, and eventually a sound plan of procedure will become established. Therefore the public must be taught that the services of the general practitioner are valueless and the practitioner himself must be impressed with the utter hopelessness of the situation, lest he look out. It is well known that where there is no hope, there is no endeavor. Whether this be but a superficial reading of the times or a correct reading, is a matter of small moment, for the figures we have of gloom and protest from college or laboratory will turn into spray when they meet the rock of experience as exemplified by the man who is versed in the art of minor surgery and who is working in some mining camp or in the small but well equipped hospital of some industry. A letter from such a man states: "You told me to shut the patient's mouth, to open his sphincters and to lock up all my coal tars. Our men have a big value, for they are producers and want to get these points into print, for they have been worth more to our sick workers than the combined 'torkee, torkee' of the eight medical journals that come to me." Stewart goes on to draw attention to the fact that one of the first things that a minor surgeon does is to make up his mind that whatever the influenza is, it is not lobar pneumonia, or any other disease name; it is a thing he knows well, only he calls it sepsis or toxemia. It is a poisoning, and the pathology is as varied as is that of any other poison. The surgeon knows toxemia, and it follows as a matter of course that the surgeon considers breathing through an open mouth as much on the same plan as a sanitarian regards a well in a cemetery. The patient's mouth is foully contaminated and the inspired air is passing through a cesspool. When accompanied by pyrexia the local effect of mouth breathing is an inspissation or drying of the natural secretion of pharyngeal and other mucous membranes, and this imitates, to a certain extent, the artificial production of a coughing and vomiting by means of a finger when purposely inserted. Stewart holds that if in a septic case the mouth is left open all treatment is useless, for the outlook is grave and is fast becoming hopeless. Any person may become expert at freeing a stuffy nostril through practise upon himself, employing for the purpose a cotton-wrapped and vaseline-coated probe. It is pointed out that when we are dealing with a toxemia that spends much of its force upon the brain or its membranes, against the respiratory organs, and within the alimentary canal, when we have shut the mouth and freed the nostril, we have, by the very act, put the cerebral circulation, together with the intake of the respiratory and of the digestive systems, into a closer approach to the normal. Stewart emphasizes the vital importance of opening the sphincters in order to avoid gastric dilatation or paralytic ileus, or both combined, which is the consequence of closed sphincters where toxemia is present. He suggests that the treatment of influenza should begin with the identical therapeutic post-operative precautions taken by a surgeon—the hourly 1-10 grain of calomel, the alum enema and the rectal tube. A sum-

mary of the situation might be expressed as follows: "Is the mouth shut, is the nostril free, and is the rectum right?" If not, it should be made so, otherwise we cannot hope to have any structure right, if it lie between the mouth and the rectum, because the whole machinery of head, thorax, and abdomen is more or less crippled; it is only the degree of crippling that may be called in question. No structure in the whole body is immune to a severe poisoning that is taking place in any part of the alimentary canal. Why should one be asked to imagine a doctor who wasted his time looking for a pulmonary consolidation to explain a toxemia that was so evidently coming from a digestive tract, both ends of which tract were damaged machinery and its lumen contents were fairly rotted, because of a palsied contraction and its accompanying, though undiscovered stasis—a stasis that prolonged massage might easily have removed, or which might have been arrested by such simple means as packing the rectum with a vaseline-soaked gauze strip?

Berliner klinische Wochenschrift.

January 13, 1919.

Prosthesis of Limbs.—G. Körting publishes his experience and offers some critical remarks tending to react against the present tendency to excessive improvements in prosthesis of limbs. After an experience of four years the writer found that many amputated subjects preferred a rigid wooden leg to one with a complicated mechanism. Subjects with amputated arms usually experienced deception following exaggerated promises and complicated operations when first coming under treatment. The majority of them hang up their artificial arms in a closet after having uselessly battled with them for some time. A rigid arm with a hook at the end renders far more service than Sauerbruch's arm. Prosthesis, however, is useful in intellectuals and still more so in those who have lost both arms and cannot educate a remaining intact member. The one great defect in all forms of prosthesis resides, Körting holds, in the absence of sensibility which prevents the subject from getting more than a certain degree of usefulness from the apparatus employed.

Myotomy of the Forearm in Cases of Digital Contracture.—A. Salomon has treated a contracture in flexion of the fingers following a cicatrix on the forearm by total division of the muscles followed by separation of the divided parts. The writer then grafts a flap of fat over the muscles to take the place of the aponeurosis, and insists upon the necessity of filling the parts where muscular regeneration is to take place from all external pressure. In the case reported by the writer muscle regeneration was quite well advanced at the end of three months, the force of flexion was almost normal in the fingers, and the circumference of both forearms was equal. When the muscles of the arm were made to contract the regenerated portion became quite as rigid as the rest, a fact which, Salmon says, proves that the regeneration was muscular and not fibrous.

Münchener medizinische Wochenschrift.

January 10, 1919.

On Wound Diphtheria.—Anschütz and Kisskalt recall that the diagnosis of the diphtheritic nature of a wound cannot be made simply from its aspect. Just as there may be an absence of membranes, so existing membranes may be due to bacteria other than Loeffler's bacillus. The writers observed this wound complication develop progressively, the first cases having escaped diagnosis. When at last the attention was drawn to the possibility of a diphtheritic wound infection, examination showed that 15 per cent. of hospital patients, as well as 19 per cent. of out-patients, were carriers of the diphtheria bacillus in their wounds. The virulence of the bacilli was verified by guinea pig injections. The throat and nose of subjects carrying bacilli were examined and only gave positive results in 33 per cent. of the cases. The writers endeavor to explain the innocuity of the bacilli in certain wounds by a state of immunity acquired from a former diphtheria. The treatment by serotherapy appears to have exercised a happy influence on this type of diphtheria intoxication, especially in the more serious cases. It is to be remarked that the writers' cases correspond with other epidemics of diphtheria wound infection occurring in other parts of Germany.

Wound of the Inferior Vena Cava from Exploding Shell, with Embolic Migration of the Missile.—Henes describes a case of tear of the vena cava followed by death, in which a small fragment of shell entered the superior vena cava, thence passed into the right auricle and ventricle and finally became lodged in one of the branches of the right pulmonary artery.

Censorship and Science.—H. Much reports an affair which admirably illustrates the danger of excessive bureaucratization of sanitary matters. Being sent to stamp out an epidemic of cerebrospinal meningitis, Much commenced by making thorough examinations of the rhinopharynx in subjects suspected of actually having being exposed to the disease. Perceiving that the number of carriers of the meningococcus attained fantastic proportions as the epidemic progressively decreased the writer composed a report showing that these carriers were not dangerous to others. The censor did not allow the report to be printed, on the pretext that the writer's conclusions were contrary to established facts. A second report, with data to back up the statements contained, was absolutely ignored by the censor.

Deutsche medizinische Wochenschrift.

January 9, 1919.

The Absorption of Nitrogen and Atmospheric Air in Artificial Pneumothorax.—K. Henius has undertaken experiments on dogs to ascertain if nitrogen or air offered any differences in their manner of absorption when injected directly into the pleural cavity. It results from the tables published by the writer that the differences sometimes in favor of nitrogen, at others of atmospheric air are insignificant, so that air can be perfectly well used in place of nitrogen for practical reasons. And still more, the intrapleural pressure does not offer a rigorous proportionality with the amounts injected, a fact to be interpreted by the variation of certain factors, such as the tonus of the diaphragm or respiratory muscles, the elasticity of the mediastinum, etc. Neither is there any relationship between the tension of the injected gas and the rapidity of absorption.

Poliomyelitis in the Army.—A. Stern reports five cases of acute poliomyelitis occurring in the German army, although there was no epidemic among the children in the region where these cases occurred. However, the writer remarks that the coexistence of influenza should be given attention, all the more so because the coexistence of these epidemic diseases has already been noted. One of the patients had had the grippe six weeks before he developed the poliomyelitis. Stern also learned that two other of his patients came from a region where there had been a high mortality among hens.

Fatal Mercurial Poisoning Following Sublimate Injections for the Cure of Varicose Veins.—F. Hammer resorts to Linser's treatment for the cure of varicose veins which consists in injecting the ectasic vessels with a 1 per cent. solution of $HgCl^2$, a treatment quite extensively employed in Germany and recommended in the army by the medical board. In the fatal case met with by the writer the dose injected was only one centigram of the salt. A typical mercurial intoxication resulted with stomatitis, colitis, and nephritis. The writer recalls the accidents observed during various mercurial treatments, and concludes that in these patients there is an idiosyncrasy for the drug and that, therefore, there is no reason for renouncing the treatment of varices by this procedure. In the case reported it must be supposed that the intoxication was due to a failure of coagulation, such as ordinarily takes place at the time the injection is given, and for this reason there was a rapid diffusion of the mercury throughout the system.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON SURGERY.

Stated Meeting, Held January 3, 1919.

DR. SETH MILLIKEN IN THE CHAIR.

Large Chondroma of the Ribs Associated with Exostoses of Humerus and Tibia.—Dr. JOHN C. A. GERSTER presented this patient, a man 60 years of age, who came to him on April 26, 1918. There was a history of trauma nine months previously. The patient was carrying a package in both hands, slipped, and was unable to put out his left hand to save himself; he fell, striking his left lower thorax against a radiator. There was a bruise and later a swelling which "came and went," but was not troublesome. At the end of three months there was a definite lump, and at the end of six months this lump began to grow much more rapidly. He did not consult a physician until nine months after the injury. At that time there was a tumor the size of the palm of the hand, projecting like a plateau one inch from the chest wall; its center was elastic. An *x*-ray showed that the tumor projected much further internally than externally, its shadow almost touching that of the transverse processes of the vertebræ intra-abdominally. The lower margin of the tumor corresponded to the free border of the ribs, and its upper margin came just below the eighth rib. At operation May 30, 1918, a large skin flap was made with base uppermost, the incision beginning at the median line half way between umbilicus and ensiform, skirting the lower margin of the tumor and curving slightly upward in the back, ending about two inches and a half from the median line behind. The skin and subcutaneous fat were peeled from the deep fascial surface covering the tumor from below upward to well beyond its upper margin. The abdomen was opened by an incision corresponding to the lower margin of the tumor. Manual exploration determined the absence of adhesions. Successively, one inch of the 12th, 11th, 10th and 9th ribs were resected; the soft parts were then divided, opening the thorax in a vertical direction. Under guidance of the fingers within the thorax the soft spots of the 8th intercostal space were divided along the upper margin of the tumor, which was now freed below, behind, and above from the abdominal and thoracic parietes. The costal cartilages were divided in front; the only attachment now was that of the diaphragm, which was cut away from the inner aspect of the mass. The left lung, pericardium, and diaphragm showed no gross pathologic changes. Closure was begun by suturing the free edge of the diaphragm to the cut edge of the abdominal muscular wall. There was considerable pull of sutured diaphragm upon the pericardium; to relieve this an incision was made through the upper surface of the diaphragm (down to, but not involving, the fascia or the peritoneum on its abdominal surface) in a direction parallel to the pericardial margin and one inch away from it. The skin and subcutaneous tissue flap was turned down to where its inner surface touched the diaphragm without tension, and the left pleural cavity was then closed by a running catgut suture uniting subcutaneous superficial fascia to diaphragm about two inches below its cut edge. A running suture of silk closed the skin. The specimen weighed 1200 grams. The abdominal surface of the tumor presented coral-like excrescences and had a bony shell. The external surface was soft, covered by fascia, and incision here revealed an interior filled with clear, straw-colored mucoid fluid and cartilaginous masses. Microscopically, sections taken from this region showed pure chondroma (but there was no question that the tumor had osseous tissue in other parts, as demonstrated by the *x*-ray and gross pathological examination). The patient made an uneventful recovery. He was a little short of breath for a few months, and an *x*-ray taken a few weeks after operation showed the left lung to be less well aerated than the right. This slight dyspnea gradually passed away. The patient is well seven and a half months after operation, and has been able to resume his work as a foreman in a factory. An *x*-ray taken a few days ago failed to show any signs of recurrence. There was moderate scoliosis, with concavity toward the operated side. The patient also presented two bony exostoses—one of the humerus close to its neck, of forty years' standing; and one of the head of the fibula, of forty-two years' standing. While these would not absolutely place the patient in the class of thoracic chondroma with multiple exostoses, his case might well be considered in this relationship. The operation was performed under intrapharyngeal anesthesia administered by Dr. W. Brauower. A catheter of 18 French caliber was introduced through one nostril into the oral pharynx. The lung could be expanded or deflated at will during the operation. There was no dyspnea. Anesthesia was entirely satisfactory at all times. Because of its simplicity and equal effectiveness, intrapharyngeal anesthesia seemed preferable in operations where one or both pleural cavities were opened. On the other hand, intratracheal anesthesia was still the method of choice in operations upon the jaws and tongue, because it prevented entrance of fluid or mucus into the respiratory tract. There were a number of cases (mostly in the French literature) of large chondromata of the ribs removed without differential pressure where no dyspnea was noticed upon establishment of total pneumothorax by opening the chest. Besides these, there were several of sarcomata of the chest wall operated without differential pressure in which a considerable effusion had compressed the lung. Why there was no mediastinal fluttering in any of these cases we did not know.

Carcinoma of the Recto-Sigmoid; Colostomy for Acute Intestinal Obstruction; Balfour Sleeve Resection; Closure of Colostomy.—Dr. GERSTER presented also this patient, a man of 56 years, who gave a history of being perfectly well up to four days before admission to Mount Sinai Hospital (on Dr. Elsberg's service), when he began to suffer with abdominal cramps, vomiting and obstipation. Upon admission he presented the classical syndrome of obstipation, persistent vomiting, and marked abdominal distension. Through a median hypogastric exploratory incision, the cause of the obstruction was found to be an annular, freely movable carcinoma of the rectosigmoid, one inch above the floor of the pouch of Douglas. A left iliac colostomy was established (and opened twelve hours later). The original laparotomy wound was closed. Five weeks later this was reopened and, after a liberation of numerous adhesions, the tumor of the rectosigmoid was resected and the gut joined end to end by the sleeve method of Balfour. The patient left the hospital for about eight weeks after recovery from this operation. He then returned and an enterotribe was employed to cut through the spur of his colostomy. This was accomplished in five days. Two weeks later the colostomy was closed, and the man made an uneventful recovery.

Dr. L. T. LE WALD said that from the *x*-ray it would seem that there was some calcification on the inner surface of the chondroma in the first case presented, and he was interested in knowing whether examination had shown what caused that shadow.

Dr. GERSTER replied that he had forgotten to state that the original *x*-ray report of the patient before operation had indicated the tumor to be an osteochondroma. A few days before the present meeting, Dr. J. C. Bloodgood had seen the tumor and had remarked that it was curious to observe the bony shell on the intraabdominal surface and the absence of such calcification on the sub-fascial (external) aspect. There was no question but that there was some bone present in the growth.

Phlegmonous Gastritis.—Dr. GERSTER presented this specimen. The patient was a man sixty-five years of age, admitted to the service of Dr. A. V. Moschcowitz at Mt. Sinai Hospital, May 15, 1917, with a history of two days' abdominal cramps, vomiting, and constipation, but no previous history suggestive of gastric trouble. He presented the picture of a marked diffuse peritonitis, and because of greater tenderness in the epigastric region, a diagnosis of diffuse peritonitis following perforation of a gastric ulcer was made. An exploratory epigastric incision revealed a diffuse peritonitis; no perforation of the stomach, but the pyloric portion was markedly injected and thickened, in con-

trast to the apparently normal duodenum and fundus of the stomach. Flakes of greenish fiorin were present along the lesser curvature. Through the transparent lesser omentum, the pancreas could be seen and felt, apparently normal. The appendix and gall bladder were exposed and found normal. There was no fat necrosis. All lymph nodes in the abdomen were enlarged and palpable. The condition was diagnosed as a phlegmonous gastritis involving the pyloric portion of the stomach (ending abruptly at the pylorus) and causing the diffuse peritonitis. A drain was placed at the bottom of the pouch of Douglas through a suprapubic stab wound, the original incision being closed. A culture of the peritoneal exudate showed pneumococci. The patient died eight hours later. The specimen showed an enormous induration of the pyloric two-thirds of the stomach. This swelling shaded off gradually toward the cardia, but ended abruptly at the pyloric ring. On section the wall measured two centimeters in thickness in the diseased region, due almost entirely to a thickening of the mucosa and submucosa. In the submucosa were streaks of yellowish purulent exudate which could not be squeezed out. In the mucosa of the antrum were two large necrotic patches about three to four centimeters square and greenish black in color. Microscopical examination of the stomach showed throughout the entire greatly thickened wall a diffuse acute inflammatory process with much edema.

The Rôle of Cell Necrosis and Bacteria Invasion in Surgery.—Dr. FENTON B. TURCK read this paper. (See page 471.)

Dr. EDWARD LELAND KELLOGG said they had listened to a paper of surpassing interest and expressed himself as impressed with the profound learning, the daring thought, and the ingenious deductions of the author. He was surprised to find his name on the program and regretted that he had not had a longer period of time to draw conclusions from the clinical application of Dr. Turck's hypothesis. He had, however, read his earlier papers on this subject and been privileged to study a large number of his microscopic specimens. He had tried to follow his deductions, and, while admittedly lacking the special training fully to appreciate his line of thought, it seemed to him that Dr. Turck's carefully controlled experiments were entitled to earnest consideration. Dr. Turck had given new light on the cause of post-operative temperature which we had learned to expect, and it was comforting to know that when it occurred our patients were receiving an autoinoculation against infection. Clinically we had learned that patients with lacerated wounds might be in a measure protected against tetanus by the inoculation of a proper antitoxin. It was reasonable to believe that similar precautions might protect them against the more ordinary infections. That the absorption of the autolyzed tissue cells might give rise to serious symptoms was easy to believe, but that a serum could be prepared to protect the body against this effect was revolutionary and gave us food for thought because of its far-reaching possibilities. If clinical results bore out the laboratory findings it would seem that we had found the Aladdin's Lamp. To draw conclusions from clinical experience one must have a vastly larger number of cases that the speaker had treated; he was, however, glad to submit the following data. He had used the serum in nine cases, giving in all twenty doses, the maximum dose that he had given being 5 c.c. There had been no bad results. Apparently the serum was safe to use in this dose at least. Unusually there was a slight febrile reaction. One patient developed a scarlatiniform rash which disappeared in forty-eight hours. Dr. Kellogg gave somewhat in detail the cases in which the serum was used. One of the cases was a suppurative synovitis of the knee which had been treated by the Carrel-Dakin solution and in which they had expected trouble. This patient was cured. Two cases of osteomyelitis of the femur and one of extensive laceration of the thigh were improved by the serum treatment. One case of extensive burns had improved under the treatment, two others had died. In two cases of intestinal obstruction it was administered before operation. In both cases convalescence was uneventful. While this was a pitifully inadequate list from which to draw conclusions, it was his impression that the wounds had healed more rapidly and infection had been more easily controlled than would have been the case without the serum. The freedom from injurious effects and the results of Dr. Turck's carefully worked out and controlled experiments made him feel justified in continuing the clinical experimentation, upon which he hoped at some later date to report his experience.

Dr. JOHN LARKIN said he did not know why he had been called upon to discuss this problem, as it was a physiological and not a pathological problem. He hoped Dr. Meltzer would discuss it from the physiological standpoint. He wondered how many had read the report of Dr. Bayliss' work on the physiology of shock, which was conducted by the "Shock Commission" appointed by the Crown, of which Conner, Haldane, and Trowbridge were members. The consensus of opinion that they had given seemed to show that they had had very meager opportunities of observing shock cases, or what constituted the condition we knew as shock. This commission was appointed for the purpose of determining what shock was, what agents had a curative effect, and what might be deduced from their experiments that would be of value in saving the lives of soldiers. The experiments were conducted in conjunction with French physiologists and were all conducted on a physiological basis, and that was why he as a pathologist did not feel exactly competent to discuss the subject. The work that the physiologists had done in the Oxford and London universities had been amply controlled; he did not see that Dr. Turck had controlled his work in this way. He had given them glittering statements but no physiology whatever. The work of Bayliss and the Shock Commission, published in the *British Medical Journal* in May, 1918, showed that they had made very careful observations and gave specific proofs and suggested life-saving measures. They had listed many diagrams of blood pressures, temperatures, etc. Drummond and his associates had been most active in the field, and there was no doubt that all this work which was presented had been done before and offered nothing really new. It was done in 1914, and before that time in connection with work on blood pressure. Bayliss, Taylor, and Drummond saw exactly the identical conditions when they hammered dog's muscle to the injuries of muscle by shell wounds occurring on the battlefield. They had also proved that a deranged nervous condition had nothing to do with its production. They sectioned the spinal cord at the lower lumbar vertebra, hence eliminating any nerve factor. Another question arose in regard to shock, and that was, where there were no open injuries there might be fat embolism. Bayliss simply passed this over, but did not consider it a very important part of the problem. The condition of acidosis was another question. It seemed to him that there was no doubt that autolysis of the muscle really took place, and there was acid produced as the result of muscle digestion—acid which the French and English called lactic acid and we called sarcolactic acid. After all, Haldane had shown that the acid was not produced in such proportions as might cause death or very great changes in the system. Therefore, to control the acidosis factor, Bayliss used injections of bicarbonate in his experiments and says that the bicarbonate was not a counterpart of the lactic acid and that the lactic acid was but one of the factors that possibly involved acidosis. Dr. Larkin said that he had had the pleasure of looking over Dr. Turck's specimens, and up to the present time he was not absolutely convinced as to how he arrived at his deductions. He was perfectly free and frank in saying to Dr. Turck that he had not paid much attention to the changes pointed out by Dr. Turck; he formerly thought and still was of the opinion that the conditions were not brought about by the absorption of autolyzed muscle, but represented only agonal thrombi, so frequently seen in all microscopic preparations. There were three kinds of changes in the blood vessels and no injury to the intima, but mostly coagulation of the red and white cells and sometimes purely a coagulation of the serum, and that was the general picture. In regard to the changes pointed out he thought it wise to hold our judgment in abeyance for a more strict pathological confirmation. Another question, and that was immunization by injecting this serum into individuals supposed to be in shock or to prevent shock on persons about to undergo surgical operation. He did not think that immunity was brought about in just that way. The Shock Commission, in looking for some agency that would diminish shock,

had experimented with gum arabic, and brought out that it was one of the most effective agencies for combating shock given in a solution of 6 per cent gum arabic in 9/10 solution of saline, and injected intravenously. With this they had had most remarkable results in shock or in cases in which they were about to do an amputation. In the *Fourth British Quarterly* there were all the findings of the Shock Commission, and gum arabic saline was one of the things that stood out most prominently. We did not know that all the facts had been accurately sustained, but more careful work had yet to be accomplished. Dr. Larkin said he took this opportunity to compliment Dr. Turck on the great effort he had made in trying to clear up a difficult problem.

Dr. S. J. MELTZER said that instead of talking physiology, as Dr. Larkin had suggested, he would rather discuss what could be termed pathology. If he understood correctly, Dr. Turck thought very little of the value of germs in pathology; he compared them with the demons of old. He assumed that the main factor in the causation of disease was the destruction of tissue and the absorption into the blood of some polypeptids. Dr. Meltzer recalled an article by Dr. Cheesman and himself, which appeared about twenty years years ago in the third volume of the *Journal of Experimental Medicine*, describing experimental work carried out at the pathological department of the College of Physicians and Surgeons. They had introduced intravenously into normal animals colon bacilli, typhoid bacilli, streptococci, and staphylococci in large quantities without producing any untoward effect upon the animals and without being able to recover the organisms from the blood. If, however, previously to the injection an injury to some tissues was produced, for instance, by touching up with a hot glass rod some part of the liver, spleen, parietal peritoneum, uterus, etc., these injured places contained the organisms in pure cultures and the injection mostly led to septicemia. They arrived at a conclusion which was just the opposite of the view held by Dr. Turck. Dr. Meltzer assumed then and assumed today that pathogenic organisms (and their toxins) were the main cause of the development of acute diseases. But the organisms required for their growth and development a focus of dead tissue or at least of tissues with diminished vitality; bacteria did not gain a foothold in perfectly normal tissue. He did not deny that some protein material might exert a toxic effect, just as probably Dr. Turck did not deny that microorganisms might in some cases be the cause of a disease. At least he did remember that many years ago Dr. Turck claimed that he could produce gastric ulcer by feeding animals with large quantities of cultures of a colon bacillus. Dr. Meltzer referred, furthermore, to recent experiments published by Dr. Wollstein and by Dr. Kline in conjunction. They produced typical pneumonias by the intrabronchial injections of 1:20,000 Dakin's solution, or chloramine-T, and by injections of egg yolk into the bronchi, but not of egg white. Dr. Meltzer said that they were never so fortunate as Dr. Turck to produce pneumonias by mere spraying of the throat. The pneumonias thus produced were anatomically indistinguishable from normal pneumonias produced by cultures of pneumococcus. The fundamental difference between the two kinds of pneumonias was that the chemical pneumonias did not lead to the death of the animal and the blood, as well as the tissues, remained sterile. Here again the essential danger from the pneumonias was the presence of bacteria. Dr. Meltzer looked upon the anatomical changes merely as a part of the processes of defense and repair, and not as essential part of the fatal disease, a view which Dr. Meltzer advocated for many years. Dr. Turck had said so much in his paper, and said it so quickly, that Dr. Meltzer could not say with how much of that which Dr. Turck said he agreed or disagreed. He only wished to say that the pictures presented by Dr. Turck did not support any view of this kind. As to shock, Dr. Meltzer said he was one who had to confess to being guilty of having worked with various collaborators on this subject. All who worked on shock on the battlefield, as well as in the laboratory, were of the opinion that it was quite difficult to produce a condition of shock. Recently he and his coworkers published a method by which they were able to produce shock in a little less than ninety minutes. He was therefore greatly surprised to hear that Dr. Turck could at will produce shock within a few minutes. It seemed to him that such a rapid effect was more liable to be accounted for by embolism than by shock. Much more interesting and important was the statement of Dr. Turck that he developed a serum which could prevent shock. Dr. Kellogg used this serum, he believed, in eight cases. But as far as he understood Dr. Kellogg, there was not a single case of shock among them. They were simply cases of injuries, among which two or three recovered sooner; that meant, say, in three instead of four weeks. Now all of us knew that this might happen often enough, not because of a certain treatment but even in spite of it. At any rate, the shortening of a recovery from four to three weeks had nothing to do with the statement that serum could prevent shock and that shock could be produced within a few minutes. As to the results of the physiological investigations of the various commisisons on shock, Dr. Meltzer did not feel that much was accomplished. Dr. Cannon, one of our leading physiologists, before leaving for the theater of war thought that in shock large quantities of blood in the circulation were trapped between the constricted mesentery and liver capillaries, and advised the use of intravenous injections of pituitrin. In Europe he met surgeons who made laparotomies on shocked patients and were quite sure that they did not find any engorgement of the vessels of the abdominal viscera. Cannon gave up his previous theory and became a follower of the theory that acidosis was the main cause, and now recommended the intravenous injection of bicarbonate of soda. Bayliss, who previously recommended the intravenous injection of a 6 per cent. solution of gum acacia, agreed now with Cannon that the fluid for intravenous injection should consist of a 4 per cent. solution of bicarbonate of soda and of a 6 per cent. solution of gum acacia. He could not enter into details because some of the communications were marked confidential, but the following was public property: Bayliss gave up the idea that acidosis was the primary cause of shock and was not using bicarbonate of soda any more. On the other hand, reports came in from the battlefield that intravenous injections of a 6 per cent. gum acacia solution led in many cases to very serious results and even to deaths. Another disappointment was the theory of Porter that shock was produced by pulmonary fat emboli. The subject of fat emboli in the lung was treated exhaustively in 1913 in a monograph by Dr. Warthin, which apparently was not known to Dr. Porter. The most disappointing side in Dr. Porter's activity was that he was apparently by far not as good a diagnostician as he was a physiologist. From his statements we learned that he diagnosed shock merely by the effect of low blood pressure. Now pulmonary fat embolism could be easily diagnosed. The patient was cyanotic, suffered from air hunger; pulmonary edema and sometimes hemoptysis were present; auscultation revealed rales, and the blood, urine, and even the sputum showed the presence of fat droplets. These were characteristic symptoms, but Porter did not indicate anywhere that he looked for them. Dr. Turck told us marvelous things and the speaker did not wish to deny them, but he regretted that Dr. Turck did not bring forward any evidence that his statements were reliable and correct. It would be well for the subject if other experimenters would be in a position to verify his statements. Lantern-slide demonstrations of anatomical pictures did not prove his physiological contentions.

Dr. ROBERT T. MORRIS asked if they had a man with spinal anesthesia and injury to the sciatic nerve, and they did a hip joint operation which was accompanied by no shock, what part the spinal cord, the sciatic nerve, and the spinal anesthesia played in that phenomena.

Captain DEIIELLY expressed the opinion that we were not as yet able to say what shock was. If it was necrotic tissue that produced shock we ought to have a great deal of shock, but among a large number of wounds there had been very few cases of shock. They had many cases of gas gangrene beginning after a short lapse of time and no shock at all accompanying them. They sometimes met with intoxication from a badly wounded limb, but if they removed the limb there would

be no more intoxication and there might be no shock. In the case of crushed limbs, if a lower limb was crushed there they would have shock and death, but if an upper limb was crushed there would be no shock. The speaker had tried many different forms of treatment for shock without obtaining any definite results. He had tried gum arabic, bicarbonate of soda, saline, and blood transfusion, and it was his experience that in true shock there was no remedy that was effective. In regard to the necrotic tissue there was one point he wished to bring out, and that was that one might have necrotic tissue without infection. If one had a special form of infection, as the Welch bacillus or streptococcus, one might have a very great deal of infection, but necrotic tissue alone seemed to give no trouble in wounds. Many times he had seen gangrene localized without any symptoms and without the disease being propagated through the blood-vessels, and if they would remove the infected muscle they would have no grave condition. Shock occurred many times from very slight wounds going just through the skin, while in large injuries to the muscles there might be no shock. The question was a very large one and very difficult to settle. He felt, like Dr. Meltzer, that we had no good theory and no means of diagnosing shock. There was one point, however, that was perfectly settled, and that was that necrotic tissue alone did not mean anything, but if bacteria were present they would cause trouble. With reference to the effect of bacteria getting inside of the stomach, he did not think we should say that we had autolysis first or infection first, for we did not know. Captain Dehelly said he had not done any physiological experimental work himself, but he had seen a great deal done by Dr. Carrel, and it was very difficult to arrive at any just idea of what shock was.

Dr. TURCK, in closing, said that the discussion had brought out splendid evidence corroborative and confirmatory of the statements made in the introduction of the paper, namely, that at the present time we knew nothing about the cause or etiology of shock. We had studied as physiological problems the secondary manifestations of shock, such as fall in temperature, fall in blood pressure, and acidosis, all of which varied exceedingly, *i.e* the fall in temperature did not always correspond to the fall in blood pressure, nor was the acidosis necessarily in proportion to the degree of shock. As to the alleged failure of some observers to produce experimental shock, the speaker said his clinical surgical experience had taught him to recognize shock; and in his experimental work, by the exposure of the viscera, by trauma, by taking the tissue from the lungs and introducing it into the larynx and lungs of homologous animals, by various chemical, physical, and mechanical means, and by the injection of chloroform, he had produced the identical condition in animals recognized clinically as shock. Now the statement was made that tissue autolysis did not produce shock for the reason that in certain instances in which there was tissue autolysis there was no shock. Cannon, in his recent report, had abandoned all the old theories and thought that shock was due not primarily to a loss of vasomotor tonus, nor to fat embolism, but that it was the result of tissue traumatism. Before the meeting of the Société de Biologie, which met on November 28, Pierre Duval and Delbet said this meeting would be historic because it was the first time that biologists, physiologists, internists, and surgeons had met together and agreed almost unanimously on the toxic origin of shock. Dr. Quenu had come to the same conclusion, stating that apparently the victims of shock were poisoned with toxins that might cause death either by rapid action on the nervous system or by acting on the liver or other organs. All these men were agreed that it was the absorption from the wound that produced these conditions which we called shock. In regard to the statement made by Dr. Larkin, whose wide experience and splendid work they all appreciated, that he had been seeing the changes which were shown this evening for twenty years, this was corroborative evidence of the point brought out in the paper that the changes shown were the primary changes both in shock and disease, which he was glad Dr. Larkin had seen, though he had not placed upon them the interpretation which the writer of the paper had endeavored to bring out. Again, when it came to treatment, all the theories of shock as based on fall in temperature, blood pressure, acidosis, etc., failed completely, and surgeons were compelled to fall back on the removal of tissues. This was empirical, but the speaker's experiments had served to explain the scientific basis. It had been shown that if a ligature was placed on the leg of an animal and the leg injured, the animal suffered no shock; but when the ligature was removed the animal went into shock and died within three hours, and that was the reason they were practising débridement. It had been shown, both by his own experimental work and that of others, that shock could be initiated without the presence of bacteria. If one introduced chloroform, tissue necrosis would follow without the introduction of any bacteria whatever. The points that he wished to emphasize were that shock could be produced by chloroform and by many other means, to which reference was made in the paper; that this shock was similar to that produced by wounds and disease, and that it was possible to immunize both animals and human beings against shock due to tissue autolysis. Wound injury in itself was not the cause of shock; the cause lay in cell autolysis and disintegration, and this placed the problem not alone in the domain of physiology but also in that of colloidal chemistry. This work on shock and wounds had developed a fundamental principle in the causation of many obscure acute and chronic diseases. Many of these were now amenable to treatment by immunization against the effect of cell necrosis.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held February 24, 1919.

THE PRESIDENT, DR. CHARLES HOWARD PECK, IN THE CHAIR.

Executive Session.

Resolutions Empowering Cooperation with Other Societies.—Dr. E. ELIOT HARRIS introduced resolutions asking that the Committee on Public Health of the New York County Medical Society be empowered to join with committees from other county societies for purpose of acting in an advisory capacity on matters of hygiene and public health. This resolution was for the purpose of permitting the Public Health Committee to consult with similar committees from the Bronx and Kings County Medical Societies.

This resolution was unanimously adopted.

Resolutions on Prohibition Amendment.—Dr. E. ELIOT HARRIS, chairman of the Committee on Public Health, reported on the resolutions opposing the ratification of the prohibition amendment introduced by Dr. J. P. Davin and referred to that committee at the last meeting of the society. He stated that this resolution read:

"That the Medical Society of the County of New York opposes the ratification by the Legislature of New York of the measure now before it for national prohibition as irrational, unscientific and in opposition to the accepted usage of all civilized nations elsewhere throughout the world, and as putting upon the medical profession the burden of prescribing and dispensing alcoholic beverages of proved therapeutic worth, while allowing the unlimited sale to the public of patent, proprietary and quack remedies containing alcohol in varying amounts without control or hindrance by the officers of the State."

In connection with these resolutions Dr. Harris read the resolutions adopted by the House of Delegates of the American Medical Association, at its 1917 meeting in New York City, opposing the use of alcohol both as a beverage and as a therapeutic remedy, and said that the committee recommended that no action be taken on the resolutions. It was pointed out that if the society adopted these resolutions it would be adopting something that had no meaning whatever, inasmuch as the Legislature of the State of New York had already ratified the Prohibition Amendment to the Constitution.

A very lengthy, and at times turbulent, discussion followed, during which all varieties and shades of opinion on the prohibition question were expressed. An amendment was introduced which practically nullified

the import of the resolution. After a further discussion the amendment was voted down and the original resolutions adopted by a vote of 49 to 23.

In order that certain amendments to the Donohue bill, providing for compulsory health insurance, might be considered, a motion to postpone the scientific part of the program and to devote the remainder of the session to the discussion of these amendments was carried.

Report of the Committee on Compulsory Health Insurance.—Dr. Eden V. Delphey, chairman of the special committee appointed by the society to make an intensive study of the subject of compulsory health insurance, presented this report, which stated that the committee had conferred with both professional and lay persons interested in the subject and offered the following amendments to the Donohue bill, Assembly Bill No. 90, for the consideration of the society. In so doing the committee wished it distinctly understood that it in no wise committed itself in favor either of the Donohue bill or of the scheme of compulsory health insurance as a whole; that it simply presented the amendments to the bill so that if some such bill was enacted into a law the interests of the medical profession might be properly protected and safeguarded; and in order that there would be sufficient inducements for highly qualified men to enter the profession in the future with the result that the health and physical well-being of the people at large would be properly and adequtaely cared for. The following amendments were submitted, voted on and adopted seriatim:

Amend Article I, Section 2, page 3, line 13, by adding a sub-paragraph defining "panel." "Panel means a body of physicians duly licensed and registered according to law and corporated under and in accordance with this chapter."

Amend Article I, Section 3, page 3, line 25, by striking out the word "and" in the clause specifying certain exceptions; and Section 3, page 4, line 2, by adding the following: "and employees whose wages are more than one hundred and twenty-five dollars per month," so that it shall read: "excepting employees whose employment is not in the usual course of trade, business, profession or occupation of the employer, employees of the United States, employees of the State and municipalities, for whom provision in time of sickness is made through legally authorized means which in the opinion of the Industrial Commission are satisfactory, and employees whose wages are more than one hundred and twenty-five dollars per month."

This amendment was inserted because as the bill now stood there was no limit as to the salary of those receiving the supposed benefits of the bill, and a man receiving a salary of a number of thousands of dollars per year would be included under the provisions of the bill as well as the laborer whose wages were very moderate in amount.

Amend Article II, Section 12, page 5, line 26, by striking out the entire section and substituting therefor the following:

"12. Medical and Surgical Service. Local, trade and establishment funds make arrangements for medical and surgical attendance and treatment for insured persons and the dependent members of their families with the Panel provided for hereunder, and such arrangements shall permit insured persons to have free choice from among the members of such Panel, subject to acceptance by such physician of such insured person as a patient. No member of the Panel shall at any one time undertake or have charge of the care and treatment of more than five hundred insured persons with the dependent members of their families, and in computing such quota two insured persons without dependents shall be equivalent to one insured person with dependents. All arrangements for medical and surgical attendance and treatment shall include compensation to be paid therefor, and such compensation shall be determined in accordance with a schedule or schedules fixed by the commission in conjunction with the Panel."

Article II, Section 13, page 6, line 19, to be amended by striking out all such section and substituting the following:

"13. Hospital or Dispensary Treatment. Funds shall furnish instead of all benefits hereunder (other than cash benefits to dependent members of insured person's family and funeral benefits) hospital or sanatorium treatment and maintenance of insured persons upon the consent of the insured person or that of a member of his family when it is not practicable to obtain his consent. Funds shall furnish dispensary treatment when necessary. Hospital, sanatorium or dispensary treatment shall be furnished only when requested by the insured person upon the approval of the medical officer of the fund, or when recommended by the attending physician in such case. All medical and surgical treatment given insured persons hereunder in hospitals, sanatoriums or dispensaries shall be given by physicians, surgeons or specialists who are members of the Panel under arrangements provided for in accordance with Article II, Section 12, of this Chapter. Provision for such treatment and maintenance shall be limited to the period for which the sickness benefit would otherwise be payable, and shall be provided in a hospital, sanatorium or dispensary with which the fund has made satisfactory financial arrangements for maintenance, nursing and all other necessary care incidental to medical or surgical treatment, or in one erected and maintained by the fund."

Article II, Section 15, page 7, line 12, to be amended by striking the same out and substituting therefor the following:

"15. Medical Facilities. Funds shall provide for proper laboratory and other facilities for diagnosis and treatment, and in addition to arrangements for medical and surgical treatment shall make arrangements with dentists and with specialists who are members of the Panel for consultations, treatments and operations."

Amend Article II, Section 19, page 8, line 26, by striking out all of this section and substituting the following therefor:

"19. Maternity Benefit. Funds shall provide insured women and wives of insured men with such medical, surgical and obstetrical aid, materials and appliances as may be necessary for safe delivery in accordance with Article II, Section 12. When necessary for safe delivery, medical, surgical and obstetrical aid under this section shall be given in hospitals or sanatoriums upon the approval of the medical officer of the fund and the recommendation of the attending physician, surgeon or obstetrician. Such aid shall be provided in a hospital or sanatorium with which the fund has made satisfactory financial arrangements, or in one erected and maintained by the fund. Arrangements for medical, surgical or obstetrical aid in such hospital or sanatorium shall be made with the Panel in accordance with the provisions of Article II, Section 12, of this Chapter, Funds shall pay weekly to insured women a cash maternity benefit equal to the regular cash sickness benefit of the injured for a period of eight weeks, of which at least six shall be subsequent to delivery. Cash maternitiy benefit shall be paid upon a certificate of the medical officer of the fund that the beneficiary is abstaining from gainful employment during the period of payment. Benefits under this section shall be in addition to all other benefits under this Chapter."

Amend Article IV, Section 56, page 18, line 23, by striking out lines 23, 24, 25, 26 and by substituting the following therefor:

"Make arrangements with the Panel, hospitals, sanatoriums, dispensaries, in accordance with Article II, Section 12, and with laboratories, institutions, dentists, pharmacists and other persons necessary for the conduct of the business of the fund."

Amend Article V, Section 81, page 25, by striking out lines, 12, 13 and 14, and substituting therefor, the following:

"Arrange for the formation of such state and local advisory bodies to be consulted on medical and other technical matters relating to this Chapter as may prove necessary, and fix their powers and duties, including the power and duty of investigating the operation of the system of mutual health insurance established under this Chapter, and of recommending to the Industrial Commission measures for improving the system's administration."

Further amend Article V, Section 81, page 25, line 19, by inserting after the words "hospital treatment" the words "dispensary treatment."

Further amend Article V, Section 81, page 25, line 21, by inserting between "(3)" and the words "financial arrangements" the following:

"Make schedules in conjunction with the Panel from time to time, at least once a year, of the fees and compensation mentioned and provided for in Article II, Sections 12, 13, 15 and 19 of this Chapter, and in the making of such schedules the said Commission shall take testimony of any witnesses that it may desire to call and of such witnesses as the Panel may present. Such schedules when adopted or made by the commission shall be subject to a right of review, as provided for in Article V, Section 83, of this Chapter."

Amend Article V, Section 83, page 27, line 2, by inserting the word "appellate" before the word "jurisdiction."

Amend the bill by changing Article VI on page 27 to read Article VII, and insert new Article VI, and number Section 90 so as to make Section 93, as follows: "Article VI, Panel."

"90. Division of State into Districts. The Industrial Commission shall within 60 days after this Act shall take effect divide the State into districts and each such district shall contain approximately 500 physicians duly licensed and registered as such in such districts."

"91. Organization of Panel. The Industrial Commission shall thereupon cause to be published in one newspaper published in the county where such district or districts shall be located, a description of the territorial boundaries of such district, and shall designate each district by number and county. Each physician duly licensed and registered according to law within such district shall be deemed thereupon for the purpose of organization to be a member of said Panel, and shall be entitled as herein provided to participate in the organization of said Panel. Within 30 days after the publication of the boundaries of any district as hereinbefore provided the members of the Panel in said district shall meet and elect from their number a representative for the purpose of effecting the incorporation of the Panel under this Chapter. Each such representative shall receive upon his election from the chairman and secretary of the meeting a certificate sworn to by them that he is the representative chosen in pursuance with the provisions of this section. Upon the filing of said certificate with the Industrial Commission there shall be issued by the said Commission to such representative a certificate under the seal of said Commission as evidence of his election. Within 60 days after the publication of the said boundaries of said districts the said Commission shall set a time and place when the said representatives so elected shall meet for the purpose of organizing the said Panel. The said representatives shall therupon become the incorporators of the Panel provided for in this Chapter. The said representatives shall thereupon proceed to complete the organization of said corporation according to the provisions of the membership corporation law of this State. The said corporation, when organized, shall have all the powers of a corporation under the corporation law, and such powers in addition thereto as are necessary to effect the purpose of this Chapter. Membership in such Panel shall continue subject to rules promulgated by the Commission after being formulated by the Commission in conjunction with the Panel."

This amendment provides for one State-wide Panel.

The attention of the Society was called to the fact that the first fundamental proposition adopted by the society in December, 1916, providing for "adequate and proper representation on the Commission and on all other bodies having to do with medical matters" was not included in the amendments offered by the Committee, and the explanation was given that there was another Bill, Assembly Bill No. 93, which arranged for placing the administration of the Act under the Industrial Commission and the appointment of a fourth Deputy Commissioner to have charge of Compulsory Health Insurance. On motion the Committee was directed to formulate an amendment to Assembly Bill No. 93 embodying the principle referred to.

The proposed amendment is as follows:

Suggested Amendments to Assembly Bill No. 93, Introduction No. 93. Introduced January 13, 1919, by Assemblyman Charles D. Donohue.

Amend the Bill by inserting on page 1, line 1, between the words "section" and "41" the word "forty."

Amend the Bill by inserting on page 2, line 2, a new Section as follows:

"Section 40, Industrial Commission Created. There shall be a Department of Labor, the head of which shall be the Industrial Commission. The Commission shall consist of [five] *seven* Commissioners appointed by the Governor by and with the advice and consent of the Senate, one of whom shall be designated by the Governor as Chairman. *Two of the said Commissioners shall be duly licensed and registered practitioners of medicine of the State of New York.* Upon the appointment of a successor to the chairman, the Governor shall designate such successor or any member of the Commission as chairman thereof. The term of office of each Commissioner shall be six years [except that the term of the Commissioners first appointed shall expire one on January 1st, 1917, one on January 1st, 1918, one on January 1st, 1919, one on January 1st, 1920, and one on January 1st, 1921.] *The Commissioners in office at the time this Act becomes a law shall remain and continue in office for the balance of their respective terms, and the additional members provided for herein shall be appointed so that the terms of office of one of the said additional Commissioners shall expire on January 1st, 1922, and that of the other said additional Commissioner herein provided for shall expire on January 1st, 1923."* The balance of the Section to remain as in the present Section 40.

Matter in brackets [] to be omitted; in *italics*, new.

Dr. Daniel S. Dougherty, in the course of the discussion, made an eloquent appeal to the members of the Society to avoid commercialism in dealing with this problem, recalling the evangelist St. Luke as a great physician who would not accept as an honorarium the cash of the poor fellow who could not pay for his groceries or afford to send his children to school. He did his work for the good of humanity; to him the healing of the sick was more than a commercial proposition, and this was the ideal that had always guided the profession. Personally, Dr. Dougherty said he was in favor of State health insurance for the people and he would like to see the Graves bill passed. At the same time he wanted to stand by the doctors just as long as they upheld the traditional ideals in virtue of which they had always been willing to treat the indigent out of the goodness of their hearts and the greatness of their profession. In the study of the question of compulsory health insurance he hoped they would get away from the idea of commercialism and get away from themselves, and look at the problem from the viewpoint of its effect on the people.

Dr. J. P. Davin said he also wished to uphold the dignity of the profession and that they were not considering the question simply from the commercial viewpoint. The working people were not complaining of their doctor's bills. One might hear them complaining of the high price of the necessities of life, but when any one in their families was sick and in need of medical attention they received it at the hands of the doctor no matter what their financial status. He had many times taken the best men in the medical profession to the bedside of the poorest patients and the question of money was never brought up. Those men did their work for humanity and in doing it they won honor. Under compulsory health insurance the people would be robbed, the physician would be robbed, and the officers of the State would get the money. Instead of ratifying this bill by helping to make the machinery for its administration they should repudiate compulsory health insurance, root and branch, body and soul, and everything connected with it, as the county medical societies had done in Kings, the Bronx, Buffalo, and as they would do to-night in Syracuse. They should take the stand that they would not work under this compulsory health insurance law if it was put into effect.

Dr. William S. Gottheil said that compulsory health insurance, as pictured under this bill, was an idol with feet of clay. Those who were advocating it said that the beneficiaries under this scheme were to have the best physicians, the best surgeons, the best nurses, the best hospitals, the best druggists, and the best undertakers, but they had forgotten to say where they were going to get the money; they had no idea where the money was to come from, so the whole scheme was going to fall through of its own weight or degenerate into a lodge matter. Those amendments contained one point

of vital importance, and that was the paragraph on the incorporation of the panel. If there was going to be such a thing as compulsory health insurance, there was going to be a panel, and it must be incorporated, and this would be a power; it would be the first step toward a powerful medical profession in the State.

Dr. DAVIN opposed the idea of incorporation on the ground that "a corporation had no body to be hanged and no soul to be damned," and that it would soon bring the medical profession down to the level of politics.

After further discussion, all the amendments having been adopted separately, it was moved, seconded, and carried that they be adopted as a whole.

Dr. DELPHEY then introduced a resolution to the effect that as there were other bills having to do with the subject of compulsory health insurance before the Legislature, one of which provided for the administration of health insurance by the State Department of Health, that a memorandum embodying the fundamentals of the amendments just adopted be attached to all such measures and that adequate representation of the medical profession be provided for on all bodies having to do with the administration of health insurance.

This motion was adopted.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

TRAITEMENT DES PSYCHONÉVROSES. By G. ROUSSY, J. BOISSEAU, M. D'OELSNITZ. 191 pages. Illustrated. Price, 4 fr. Published by Masson et Cie., France.

SECOND ANNUAL REPORT OF THE MASSACHUSETTS COMMISSION ON MENTAL DISEASES OF THE COMMONWEALTH OF MASSACHUSETTS FOR THE YEAR ENDING NOVEMBER 30, 1917. 278 pages. Published by Wright & Potter Printing Company, State Printers, Boston, Mass.

AUTOBIOGRAPHY OF AN ANDROGYNE. By EARL LIND. 265 pages. Illustrated. Published by The New York Medico-Legal Journal, New York.

A MANUAL OF GYNECOLOGY. By JOHN COOKE HIRST, M. D. Illustrated. 466 pages. Published by W. B. Saunders Company, Philadelphia, Pa.

PRINCIPLES AND PRACTICE OF OBSTETRICS. By JOSEPH B. DELEE, A.M., M.D. Illustrated. 1089 pages. Published by W. B. Saunders Co., Philadelphia, Pa.

ROENTGENOTHERAPY. By ALBERT FRANKLIN TYLER, B.Sc., M.D. 159 pages. Illustrated. Price, $2.50. Published by the C. V. Mosby Company, St. Louis, Mo.

DISEASE DIAGNOSED. By PETER JOHANNES THIEL. Translated by Dr. F. W. COLLINS. 76 pages. Illustrated. Place and date of publication not mentioned.

OM ABDOMINAL REFLEERNE. By G. H. MONRAD-KROHN, M.R.C.P. 180 pages. Illustrated. Published by Steenske Bogtrykkeri, Kristiania, 1918.

THE OPHTHALMIC USE OF WELLSWORTH CROOKES LENSES. By CHARLES SHEARD, Ph.D. 47 pages. Illustrated. Published by the American Optical Company, Southbridge, Mass., U. S. A.

THE DISABLED SOLDIER. By DOUGLAS C. MCMURTRIE. 232 pages. Illustrated. Price, $2.00. Published by The MacMillan Company, New York.

PHYSICAL AND OCCUPATIONAL REEDUCATION OF THE MAIMED. By JEAN CAMUS. Authorized translation by W. F. CASTLE. 195 pages. Illustrated. Price, $2.00. Published by William Wood and Company, 1919.

SURGICAL TREATMENT. By JAMES PETER WARBASSE, M.D. Vol. III. 861 pages. Illustrated. Price, $30.00 per set (3 vols.). Published by W. B. Saunders Company, Philadelphia.

INDEX TO VOLUMES I, II, AND III OF WARBASSE'S SURGICAL TREATMENT. 123 pages. Published by W. B. Saunders Company, Philadelphia.

SECOND REPORT OF THE PROVOST MARSHAL GENERAL. 602 pages. Published by Government Printing Office, Washington.

Miscellany.

Work of the Rubio Institute, Madrid, for the Year 1917-18.—This comparatively new medical institute, which consists of many separate dispensaries, with hospital accommodations, treats about 10,000 new patients annually and furnishes excellent clinical material for teaching. In the *Revista Ibero-Americana de Ciencias Medicas* for December is a summary for the year which ends during 1918. The number of classes is unusually large, and the chances for team work must be superior, but there is no mention of cooperative efforts in the report. The first clinic mentioned is the surgical, which was visited by 643 patients, upon whom 173 operations were performed. The relatively small number is explained by the great number of surgical specialties which divide the other operative material. The gynecological clinic cared for 268 patients, who submitted to 32 minor and 30 considerable interventions. There is a second clinic for gynecological and abdominal surgery, under Dr. Botin, which cared for 390 new cases, of which 70 required major operations. The *x*-rays and internal secretions are largely used in gynecological cases. The next clinic in the list is devoted to affections of the bones and joints—orthopedics in the widest sense; there were 410 patients who required 17 major and many minor interventions. There is also a second orthopedic clinic under Dr. Durén which registered 736 new and 857 old patients, with 65 major and 162 minor interventions. The first clinic for the ear, nose and throat registered 536 new patients, and the second 385. The two urological clinics cared respectively for 259 and 185 cases. The clinic for diseases of the anus and rectum registered 122, that for affections of the stomach 403 new cases. The pediatric clinics, three in number, one devoted to surgical cases, treated about 600 children. There were 35 minor and 36 major or medium operations performed in the amphitheater under full anesthesia. The ophthalmological clinic treated 428 patients, the clinic for diseases of the chest 723, the internist clinic 1139, the neurological clinic 485, the two clinics for skin and venereal diseases nearly 600 cases, the clinic for stomatology 358 and the radiotherapeutic clinic 73 patients.

Influenza in Mexico City.—As a rule since the pandemic of influenza has been in evidence we have been fed with sensational stories of mortalities backed up by estimates but not by facts. In the Public Health report for Mexico City for last November, just received here, the exact opposite prevails. There is no official notice of the existence of a pandemic of influenza, and to the best of our knowledge there have been no news items about enormous morbidities and mortalities in the medical or secular press. But the cold figures are that in the month in question in this one municipality of about 500,000 inhabitants the number of deaths from grippe amounted to 1402 without including 511 cases of bronchopneumonia, 641 cases of labor pneumonia, and 299 cases of acute bronchitis. These deaths add up to 2,853, while the total mortality for the month is 4,329. The total deaths for November, 1917, were 1,457 so that the pandemic has almost trebled the rate.

Medical Record

A Weekly Journal of Medicine and Surgery

ol. 95, No. 13.
Whole No. 2525.

NEW YORK, MARCH 29, 1919.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

-RAY VISUALIZATION OF THE GUT BY MEANS OF A NEW INTESTINAL DELINEATOR.*

BY MAX EINHORN, M.D.,

NEW YORK.

OFESSOR OF MEDICINE AT THE N. Y. POST-GRADUATE MEDICAL SCHOOL, VISITING PHYSICIAN TO THE LENOX HILL HOSPITAL.

1912 I devised[1] an intestinal delineator by means which the course of the duodenum and a part the small intestine could be mapped out by the

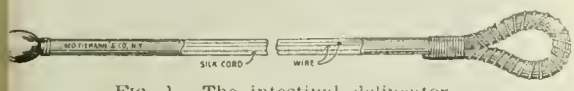


FIG. 1.—The intestinal delineator.

ray. The instrument consisted of a thin, very xible rubber tube (size 4F) through which ran o wires and a silk thread. At the end there is a metal ball. With a delineator about 3½ eters long I had been able to visualize by the ray the greater part of the entire small intesne. The actual length of small intestine thus monstrated by means of the instrument was over

G. 2.—*X*-Ray picture of patient H. A., with intestinal eator *in situ*. The course of the instrument in the stomduodenum, and part of the small intestine is distinctly ible.

9 eet.[2] Drawing out the instrument when it had reched the depth mentioned was done with difficulty, causing some discomfort to the patient. I became convinced that although the method was feasible it would not be practicable as a routine measure. It certainly appeared inadvisable to let the delineator pass further down into the small intestine, for the reason of the difficulty encountered in withdrawing the instrument.

Being desirous of studying the whole course of the small intestine, and possibly also of the large bowel, I constructed a new delineator, which can be given to the patient with the object of its passing through the entire digestive tract and leaving it in the natural way, by the rectum. In order to fulfill this purpose the delineator must be as flexible and pliable as a string and still possess qualities which make it visible under the *x*-rays.

FIG. 3. Patient with the new intestinal delineator in the digestive tract. (Schematic.)

The new delineator consists of braided silk through the lumen of which run 60 strands of annealed copper 0.002 inches in thickness. The string is about 30 feet long, and is attached to a small metal ball (about 20F). The string is provided with markings (made of lead surrounding the string and covered with adhesive plaster. The markings

1 2 3 4 5 6

are as follows: – – –

mits the delineator to be freely movable through it without encountering any friction, and which can be held in the mouth, between the teeth, whenever desirable. The free end of the string is then fastened to a reel and the delineator wound over it, so that the holder and the metal ball form the free end of the string on the reel.

I am indebted to Mr. A. D. Scott, engineer, and Mr. A. E. Pfarre of Tiemann & Co. for the successful construction of the instrument.

Method.—The delineator is best given after a light breakfast, in the morning. The ball is put deep into the pharynx and patient given water to drink. The instrument thus starts its journey to the stomach and then further down through the entire digestive tract. The reel is put in a pocket

Fig. 4.

Fig. 6.

Fig. 5.

Fig. 7.

not too far from the mouth, and attention is paid that there be no obstacle to the unwinding of the string from the reel. *X*-ray pictures are best taken every two hours during the day until the ball appears in the stool.

Fig. 8.

Fig. 9.

It is best to observe the following rules when employing the delineator:

1. When introducing the delineator, attach it in such a manner that it cannot go beyond 60 cm. This can best be done by fastening the string to the reel by means of a rubber band after enough length had been unwound so that 60 cm. can enter the mouth.

Fig. 10.

Fig. 11.

2. One-half to one hour later, detach it. The patient should not swallow it intentionally, and he should not keep his mouth closed too tight, but let the delineator go whenever there is a pull.

3. At night the holder should be pushed up to the teeth and held there in the same manner as when smoking a cigar. It is appropriate to fasten the holder to a tooth, whenever feasible, or to the

Fig. 12.

cheek. Care must be taken, however, not to interfere with the gliding of the delineator, which must be freely movable along its path.

4. The delineator should be unwound from the reel from time to time for about 30-50 cm., so that it hangs loosely in the form of a curve.

5. When washing or dressing, the patient must be careful not to disarrange the delineator.

6. While eating, the delineator must always be fastened to the reel by means of a rubber band, in such a manner that not more than 30-50 cm. can move into the stomach during the meal. The latter having been finished, the rubber is taken off and the delineator released.

7. Defecation must be performed over a commode. When the metal end piece appears in the feces the patient should carefully lift it out of the latter, clean it, wrap it in gauze, and attach it to the underclothes. The patient should inform the physician of the passage of the end-piece. The physician now cuts the delineator at the lips and allows this part of the string to enter the stomach. At each defecation the delineator must be disengaged from the stool, cleansed, wrapped in gauze, and attached to the underclothes until the whole delineator has passed. The latter should be handed to the physician.

8. An *x*-ray picture should be taken a few minutes after the delineator has entered the stomach; then every 2 or 3 hours, from 9 A. M. to 5 P. M., up to the time when the end piece appears in the stool, when the last plate is taken.

The new delineator was first used in October, 1918, on a patient of the Lenox Hill Hospital. The patient referred to, Mrs. A., took the new delineator on Oct. 14, and passed it per rectum on Oct. 18. During the whole course of the delineator's journey she experienced no discomfort whatever.

The series of plates* which I take the pleasure of showing you illustrate the different positions of the instrument along the digestive tract at different times. It will be best to go over them in their natural sequence.

Fig. 4-10. *X*-ray of Mrs. A., with the intestinal delineator in the digestive tract.

Fig. 4. Immediately after swallowing the instrument. The metal ball is visible in the stomach.

Fig. 5. Eighteen hours afterward. The cord of the delineator is seen partly curled up in the stomach, then running straight through all the intestinal coils; the ball is situated near the cecum.

Fig. 6. After 22 hours. The delineator represents a chart of the course of the entire small intestine; the cord runs through the gut in a single line, showing no curling up anywhere; then we notice the ball in the ascending colon, and above it the delineator curls up in spiral form upward along the course of the large bowel.

Fig. 7. After 24 hours. Same as Fig. 6. Curling of delineator in large bowel extends higher up and the ball has moved upward.

Fig. 8. After 46 hours. Same as 7. Ball is situated in the descending colon; the spiral formation is now seen principally here, surrounding the ball.

Fig. 9. After 50 hours. Ball visible in transverse colon (probably brought back there by antiperistalsis); almost the entire colon mapped out by spiral formation of the delineator.

Fig. 10. After 66 hours, and previous release of the delineator from its attachment. The cord is

Fig. 13.

filling out the colon in spiral formation and the ball is situated in the sigmoid flexure.

*I am indebted to Miss Leach of the Lenox Hill Hospital for the taking of the *x*-ray plates.

It can be easily seen from the above that the entire intestinal tract can be visualized by means of the delineator through the Roentgen rays. The following points seem to be of importance:

1. The delineator runs through the entire length of the small intestine without once curling up.

2. Different from the small intestine, in the large bowel there is seen a winding up of the string in screw form.

3. In the small intestine the ball always runs ahead of the string and drags the latter along. In the colon the string, in spiral form, is frequently found moving ahead of the ball.

These normal findings will probably be of diagnostic import in pathological conditions. In obstructions along the small intestine the ball will find an obstacle in its forward passage, and the string will then curl up.

The following plates* show the delineator in the digestive tract of a normal individual (R. F.), Figs. 11-13.

Fig. 11 is a radiograph of R. F. 3¼ hours after swallowing the delineator. The cord is visible along stomach, duodenum, and a portion of the jejunum. The young man, contrary to instructions, had swallowed the whole delineator (string) during his luncheon.

Fig. 12 shows the instrument lying almost like a hair-ball tumor in the stomach. Here it took longer for the string to disentangle itself and leave the stomach, but when it did it ran through the small intestine in the usual way without curling up. The markings on the delineator are well shown all along the digestive tract. It seems possible in this way to obtain an actual measurement of the length of the small intestine.

Fig. 13 shows the position of the delineator 56 hours after it was swallowed. The spiral formation is visible in the colon.

REFERENCES.

1. Einhorn, Max: "New Instruments for the Duodenum and Small Intestine," MEDICAL RECORD, June 21, 1913.

2. ———: "Historical Sketch of the Development of the Duodenal Tube," *American Journal of the Medical Sciences*, February, 1916.

20 EAST SIXTY-THIRD STREET.

RADIOGRAPHIC TYPES OF INFLUENZAL PNEUMONIAS.

BY ELSIE FOX, M.D.

NEW YORK

ROENTGENOLOGIST, CITY HOSPITAL

THE four radiographic types herewith shown, which were found during the recent epidemic of influenza, may be of interest.

During the epidemic many patients were referred to the X-Ray Department of the City Hospital to confirm the clinical findings or to shed light upon the more obscure cases.

Out of eighteen cases selected at random, six died. Upon three of the six autopsies were performed. Two of the latter are illustrated below, Figs. 4 and 5.

Radiographically speaking, four general types were distinguishable, namely, lobar pneumonias, bronchopneumonias, the edemas, and those cases developing empyema. Before illustrating the pathological, it may be advisable to record a normal chest for comparative purposes.

FIG. 1.—Normal chest.

Fig. 1 is a roentgenogram of the chest of a healthy girl of twenty, who, as far as she knows, has never had any pulmonary involvement. The illustration shows both hemispheres equally well transilluminated, bases and apices clear, the root of the lungs formed by the bronchi, blood-vessels, glands, etc., casting a shadow normal in extent and density.

The other illustrations depict the four types as follows:

Fig. 2 illustrates a case of frank lobar pneumonia, showing consolidation of the right middle lobe, triangular in shape, the apex of the triangle pointing toward the hilus, and the base of the triangle extending toward the midaxillary line. When the roentgenogram was repeated a few days after

FIG. 2.—Lobar pneumonia.

the crisis no lightening of the dense shadow was discernible. The characteristic shadow of this type of pneumonia usually persists several weeks after the patient is discharged. As a rule, cases of this type recovered.

*I am indebted to Dr. Thomas Scholz, radiologist, for these beautifully executed *x*-ray pictures.

Fig. 3 illustrates the bronchopneumonia type, showing discrete, scattered areas of consolidation found throughout one or both lungs, having no predilection for any particular lobe. The case illustrated recovered.

Fig. 3.—Bronchopneumonia.

Fig. 4 illustrates the type of edemas with or without a small amount of hemorrhagic fluid in the pleural cavity. The majority of the cases belonged to this type. Exitus in the severe cases occurred in a few days. Both lungs show irregular and massive clouding due to the extreme congestion, particularly at the bases and apices. Patients having pronounced basal congestion usually died. This case at autopsy, performed two days after radiograph was made, revealed the following findings: Streptococcal and massive bronchopneumonia with multiple abscesses, gangrene, pulmonary edema and fibrino-purulent pleurisy with effusion; tracheitis and bronchitis.

Fig. 5 is a roentgenogram from a case of empyema. To this fourth group belong the cases that developed empyema. The radiographic findings

Fig. 4.—Edema with some pleural effusion.

were uniform. One or the other side of the chest was completely occupied by a dense shadow extending from the apex to the base. The fluid level could not be determined, since the patients were too sick to be radiographed in the upright position. At autopsy several liters of pus were found in the right chest of this case. There was atelectasis of the right lung. The left lung presented hypostatic congestion and an acute vascular emphysema.

Fig. 5.—Empyema.

In the four pathological cases illustrated, the clinical conclusions and radiographic findings coincided more or less.

I am greatly indebted to Dr. J. H. Larkin, director of the pathological laboratories at the City Hospital, for the record of the autopsy protocols.

355 East 149th Street.

THE PREPUCE AS GRAFTING MATERIAL*

By I. C. Eisenberg, M.D.,

New York.

Even though plastic surgery is one of the oldest procedures in surgery, dating back to the ancient Hindus, this particular method of using the prepuce as grafting material has never before been recorded. Rhinoplasty was performed on Indians on whom the punishment of certain offenses as marital infidelity was cutting off the nose.[1] In 1450 Branca and his son Antonius were masters in restoring noses, they restored the nose of a man to such a perfect shape that his friends marveled at the change in their former friend.[2] In 1546 Tagliacozza, professor in Bologna, improved the Branca method and a little later published an illustrated volume describing his operative methods in rhinoplasty. In 1730 Sancassani relates an instance: a charlatan called Gambacurta, in Florence, peddling a certain ointment, in order to prove its efficacy, was accustomed to cut a piece of skin from her leg, pass it around the audience upon a plate, and then replace it in its original position, covering it with the ointment. Union took place so that the site of the operation was scarcely discernible.

John Bell[3] who was very firm in his belief that no portion of the body could grow on again after it has been completely removed, nevertheless, mentions an instance: the nose of a Spaniard

*From the Department of Surgery at the New York University and Bellevue Medical College.

wenty-nine years old was cut off and Fioravanti eplaced it and bandaged it. In two weeks it was eunited.

In 1869 skin grafting was made more certain, when J. L. Reverdin[4] before the Paris Société de Chirurgie claimed that bits of skin, severed from their original connections would dhere and grow upon a granulating surface. Many medical men of prominence sneered at the iscovery and greatly underrated its value, saying that such a procedure as skin grafting was ot likely to occupy a prominent position in minor urgery. Nevertheless in France, Reverdin's laims were soon abundantly established and skin rafting became very popular. Pollok[5] was among he first to adopt Reverdin's method in England, 870, he cites a few cases of skin grafting and he results obtained at the St. George Hospital.

Hand of B. S., showing finger healed with prepuce graft.

In 1871 Hodgen and Munoz[6] were two of the earliest writers on the subject in America.

At present plastic surgery is very widely practised and the principal methods are: Thiersch, Reverdin, Wolfe and Krause. In Thiersch's method long strips or shavings of same material are used. In Reverdin's method very small patches of the epidermis with the underlying upper layer of the derm are transplanted. These two methods are called Epidermatoplasty. In the Wolfe or Krause method large flaps from the entier thickness of the skin several square inches in size are used. This method is called Dermatoplasty. Grafting material has been obtained from the patient himself (autodermic), and another individual (heterodermic), and from animals (zoodermic). Grafts were obtained, almost from any part of the body and many methods are recorded, but of grafting from the prepuce the only case on record is that of Lucas.[7] He cites a case under his care at the Evelina Hospital which illustrates the value of prepuce grafting in children. Mr. Lucas took the prepuce of an out-door patient whom he had circumcised about half an hour previously and cut from it about twenty-eight grafts which he applied so as to form bridges across the wound. The patient was a two-and-a-half-year-old child who had been severely burned on the abdomen twelve days previous to admission. Lucas believed that the prepuce of a child possesses a germinal vitality, which renders it peculiarly serviceable for grafting. He also claims that preputial grafts will adhere when those from other parts fail. The following describes the use I made of prepuce as grafting material:

A boy sixteen years of age, who with several other boys was playing around a picket fence, climbed quickly to the top. In coming down he became entangled in the spikes. The point of one stuck between one of his fingers and a ring on it. He called to his playmates to help him down and they obligingly pulled at his feet. The tugging from below forced the spike into the finger and ripped off the ring, the last phalanx, part of periosteum of the second phalanx, and the skin down to the lower third of the first phalanx. Fearing to tell his parents, he wrapped his finger in a piece of rag picked up on an empty lot. When I saw him he had an infected wound, necrosis of the second phalanx, with a great deal of sloughing and destructive tissue. I amputated the necrosed part of the second phalanx by single external flap, there being no skin to form a covering. I waited till the wound became sterile (dichloramine-T treatment) and granulation had commenced. When it was fairly established, it was evident that transplantation of the skin would be of great service in hastening the cure and would doubtless save some secondary amputation.

Grafting being the only quick cure and not being able to get grafting material, I advised circumcision and the use of prepuce for grafts. On the thirty-eighth day after the accident, in the operating room of the college clinic, in the presence of Dr. B. Dubowsky and students, I made the wound aseptically clean, keeping the finger covered with a dressing of physiological salt solution while performing the circumcision; then, after having the prepuce emptied of blood, since blood remaining in the vessels is liable to clot and prevent the early resumption of circulation, I made a few button holes to allow free escape of serum and underlying air, pressed the graft firmly in place, all in one piece (like a finger stall), in order to remove the blood, bulbs of air, and as much moisture as possible. It was then dressed with Dakin's solution, a cotton wool bandage being applied firmly to insure close adaptation of the graft to the granular surface of the finger. On the fifth day the dressing was changed. There being a slight odor, I cut away some lazy parts and the wound, cleaned with Dakin's solution, was dressed again as at the first dressing.

Six days later, on removing the dressing, I noticed a line of cicatrization running from the circumference to the graft and from the graft to the open spaces. In sixty days cicatrization was complete and it has since remained so.

REFERENCES.

1. Curt Obst: Beitrag zur Transplantation dicker Hautlappen.
2. F. S. Kolle: Plastic and Cosmetic Surgery.
3. John Bell: Principles of Surgery, London, 1826.
4. *Archives générales de médicine*, 1872.
5. G. D. Pollock: Transaction of the Clinical Society of London, 1871.
6. Hodgen: *St. Louis Medical and Surgical Journal*, July, 1871.
7. Lucas: *Lancet*, October 4, 1884.

1307 Madison Avenue.

REPORT ON THE PREVENTION OF INFLUENZA.*

BY THE PUBLIC HEALTH COMMITTEE†
of
THE NEW YORK ACADEMY OF MEDICINE.

THE object of the Committee in considering the preparation of this report was a critical examination, for the benefit of the general practitioner, of the evidence that exists regarding methods of prevention of influenza and of guarding against the development of the pulmonary complications which often follow the initial infection.

In addition to surveying the literature, a special sub-committee held several conferences with men who, like Dr. William H. Park, Dr. R. J. Wilson, Dr. Dudley D. Roberts, Dr. Victor G. Heiser and Dr. Robert A. Cooke, had exceptional opportunity for studying the disease in its etiological and prophylactic phases, and they very kindly offered to the Committee their views on the subject under consideration.

The following is a summary of the evidence gathered:

Etiology.—While the exact etiological factors concerned in the production of the disease are still unknown, there is a good deal of clinical evidence in support of the view that the influenza infection is not due to the influenza bacillus alone, although this has been found to be present in a large proportion of the patients suffering from the disease. It appears likely that in addition there is another, an *x*-factor, the exact nature of which is still undetermined, which is possibly a filterable virus, and which initiates the infection and is responsible for a great lowering in resistance. This view is supported by the fact that consistent and very pronounced leucopenia is observed in all cases from the very beginning of the disease. This lowering of resistance appears to render the individual more susceptible to a secondary infection by a wide variety of organisms such as streptococci and pneumococci of various types, which are practically always to be found in the respiratory passages of most persons, and this secondary infection results in the production of the complicating pneumonia always present in the fatal cases. While there is much clinical evidence in support of such a view, sufficient laboratory and experimental research is not as yet available to prove it definitely.

Mode of Dissemination.—The strong probability that droplet infection plays a great role in the propagation of the disease is universally admitted, but experiments in the artificial production of the disease in human beings indicate that some additional factor, the nature of which is still unknown, is also concerned. This fact may account for the striking differences in the rapidity of the spread of the epidemic in various communities. Direct infection through contaminated hands, eating utensils, etc., is also a factor.

Immunity.—While the number of second attacks in individuals who have already recovered from the disease is very low, such cases do occur and there is no evidence that a single attack confers absolute immunity. Relative immunity, however, is produced. The fact that an epidemic completes its course within a certain time is the best proof, and an interesting light on this question is supplied by the fact that those who suffered most in the present epidemic were persons now too young to have had the disease in the epidemic of 1890. In this city the largest number of deaths occurred in persons 25 years of age.

One other important phase to be noted in this connection is that this disease, like malaria, has no predilection for those whose vitality has been lowered, but that the incidence is equally great among the strong and the weak.

Age and Sex Distribution.—There are no complete statistics as to the prevalence of the disease because of the failure of the physicians to report all cases of influenza. Mortality statistics offer the only reliable data. In New York City, from the beginning of October, 1918, to the end of January, 1919, there were over 27,000 deaths from influenza and pneumonia, of which 49.6 per cent. were male and 50.4 per cent. were female.

Children under 5 years constitute 15.5 per cent. of the total mortality.

Those between 5 and 15 constitute 5.7 per cent. of the total mortality.

The group from 15 to 25 constitute 17.4 per cent. of the total mortality.

The group from 25 to 45 constitute 47.7 per cent. of the total mortality.

The group from 45 to 64 constitute 10.1 per cent. of the total mortality.

The group of 65 and over constitute 3.6 per cent. of the total mortality.

As can be seen from the accompanying table, the monthly percentage with regard to age distribution of the several groups remained more or less stationary throughout the whole period. The only group whose relative percentage considerably decreased during December and January was that between 5 and 15 years of age. Likewise, contrary to the prevailing belief, the relative percentage of deaths among children under 5 years of age decreased during the last two months of the epidemic as compared with the month of November. The only increase in that group was among infants under one year of age. There was a decrease in the age group between 25 and 45 years, and more than a doubling of the relative percentage rate in the group over 65 years of age.

Preventive Measures. (a) General.—If the generally accepted theory of the dissemination of influenza be correct, preventive measures adopted to combat an epidemic must be of the same character as those in use for combating other infectious diseases spread in a similar manner. These measures

*Presented at the Meeting of the Academy on February 20, 1919.

†Membership of the Committee. Charles L. Dana, M.D., Chairman, James Alex. Miller, M.D., Secretary; John S. Billings, M.D., Nathan E. Brill, M.D., Robert J. Carlisle, M.D., Floyd M. Crandall, M.D., Lewis Fox Frissell, M.D., Arpad G. Gerster, M.D., S. S. Goldwater, M.D., John A. Hartwell, M.D., Ward A. Holden, M.D., L. Emmett Holt, M.D., Abraham Jacobi, M.D., Walter L. Niles, M.D., Bernard Sachs, M.D., Thomas W. Salmon, M.D., Frederic E. Sondern, M.D., J. Bentley Squier, M.D., M. Allen Starr, M.D., W. Gilman Thompson, M.D., Frederick Tilney, M.D., Philip Van Ingen, M.D., Karl M. Vogel, M.D., George B. Wallace, M.D., Herbert B. Wilcox, M.D., E. H. Lewinski-Corwin, Ph.D., Executive Secretary.

MORTALITY FROM INFLUENZA AND PNEUMONIA
CITY OF NEW YORK.
(Compiled by the Public Health Committee of the N. Y. Academy of Medicine.)

Month.	Total Deaths.	Sex Distribution.				Age Distribution.															
		Male.		Female.		Under 1 Yr.		1 Yr. and Under 2.		2 Yrs. and Under 5.		Total Under 5.		From 5 to 15		From 15 to 25.		From 25 to 45.		From 45 to 65.		65 and Over.	
		No.	% of Total.	No.	% of Total.	No.	% of Total	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
October, 1918.	12,303	6,178	50 2	6,125	49 8	487	3 9	451	3 6	619	5 1	1560	12 6	833	6 8	2404	19.5	6,250	50 9	991	8 1	255	2.1
November	8,813	4,245	48 2	4,568	51 8	524	5 9	555	6 3	562	6 4	1641	18 6	528	6 0	1382	15 4	4,094	46 5	893	10 1	295	3 4
December	2,135	1,114	52 2	1,021	47 8	188	8 8	96	4 5	79	3 2	361	16 7	87	4 0	331	15 5	85	39.1	328	15 4	173	8 0
Jan. (to 25th)..	3,814	1,909	50 1	1,905	49 9	280	7 3	165	4 4	174	4 6	619	16.3	110	2.9	608	16.0	1,69.	44.5	525	13 5	259	6 8
1919 Total	27,065	13,446	49 6	13,619	50 4	1477	5 4	1270	4 7	1434	5 1	4180	15 5	1558	5 7	4705	17 4	12 99	47 7	2737	10 1	982	3.6

comprise restriction of droplet infection by guarding against coughing, sneezing, spitting, etc., prevention of contamination of the hands with respiratory discharges, the prevention of contamination of food and particularly the sterilization of eating utensils used by patients.

It is important that the public should realize that in taking precautions against influenzal infection, at the same time they are taking the necessary precautions against the definitely known causative factors of pneumonia and other respiratory diseases.

The study of the epidemiology of the disease emphasizes the great importance of the avoidance of overcrowding, especially among large bodies of people in barracks, institutions, etc. It has been shown that the incidence of these diseases varies in direct proportion to the degree of overcrowding of the groups of individuals so congregated.

(*b*) *Masks.*—In regard to the use of masks, it may be said that the reports from communities in which general masking of the population was attempted are wholly unsatisfactory as proof of the value or uselessness of the procedure owing to the different conditions under which the observations were made and the differences as to the stage of the epidemic at which the mask-wearing ordinances were promulgated.

It appears desirable, however, that those coming in contact with patients should wear masks for defensive purposes, providing these are suitably made and applied. If masks are used, it is essential that they be frequently changed and sterilized.

The possibility of droplet infection taking place through the conjunctival mucosa must also be kept in mind and means for preventing this by the use of goggles in some form are advisable.

While theoretically, the application of masks to patients is strongly indicated, the practical difficulties of insuring the proper wearing of the mask and especially of applying it to pneumonia patients whose respiration is already greatly embarrassed, render this measure of doubtful practical utility.

If masks are used, it is essential that they conform to standards which have been devised as a result of experiments proving the futility of relying on those improperly constructed. The experiments carried on by Doust and Lyons (*Journal A. M. A.*, October 1918, Volume 71, p. 1216) show that

1. During ordinary or loud speech, infected material from the mouth is rarely projected to a distance of 4 feet, and usually less. A 4-foot danger zone exists about the patient under these conditions.

2. During coughing infected material from the mouth may be projected at least 10 feet. The danger zone about a coughing patient has, then, a minimum radius of 10 feet.

3. Masks of coarse or medium gauze of from two to ten layers do not prevent the projection of infected material from the mouth during coughing. Such masks are worthless, therefore, in preventing the dissemination of respiratory infections.

4. A three-layer buttercloth mask is efficient in preventing the projection of infectious material from the mouth during speaking or coughing. It is a suitable mask, therefore, to be worn in connection with respiratory diseases.

(*c*) *Sprays and Gargles.*—Owing to the impossibility of rendering all the recesses of the respiratory passages free from bacteria, attempts at destruction of the infectious agent by the use of antiseptic sprays, gargles, etc., are illusory and efforts made to render carriers harmless by such means have been found unsatisfactory. Still a certain reduction of the bacterial flora can be effected and for this reason the use of mild, non-irritating sprays, washes, etc., carefully employed so as not to injure the mucous membrane, should not be discouraged.

(*d*) *Vaccines and Serum.*—Owing to our ignorance of the etiology of the disease, attempts at prophylaxis by the use of vaccines must still be regarded as being in the experimental stage. The attempts at combating secondary infections due to definite organisms such as streptococci and pneumococci by suitable vaccines offer much greater probability of success, and the numerous favorable results at hand show that efforts in this direction are to be encouraged.

The successful results reported in many cases by the administration of the serum of convalescent patients must be mentioned in this connection as very promising not only in the treatment but also in the prevention of complications.

(*e*) *Rest.*—Experience has shown very definitely that in times of an epidemic, putting patients to bed promptly on the first manifestations of any evidence of respiratory infection is of the greatest value in causing the disease to take a mild course and in preventing pulmonary complications.

(*f*) *Hospitalization.* — Hospital experience has shown definitely the value of isolation of patients. The fact that there has been a great deal of cross infection in hospital wards has led many institutions to devise mechanical methods aimed at checking the spread. The cubicle system or the still simpler method of separating patients from each other by linen screens eight feet high has proven to be of definite value. Such a procedure is particularly important in view of the evidence presented that when a case of virulent type is introduced in a ward of mild cases the majority of the patients very soon develop the virulent type of the disease if unprotected.

In order to avoid the spread of the epidemic in hospitals it is strongly indicated that the performance of operations be restricted during epidemic times to the absolutely urgent cases as evidence has shown that the conditions following operations conduce to the spread of the disease in the surgical wards of the hospital.

In view of the impossibility of providing adequate hospital facilities during an epidemc for all those requiring treatment it is urged that in mild, uncomplicated cases of influenza in which patients can obtain proper care at their homes, they should not be sent to hospitals.

DIETARY DEFICIENCY AND DISEASE.

PRACTICAL POINTERS ON HEALTH MAINTENANCE.

By JOHN AULDE, M.D.,

PHILADELPHIA, PA.

DIETARY deficiency may result from various causes, or from a combination of causes, and it is the province of the physician to act as mentor or guide—to lessen sickness, to maintain the health standard, and to promote longevity.

That less than 60 per cent. of the draftees in the late war were available for military duty, and 85 per cent. of the volunteers for navy service were rejected for physical defects, is a sad commentary upon our modern civilization. And the rising generation gives no promise of improvement, one-third of all the school children in the registration area being from one to three years behind in their class standing, not to mention the rapidly increasing number of feeble-minded children, for whom special instruction must be provided.

The object of this communication is to afford physicians, parents, and the general public a practical method or working formula for regulating the dietary in accordance with normal demands and thus prove a safeguard against disease.

The essentials of the dietary, as well as the minimum required to support life and maintain a healthy activity of the various functions, have been determined with mathematical precision. They include protein, the rebuilding material, fats, and carbohydrates (sugar and starch) to provide heat and energy, together with mineral salts, sodium, calcium, or lime, magnesium, phosphorus, etc., these mineral substances being found in varying proportions in every tissue—bone, nerve, and muscle.

Deficiency of protein of good quality stunts the growth of children and adolescents, reduces the vitality of adults, and precipitates old age. Lack of fats causes loss of flesh, and without fats and carbohydrates starvation follows. Failure to obtain the minimum supply of mineral salts in the dietary for any considerable period is readily demonstrable by physical examination, because the deficiency upsets the chemical balance and deranges the nerve mechanism; nerve conduction is impaired, like the telephone mechanism after a storm.

In addition to the elementary substances composing our daily food materials there has recently been discovered, or rather demonstrated, certain vital "accessory" factors, which are believed to exercise an important influence upon digestion and assimilation. They are called vitamines, and there are at least two kinds or types. One is found principally in animal foods, and is soluble in fats; the other is found principally in vegetable foods, and is soluble in water.

Water-soluble vitamines constitute an important factor in the dietary, and should be conserved by saving the water in which vegetables are cooked, such as potatoes, peas, beans, spinach, etc. Their dietary value explains various occult theories in regard to certain food materials: that cabbage in the form of cold slaw was a valuable remedy against scurvy; that carrots, raw or cooked, were an essential dietary item in the case of kidney disorders; and that oranges would counteract the liability to neuralgia and neuritis. This merely goes to show why so many persons try to subsist upon a limited or restricted dietary, when it should be extended. Vegetable soup should be regarded as the essence of all vegetable foods. Mutton breast makes an excellent base for soups. It is palatable and nutritious.

Fat-soluble vitamines are less likely to be discarded or dissipated in the process of cooking, but a caution should be added relative to the dangers incident to soups prepared from the red meats, such as consommé, because they also carry the so-called purin bodies, now recognized as powerful nerve depressants.

Eggs, milk, butter, and cheese are especially rich in vitamines, also in mineral salts; and usually the leaf of a plant is found to be more effective as an "activator" than either the root or the seed.

Protein and Mineral Salts.—The protein molecule is the essential element in the living cell, the protoplasm. Upon its integrity depends the stability of reconstruction, also the maintenance of function and the defence against bacterial invasion, but without the presence of certain mineral salts its inherent properties are lost. Experimental investigations on small animals, rats, and guinea-pigs show that exclusion of protein from the dietary causes death from starvation, and that the absence of mineral salts stops reproduction within two or three generations; all evidence pointing to the demand for a liberal dietary, a "balanced ration" in respect to protein, fats, carbohydrates, mineral salts, and vitamines.

Practical Dietetics.—Without the advice and supervision of a physiological chemist there are few persons who could select the food materials containing all the requisite technical constituents necessary to supply the number of calories (heat units) demanded from day to day. Hence the need for a synopsis outlining a practical plan, a solution which

will enable any one of ordinary intelligence to modify and adjust the dietary, and the following method is suggested.

Food materials are conveniently divided into two main classes, animal and vegetable, with four subdivisions in each class:

Animal Food Materials.

1.—Mutton, lamb, poultry, ham, and beef with restrictions.
2.—Fish, all kinds.
3.—Eggs.
4.—Milk, butter, and cheese.

Vegetable Food Materials.

1.—Food from the seed—bread, peas, beans, rice, etc.
2.—Food from the leaf—lettuce, asparagus, cabbage as cold slaw, spinach, beet tops, etc.
3.—Food from fruit—apples, oranges, peaches, grapefruit, etc.
4.—Food from the root—potatoes, carrots, beets, parsnips, onions, etc.

Select for Breakfast.

Meats.—Mutton or lamb chops, fish of any kind, liver and bacon, frizzled beef, hashed corned beef, broiled ham.

Vegetables.—Potatoes, roasted, creamed, or fried with very little fat; bread, corn, wheat, rye, dry toast, milk toast; corn cakes, griddle cakes, but no hot bread, except rolls that have been moistened and thoroughly heated in the oven; boiled rice (unpolished). *No oatmeal or other cereal.*

Fruit.—Orange, grapefruit, cantaloupe, raspberries, strawberries, wineberries, stewed prunes, peaches (sliced or stewed), apricots, pineapple, sliced bananas or apples, any style if cooked.

Liquids.—Tea or coffee, with milk and sugar, if desired, but no cream; cocoa, water, or cambric tea; milk, cool or hot, with a little salt added.

No fluids should be taken to assist in swallowing the food; all liquids are to be taken at the end of the meal, and it is important that they be taken at this time to aid the digestion, and again about midway between meals, when the stomach begins to discharge its partially digested contents into the small intestine. *No ice-water* to chill the stomach and delay digestion.

Select for Lunch.

Meats.—Cold roast mutton, cold roast lamb, cold sliced ham, cold tongue, scrambled eggs, cold or frizzled dried beef, cold corned beef.

Vegetables.—Parslied potatoes with milk, fried potatoes with very little fat, roasted potatoes, or potatoes mashed and fried.

Liquids.—Tea, coffee, or water; milk, cool or hot, with a little salt added.

Select for Six O'clock Dinner.

Soup.—Vegetable soup, lamb soup, pea soup, mutton broth, chicken broth, tomato purée, asparagus soup, cream of celery soup.

Meats.—Roast lamb, roast or stewed chicken, roast mutton; fish, baked, boiled, broiled, or fried with very little fat; boiled ham, pot-roast of beef, the first water to be discarded at the end of an hour because it carries the so-called purin bodies, which are depressing to the nervous system.

Vegetables.—Potatoes, white or sweet, baked or boiled, stuffed potatoes; carrots, sliced and stewed; peas, beets, string beans, stewed tomatoes; onions, boiled or raw, or sliced with cucumbers; boiled parsnips, well done; spinach, cold slaw, lettuce, and tomato salad.

Fruit.—Rhubarb, apple sauce, baked apple, cranberry sauce, apricots, peaches, or jelly.

Liquids.—Tea, coffee, water, cool or hot—at the end of the meal, as much as desired, but *no ice-water* to chill the stomach and delay digestion, although there is no objection to a plate of ice cream if not eaten with cake.

1024 Walnut Street.

BACILLUS OR DISEASE; WHICH SHOULD BE TREATED IN INFLUENZA?

By Beverley Robinson, M.D.,
New York.

To-day, more even than previously, the younger physicians, especially those much given to laboratory work, attach, as it seems to me, too great importance to the presence of Pfeiffer's bacillus in influenza. It may be found, and often is, with general symptoms of grippal nature, and if so, the diagnosis is positively made of influenza. If not discovered, should the treatment be different? Personally, I do not think so. If the symptoms are mild, treat it judiciously, but without unduly alarming the patient or family. Frequently, in these instances, we have to do merely with an ordinary cold, and there is no reason to name it differently, except because influenza is stated to be or is prevalent.

But suppose the case starts out with very mild symptoms and suddenly becomes more serious, should we then reproach ourselves for not having affirmed in the beginning it would become so? I do not think so, if we have, as I said, acted judiciously; that is to say, given good general advice and suitable remedies. In no case is it advisable to give uncertain or injurious remedies. Such are, in my judgment, acetanilid, aspirin, antipyrin, phenacetin, except in very small doses. The first-named drug I positively eliminate from all useful medication.

Now, then, what about the bacillus, if it be present and found? Can we treat it directly, and with any known remedy? And if so, what would it avail? The bacillus in influenza simply stamps the nature of the disease; it has little or nothing to do with its gravity. It is the habitat of the poison, not the poison itself. It may be simply the scavenger who is there to be helpful rather than hurtful, in being inimical perhaps to other microbes which are injurious, in preventing their development.

Science may soon discover a thoroughly reliable protective or curative vaccine, or serum, in the treatment of influenza. Up to the present time it has not. Meanwhile, we must rely upon the best, most advised treatment we possess. If we have none that will positively and safely cure, we do have remedies which will ameliorate and lessen the se-

verity of influenza. What are these? Those like castor oil and sweet spirit of nitre, which have proved beneficial in very many cases, and surely did little or no harm. Among all the drugs with which I am familiar, as I have affirmed many times already, there is none quite equal to the salicylate of ammonium, given in the beginning of a cold, or influenza, in sufficient and frequently repeated doses. Of course, the giving of this remedy does not mean there should not be absolute insistence in every case upon observance of general rules of rest, diet, etc., which have been of known value to very many in my observation and that of all experienced practitioners.

42 West Thirty-seventh Street.

SINGERS' AND SPEAKERS' SORE THROAT.

By JOHN J. LEVBARG, M.D.,

NEW YORK.

Every physician during the course of his daily work is confronted frequently with a very important subject and problem, namely a chronic sore throat, in those who use their voices a great deal.

This condition is a chronic catarrhal inflammation involving the mucous membrane of the pharynx and is commonly known as clergyman's sore throat. The disease is seldom localized in the pharyngeal wall only; but the nasopharynx is most commonly affected at the same time. This condition is invariably found in those who use their voices incorrectly. In most instances on examination you will find permanent changes in the deeper tissues of the pharynx, or in its glandular structure; also, there is found an altered secretion, resulting in a difficulty in using the pharyngeal muscles, thereby causing the constant symptoms of hoarseness and irritating cough.

An incorrect and improper method in breathing is the chief cause in the production of a chronic inflammation of the throat. On account of this improper breathing and lack of knowledge of the proper method of attack, the singer or speaker uses his muscles of phonation and the muscles of articulation incorrectly, thus causing an overtaxation of the pharyngeal and laryngeal structures. Also, on account of this increased action of the muscles, there is a great increase in the blood supply, and thus this continued abuse of the voice eventually results in changes of the deeper tissues, and leads finally to a relaxation of the walls.

Singers or speakers who use the voice outdoors force the volume of their voice in order that the people may hear or understand them. In straining to be heard they forget entirely the principles of the proper method of breathing and fail to attack the tones high and forward. A prominent opera singer came to me recently complaining of hoarseness and a slight hacking cough, also a tired feeling of the throat. On taking the history, I discovered that he was touring the country for the Liberty Loan, and performed mostly in the open air. He admitted that at times he forced his voice to a higher pitch so as to be heard over the noise of the audience. Examination showed a very dry membrane and a few enlarged follicles on the pharyngeal wall. Forcing and straining his voice caused his trouble. Rest and astringents to the pharynx and nasopharyngeal wall relieved him of the hoarseness and his cough. One enlarged follicle required the actual cautery.

The proper channel for admission of the air is the nose, and the use of the mouth for this purpose should be discouraged. The function of the nose in respiration is to warm the air and filter out from it dust and other matter which would cause irritation. Mouth breathing may be permissible when singing fast phrases and with very little time to rest, but continuous mouth breathing is a pernicious habit, causing dryness of the mouth and pharynx; the muscles tire easily, and a chronic inflammatory condition of the larynx may result; also the audition may become affected in mouth breathers. An absolute requisite for a singer or speaker is the sense of proper hearing.

The amount of air an individual takes in during ordinary respiration (tidal air) is about 1600 c.c. If we take in an additional amount over the tidal air (complemental air), it will be about 1500 c.c. more. Forced expiration (reserve air) is about 1500 c.c. The vital capacity is the amount which can be expelled by a forced expiration after taking a forced inspiration—3500 c.c. This proves to us that ordinary respiration (1600 c.c.) is not sufficient to control proper singing or speaking for any length of time, but by using the additional amount (complemental air), it will increase the power and the volume of the voice. Insufficient amount of air will cause straining of the voice. Straining plus incorrect attack and breathing causes clergyman's sore throat.

In clergyman's sore throat there is first an increased secretion of mucus and as the condition becomes worse the mucus begins to get sticky and tends to crust formation. The glandular tissue begins to hypertrophy and enlarged follicles and dilated vessels will be found on the pharyngeal wall. The voice becomes husky, and chronic hoarseness sets in. The singer or speaker loses control of his muscles and when he sings or speaks breaks will occur and he tires very easily. There is always a marked limitation of the voice and an inability to control the pitch.

In singing or speaking there is only one correct way of breathing and that is by the inferior costal diaphragmatic method. This method consists in having the inferior costals act in coordination with the diaphragm; the upper abdominal wall protrudes while the lower abdominal wall retracts; during the entire action the superior costal region or upper chest is held or fixed high. During expiration the individual must learn to control the emitted air—as expiration is a passive act.

The advantages derived from correct breathing and having control over the emitted air are many; in the first place the speaker or singer has the greatest amount of chest room, and a vast supply of reserve air; the singer or speaker develops perfect control of the expiratory air and the laryngeal muscles; he increases the range of his voice and retains the same quality throughout the so-called registers.

In treating this condition, drugs should be avoided as much as possible. This is not a disease caused by any specific germ, but is produced in singers and speakers by overtaxation and abuse of

the muscles of phonation. Absolute rest should be insisted upon; change instructors if a faulty technique of singing or speaking is present. Cold sponge to the neck in the morning, followed by massage, I find to be very helpful. In persistent large follicles the actual cautery may be used with impunity.

1425 Madison Avenue.

Medicolegal Notes.

Construction of Physician's Indemnity Insurance Policy.—In an action by a physician to recover upon a liability insurance policy, tried without a jury, the trial court concluded that there was no liability upon the policy. The plaintiff appealed. The facts were not in dispute. In 1911 the insurance company issued its policy, agreeing to indemnify the plaintiff, a physician and surgeon, "against loss from the liability imposed by law upon the assured, for damages on account of bodily injuries or death, suffered by any person or persons in consequence of any malpractice, error, or mistake—(a) of the assured in the practice of his profession during the term of this policy." Thereafter, while the policy was in force, on December 4, 1912, the plaintiff performed an operation upon one Michael Schuster, who thereafter brought an action against him, claiming that he failed to remove a gallstone which should have been removed in the course of the operation performed. In that action Schuster recovered a judgment for $2,466.15 and costs. The case was appealed to the Washington Supreme Court and the judgment affirmed. (Schuster v. Sutherland, 92 Wash. 135, 158 Pac. 730.) The plaintiff at the same time carried insurance in other companies, which paid their proportionate share of the judgment. This action was brought to recover the remainder against the defendant. It appears from the record in Schuster v. Sutherland that the plaintiff entered into an agreement with Mr. Schuster to remove all gallstones from the latter's body, and all cause of disease possible to be removed by a surgical operation; and that the plaintiff violated the agreement, failing to remove a gallstone. The trial court was evidently of the opinion that, because there was a special agreement to remove gallstones and to cure Mr. Schuster of the disease from which he was then suffering, this was not a liability insured against by the policy. The Washington Supreme Court holds this was error. If the damage was not caused by malpractice, it was held clearly caused by error or mistake in not removing the gallstone, and for that reason the damage was, in the Schuster case, assessed against the plaintiff. He was required to pay, and did pay, that amount for the error or mistake which he made in not removing the gallstone while in the practice of his profession.

It was argued that "the liability imposed by law" contained in the indemnity policy refers to common law liability only, and that a surgeon, under the law, is not required to enter into a contract, but is liable only for failure to exercise diligence, care and skill such as is ordinarily possessed by the members of his profession in good standing, and that when he made a contract to do more than that he took upon himself a liability not imposed by law. The court said this reasoning would no doubt be sound in case of malpractice on the part of the physician, but clearly the physician had a right to enter into a contract to remove all gallstones from the body of his patient and to effect a cure. He clearly had a right to do this in the practice of his profession; and if he made an error or mistake, or was guilty of malpractice, and damages resulted thereby to his patient, a recovery might be had. The words "malpractice," "error," and "mistake," as used in this indemnity policy, did not, it was held, mean necessarily the same thing. If they were so intended, it was an idle thing to insert more than the word "malpractice." A physician may err or make a mistake without being guilty of malpractice. This policy covered malpractice. It covered error, and it covered mistake in the practice of the plaintiff's profession; and if liability followed from either, and he was required to pay damages on that account, the court thought it plain that the policy undertook to insure against such mistake or such error, as well as against malpractice.

It was held that the words "liability imposed by law" clearly refer to a judgment recovered on account of malpractice, error, or mistake, and did not limit the policy to cases where there was simply malpractice, where the physician is required to use care, diligence, and such skill as is ordinarily possessed by the average members of the profession in good standing. The judgment in the Schuster case was a liability fixed by law. This liability resulted from an error or mistake of the plaintiff in his treatment of Mr. Schuster. The mere fact that the plaintiff had a special contract to remove all of the gallstones from Mr. Schuster did not affect the insurance policy, because it was a contract made in the practice of the plaintiff's profession, and one which he clearly had a right to make. The result was that he failed to remove the gallstones, and therefore failed to cure the patient, as he had agreed to do, and damages resulted, which he was required to pay. The court was therefore of opinion that the policy covered the liability, and that the plaintiff was entitled to recover the balance which he was required to pay under the judgment, which, according to the evidence, was $1,603.33.—Sutherland v. Fidelity & Casualty Co., Washington Supreme Court, 175 Pac. 187.

Death from Germ Infection.—In a proceeding for compensation for the death of a woolsorter from anthrax the principal question was whether the death was the result of an accident happening to him during the course of his employment. The employer admitted that the deceased died of external, and not internal, anthrax. The findings of the referee showed accord among the doctor that, in the majority of cases, the inoculation which causes external anthrax occurs through a scratch or abrasion of the skin; while internal anthrax is usually caused by inhaling the germ, or taking it in food.

The findings further showed that when the deceased went to his work on the morning of April 4, 1916, he was perfectly well and had no abrasion or mark upon his neck, but when he left the plant, in the afternoon, there was a "little scratch" or abrasion, "about the size of a dime," just above the Adam's apple, which caused a swelling, and that this was the beginning of external anthrax, from which he died within three days. The findings likewise showed professional medical experts testified that, in their opinion: "If deceased was a woolsorter, when he went to work on April 4, 1916, with no marks on his neck, and sustained an abrasion about the size of a dime upon his neck, and the neck immediately began to swell, and external anthrax developed, this condition probably was brought about by the anthrax germ entering through the abrasion." The court held that, under the circumstances of the case, the deceased apparently not having been where he was liable to become inoculated with external anthrax except at his work, and he, as he left the defendant's mill on the day in question, having shown symptoms of that disease by the mark upon and swelling of his neck, the inference might reasonably be drawn, in view of the nature of the work on which he was engaged, that the inoculation occurred during the course of his employment.

The court added that, when death results from germ infection, in order to bring a case of this character under the act of 1915, the disease must be a sudden development from some abrupt violence to the physical structure of the body, and not the mere result of gradual development from long-continued exposure to natural dangers incident to the deceased's employment, as in the case of occupational diseases, the risks of which are voluntarily assumed. Here the anthrax germ, a distinguishable entity, came into actual contact with the deceased, thus gaining an entrance into his body, and his neck began to swell and discolor; therefore the complaint from which he died could be traced to a certain time when there was a sudden or violent change in the condition of the physical structure of his body, just as though a serpent, concealed in the material upon which he was working, had unexpectedly and suddenly bitten him. Judgment reversing a decision of the compensation board setting aside the referee's award of compensation was affirmed.—McCauley v. Imp. Woolen Co., Penn. Supreme Court, 104 Atl. 617.

Military Medicine.

Medical Service Corps to Dissolve.—The Volunteer Medical Service Corps, with its membership of more than 56,000 physicians, will dissolve on April 1. The names of all the physicians will be turned over to the Surgeon General of the Public Health Service, and will thus be accessible, if need for their services should arise in the future. Dr. Edward P. Davis, president of the corps, in commenting on the work of the corps in caring for civilian health during the war, and in aiding medical branches of the military service, characterized it as "a very striking demonstration of the American spirit."

Navy Puts Men in Good Physical Condition.—Figures recently compiled by Lieut. F. L. Ridge of the Naval Medical Corps for the bureau of medicine and surgery of the Navy Department shows that men are returned to civil life in much better condition than when they entered the service. Lieut. Ridge has examined 500 men leaving the service, and reports that the average result was a gain of 1¾ inches in chest measurement, an increase of 5.3 pounds in weight, enlargement of the biceps by ¾ inch, and reduction of the waist line by ¾ in. The greatest individual increase recorded was in the weight of a landsman machinist's mate, aviation, who enlisted at the age of seventeen years, and after a year in the service is leaving 52 pounds heavier.

Suicides in Army.—The War Department publishes statistics showing that from the date of entry of the United States into the war, to February 21, 1919, there were 339 suicide cases in the army. Of these, 193 occurred in the United States and 146 overseas. This is far below the average in civil life during the years 1914, 1915, and 1916.

Influenza Disappears from Camps.—Influenza has practically disappeared from the majority of the army camps of this country, and the general health of the troops, both at home and abroad, continues to show improvement. Pneumonia, which is reported as declining among the home troops, continues to be the prevailing disease among the expeditionary forces, 1,337 cases being reported for the week ending March 19, against 1,942 for the previous week.

Capt. Cassell Tucker, M.C., U.S.A., of Jamaica Plain, Mass., who has been on detached service with the British forces, was invested with the Military Cross by King George at Buckingham Palace, on March 20.

Capt. Charles B. Gibson, who has been serving with the Red Cross in Bulgaria, recently arrived in this country.

Deaths in the Service.—Lieut. William Benjamin Jones, M. C., U. S. Army, of Rochester, N. Y., a graduate of the College of Physicians and Surgeons, New York, in 1884, died suddenly in his automobile, on March 1, at the age of 57 years. He was consulting surgeon to the Willard State Hospital, and the Craig Colony for Epileptics, and surgeon to St. Mary's Hospital, Rochester, N. Y.

Lieut. James J. Beaton, M. C., U. S. Army, of Waycross, Ga., a graduate of the Atlanta, Ga., School of Medicine, in 1909, died at Camp Merritt on February 8, aged 31 years.

Lieut. Thomas Goodglick, M. C., U. S. Army, of Seattle, a graduate of the College of Physicians and Surgeons, New York, in 1916, died from pneumonia, following influenza, while on duty with the Aviation Section at North Bend, Ore., on November 8, aged 25 years.

Lieut. Charles Edgar Holbrook, M. C., U. S. Army, of Montreal, Quebec, a graduate of McGill University, Montreal, in 1908, died at the Royal Victoria Hospital, Montreal, on October 18, 1918, aged 33 years.

Lieut. Frank Martin Dedaker, M. C., U. S. Army, of Gloucester City, N. J., a graduate of the University of Louisville, Ky., in 1910, died from pneumonia, following influenza, at his home, on October 6, aged 31 years.

Lieut. John Leon Kerr, M. C., U. S. Army, of Hazlewood, Pa., a graduate of the University of Pittsburgh, in 1912, died from bronchopneumonia on October 27, 1918, aged 31 years.

Lieut. Clarence Edward Farrish, M. C., U. S. Army, of Mobile, Ala., a graduate of the University of Alabama in 1906, died from injuries received in a collision while driving his automobile over a grade crossing at Brewton, Ala., on February 20, aged 36 years.

Capt. Hyman Caro, M. C., U. S. Army, of Chelsea, Mass., a graduate of Harvard Medical School, in 1914, formerly on the staff of the Monson State Hospital, Palmer, Mass., on duty with the American Expeditionary Forces, died at Mars, France, on January 22, from bronchopneumonia, aged 29 years.

Capt. John Eberly Kuykendall, M. C., U. S. Army, of Eugene, Ore., a graduate of Cooper Medical College, San Francisco, in 1912, in command of the 361st Ambulance Company, A. E. F., died from meningitis in LeMans, France, on February 22, aged 33 years.

Capt. Robert Boyden Znderwood, M. C., U. S. Army, of Memphis, Tenn., a graduate of the University of Nebraska, Omaha, in 1904, died in the American Red Cross Hospital at Rouen, France, on November 12, from pneumonia. He was district surgeon of the Illinois Central, and Yazoo and Mississippi Valley Railroad, and formerly captain in the medical department of the National Guard of Tennessee. During the war he was commanding officer of the 118th Field Hospital, 105th Sanitary Train, Thirteenth Division, and also in charge of the advanced dressing station.

Capt. Walter Henry Fox, M. C., U. S. Army, of Waucoma, Iowa, a graduate of the University of Iowa, Iowa City, in 1905, died from septic pneumonia, in Serbia, on February 22, aged 35 years. He was assistant professor of anatomy in his alma mater, served at Base Hospital No. 85, in Paris, until January 18, when he was transferred to the Balkan Commission and sent to Belgrade.

Lieut. Samuel Harold Boyd, M. C., U. S. Army, of Philadelphia, Pa., a graduate of the University of Pennsylvania, in 1913, died in the Base Hospital at Camp Merritt, N. J., from valvular heart disease, on December 24, aged 30 years.

Capt. Hugh Frank Taylor, M. C., U. S. Army, of Mintonville, Ky., a graduate of the Kentucky School of Medicine, Louisville, in 1893, died from chronic diffuse nephritis while on duty at Camp Mills, N. Y., on December 18, aged 47 years.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, March 29, 1919.

THE DIAGNOSIS OF THE OCULAR PARALYSES IN CEREBROSPINAL MENINGITIS.

IN a general way it may be said that the ocular paralyses met with in epidemic cerebrospinal meningitis are transitory and are recovered from during the decline of, or convalescence from the disease, and even when they persist they become attenuated in a remarkable way. The benign character of their prognosis is, consequently, one of their foremost characteristics and is explained by a process of perineuritis. The paralyses of accommodation are not usually an exception to this rule, but, nevertheless, two varieties are to be distinguished, one being early in onset, benign, and undergoing its evolution toward complete recovery in a few days, the other occurring late in the affection, being much more serious, and lasting for several weeks. In certain cases a chronic neuritis succeeds the inflammatory process in the nerve trunks and the paralysis becomes a sequel of the meningitis, but when a comparison is made with ocular paralysis as a sequel and other sensorial complications, it becomes at once evident that it is rare.

A positive diagnosis of an ocular paralysis is based upon the well known subjective and objective symptoms and is difficult in only two circumstances. The first is when the paralysis is very attenuated, to such an extent that a deviation of the globe is not apparent and the gaze simply appears indeterminate and the side on which the strabismus exists cannot be determined, all the more so because diplopia is not always complained of. The patient unconsciously corrects the deviation and merely suffers ocular fatigue and periorbital pain after reading. In these circumstances the limits of ocular excursion in all directions should be sought for. Secondly, when the paralysis involves both oblique muscles the fact is difficult to detect on account of the complex action of these muscles. This paralysis is undoubtedly infrequent as an isolated lesion in cerebrospinal meningitis.

The differential diagnosis is devoid of any great difficulty and it is probable that an external ophthalmoplegia will not be mistaken for congenital strabismus, in which there is no diplopia or limitation of the movements of the globe, while the secondary deviation is not more pronounced than the primary.

The diagnosis of the seat of the lesion resulting in ocular paralysis of cerebrospinal meningitis is interesting from many points of view. Usually it is at the base, that is to say, due to lesions of the nerve along its track from the base to the skull. When the third pair is involved no paralytic dissociation will be noted between the external and internal musculatures of the eye, although this rule suffers a number of exceptions. The paralysis may also be caused by a lesion of the nerve in its orbital portion, involving only some isolated ramifications, or, on the other hand, the entire internal and external musculatures may be compromised. In these circumstances paralyses due to trauma, fracture, or orbital new growths must be eliminated. In the latter lesions an exophthalmus, venous stasis, edema of the lids, and sensitive disturbances in the domain of the ophthalmic branch of Willis are prone to exist.

Nuclear paralyses are characterized by a progressive, bilateral involvement of the various muscles indirectly belonging to the three nerves of the eye, as well as by a systematization of these paralyses which respect the internal musculature even when all the motor muscles of the globe are involved. Finally, certain nuclei are united by anastomoses with those of the synergic muscles of the opposite side, in which case an associated paralysis results. Thus the nuclear paralyses of the sixth pair will invariably be associated with a paralysis of the internal rectus on the opposite side.

A meningitis of otogenous origin may produce ocular paralyses involving especially the external ocular motor muscle, but in otic paralyses there will be a history of ear trouble and pressure over the mastoid process will be painful. However, it must not be forgotten that an otitis may be overlooked. A tuberculous meningitis has a subacute or chronic evolution and lumbar puncture will give a decisive result, so that no difficulty will be experienced in making a diagnosis of the nature of the ocular paralysis when due to this affection.

AMBROISE PARE ON EPIDEMICS.

THE "father of surgery" had a wide experience with the pestilential diseases which follow often in the wake of wars, and this experience, together with his medical horse sense, make his comments of value even today. As a surgeon he knew sepsis when he saw it, and the fact that the epidemics were medical and not surgical infections did not confuse him. He accused indifferently as causal factors bad food and water, cadaveric emanations, an animal factor (synchronous infection of domestic animals), fomites, etc. He was no believer in typical epidemics—rather there was a congeries of different symptoms in these visitations. He dwelt on the dark color of the skin as of diagnostic and prognostic significance—this evidently being the source of the terms "black death," "black plague," etc. But, as stated, he was no absolute unicist,

and the plague or pest was not altogether one affection, but the sum of all. Plicqué, who has made these extracts from Paré's works for the *Journal de médecine et de chirurgie pratiques* of February 10, asks whether this conception of a pandemic pestilence might not hold good today for influenza. In Paré's time there were complaints of sophisticated bread, of spoiled wine, and tainted water, of diseased cereals, etc. In 1566 bread was made of almost any vegetable product which contained nutriment, and an increase of disease was noted at the same time. Under bad drinking water were comprised such supplies as were contaminated with sewage, or had been used for laundry purposes. Water fouled with the excreta of pestilential victims was especially dangerous. Under bad air was comprised air naturally unhealthy, as humid or hot air, which was the more readily corrupted by emanations from pest victims and cadavers. There were during these plagues many unburied and decomposed carcasses of both men and animals, while other cadavers were buried very superficially, so that the soil was to be thought of as contaminated.

According to Paré the pestiferous air was bad for vegetation, with the result that the crops were inferior, the cereal grains subject to various diseases, and the domestic animals infected—some apparently from eating carcasses unburied or buried superficially. These were especially stray dogs and cats, and Paré would destroy such. Bedbugs and fleas were numerous, but rats are not mentioned. For Paré a pestilence was the sum of all of the individual lesions of cumulative incidence—putrid fevers, dysentery, catarrhal affections, cough, quinzy, pleurisy, peripneumonia, lethargy, purpura —all of which may accompany influenza—and apoplexy, smallpox, ophthalmia, measles, anthrax, and other forms of malignant postule. Differentiation is impossible, for, however different the individual manifestations, all bear a common stamp of a single pestilence. This remark is especially significant of the pandemics of influenza.

While Paré's account does not seem to apply very closely to the bubonic and lung pest, the black coloration is mentioned as of great importance in both diagnosis and prognosis. Historians have differed as to the nature of the blackness of black death. Was it ecchymotic, was it cadaveric discoloration appearing before death, was it gangrene, or, finally, was it cyanosis? It could well mean all four, but whatever else it was, the cyanotic element must have been present. Paré mentions the black or livid discoloration of the nose, ears, and nails, also the tongue, which could only have referred to cyanosis. On the other hand other discoloration may well have meant purpura and ecchymoses. Other black areas not known in influenza may have meant gangrene, for lesions like malignant pustule seem to have been common, and extensive gangrene *en masse* was also seen. The belief that the infectious matter lingered in furniture and drapery led to attempts at disinfection. The prophylactic measures advocated were not so drastic as those recommended for the bubonic plague, for there is no mention of strict quarantine nor of burning infected dwellings nor any advice to leave the city. Paré thought a man stood a better chance by remaining in Paris.

SCURVY.

DURING the spring of 1918 an outbreak of scurvy occurred among the African natives who were working on the lines of communication in France. This outbreak and its sequelæ are of much interest so far as the causation of scurvy is concerned and add additional evidence, if such were needed, to the claim that it is a deficiency disease. Captain Hamilton W. Dyke, R. A. M. C., who reported this outbreak in the *Lancet*, October 9, 1918, stated that the ration of these men was ample and varied and included 8 ounces of vegetables. The author had four companies of 450 men each under his charge. The symptoms of the attack were myalgic pains, gingivitis, hemorrhages into muscles, usually of the calf, petechial hemorrhages into the hair follicles of the legs, roughness of the skin between the knee and ankle, anemia, and occasionally fever. The outbreak was attributed to (1) inability to supplement the diet now and then with extra fresh fruit and vegetables, and (2) reduction of the antiscorbutic value of the vegetables by excessive cooking; it was the custom to boil them for about two hours. This period was reduced to forty minutes, and fresh fruit and vegetables (*e.g.* carrots to be eaten raw) and a mildly alcoholic native beer prepared from germinated grain were provided. It is to Kaffir beer that the author attributes the absence of survy in the Kraals in winter when vegetables are not to be had. There is no doubt that the scurvy among these natives was due to a lack or absence of the antiscorbutic vitamines in the food.

Some very instructive facts regarding the prevention and treatment of survy have been disclosed recently. For instance, Dr. Harriette Chick, Miss E. Margaret Hume, and Miss Ruth F. Skelton published in the *Lancet* for November 30, 1918, a paper in which it was shown that fresh lemons were superior by far to limes with respect to antiscorbutic properties and Dr. Chick and Miss Hume in a paper contributed to the *Journal of the R. A. M. C.* for August, 1917, demonstrated that germinated pulses are richly endowed with antiscorbutic vitamines. Moreover, beer made from fresh germinated barley possesses marked antiscorbutic properties. The Kaffir beer is a thin fermented gruel made with a germinated millet. Beer manufactured by modern methods of malting and brewing does not contain the antiscorbutic vitamines, otherwise it might be brought forward as an argument against prohibition that beer was a means of preventing a deficiency disease. That dry beans develop upon germination remarkable antiscorbutic properties is information of much value, for these are cheaper and easier to procure than fresh lemons or fruits.

All fresh fruits, vegetables, and roots contain the antiscorbutic elements in varying amounts, but as these are very sensitive to prolonged drying and heat, an exclusive diet of canned or even too rapidly dehydrated vegetables and fruit is apt to produce scurvy. These accessory factors of diet, the vitamines, exert an immense influence upon growth and nutrition. Without them or with an insufficient quantity of them a diet is ill balanced and normal growth cannot go on nor will bodily weight be maintained.

SOME LATE MANIFESTATIONS OF RICKETS.

Localized manifestations of rickets occurring tardily comprise, in the first place, the so-called essential scoliosis of young girls although this is met with in boys as well. This variety of scoliosis can be explained only by some change in the vertebræ. Vicious attitudes, prolonged immobility, and unilateral debility of the muscles of the back, which have been invoked as essential factors, play only a secondary part and it is beyond a doubt that the scoliosis is the most frequent manifestation of late rickets. Genu valgum of adolescence, usually unilateral, is likewise due to late rickets, while the pes valgus of young people is occasionally due to the same cause. This also applies to a deformity of the clavicle met with in children and adolescents, consisting of a swelling of the internal end of the bone with subluxation of the sternoclavicular joint. It frequently coexists with scoliosis or genu valgum. Certain lordoses of adolescents have been attributed to late rickets, the curve being usually seated over the first and second lumbar vertebrae. To it may be attributed the cause of orthostatic albuminuria, which often coincides with late rickets, because when the subject is in the erect position the lordosis causes a compression or bend of the renal vessels so that an albuminuria results from the stasis thus produced.

Late rickets is responsible for a deformity of the wrist which has been variously termed progressive subluxation of the carpus, carpus curvus, or radius curvus, and again carpokyphosis. It is a primary deformity of the lower end of the radius which becomes incurved forward and inward as a result of a rachitic change in the cartilage. From this there results a forward projection of the carpus having the aspect of a subluxation, while in other cases there is a true subluxation of the lower radioulnar joint, with a prominence on the back of the wrist caused by the end of the ulna. The deformity hinders the wrist movements, especially extension. It is more common in young girls and may be hereditary. Late rickets is sometimes responsible for coxa vara in young boys, which may be unilateral or bilateral. In the latter case the left hip is always the more involved of the two and in unilateral cases the left hip is more commonly the seat of the trouble. It is more than probable that coxa valga is not infrequently the result of a rachitic process.

The localized manifestations of late rickets may be completely isolated or coexist in pairs or even in threes in the same subject, one of them being more accentuated than the others. Thus a scoliosis of an advanced type will be encountered in a subject presenting a mild degree of genu valgum or flat foot. While deformities of the knee are especially frequent in boys they are occasionally met with in girls, but on the other hand the latter represent the largest number of scolioses. Pathology teaches us that there is not merely a lateral inclination but also a torsion in these cases. The lateral inclinations might be explained by the simple mechanical action of weight, as is admitted for purely static scoliosis, but the rotation around an axis passing through the vertebral plates united by the yellow ligaments, cannot be explained otherwise than by an unequal development of the vertebral bodies. The question therefore arises as to what may be the primary cause of this irregular growth of the spine. The classical treatises on anatomy state that the vertebrae do not attain their final dimensions before the twentieth to the twenty-fifth year of life. Between the ages of thirteen and eighteen years the vertebral bodies are the seat of an energetic process of growth around complementary osseous points appearing at this age in the form of thin lamellae on the upper and lower surfaces of the vertebral bodies.

The reason why rachitis tardily arises in young girls is not a mystery. At the time the menses become established anemia or chlorosis is apt to appear, while the attendant weakened condition easily provokes rickets, one of the forms of impaired nutrition long since described by that great master of general pathology, Bouchard.

Overtures from German Scientists.

The Universities of Leipsic and of Heidelberg recently sent a letter to all the French Universities suggesting that, now the war was practically over, the pre-war relations between the universities of the two countries be renewed. Some of the institutions addressed made no reply; others bluntly refused to pick up the threads where the Germans had savagely cut them. The University of Bordeaux wrote as follows: "Please make a short visit to the devastated regions of Northern France and then inform us upon your return how long it would be before you would renew relations with a people committing similar deeds in your country. The generation perpetrating such abominations has severed all connection with humanity. Perhaps we shall renew relations with the next generation." We wonder how many lessons of this sort will be necessary before the Teuton mind realizes that rape and rapine are not innocent pastimes to be indulged in with impunity whenever the war lord permits. The German professors who signed the proclamation accepting responsibility for all the abominable atrocities decreed by the Emperor and the General Staff are now complaining of the unbrotherliness of the British and French scientific societies in dropping them from honorary membership, and appear to look for early rehabilitation and renewal of fellowship. We hope there will be some authoritative expression of opinion by the American profession, when the American Medical Association meets next June, re-

garding the attitude to be maintained toward the profession in Germany and the individual members of it who purpose coming here to practise as soon as they are let.

Eradication of the Mosquito and Malaria Control.

The general public has benefited considerably by some of the measures initiated in the first instance with the view of safeguarding the health of the men in cantonments and of those working in munition factories and in other places of military importance. Especially have the means taken to eradicate mosquitos been of service to the general health. Both the Army Medical Corps and the Public Health Service have been engaged in this work and the results have been satisfactory. In general the principles of mosquito control used in the extra cantonment sanitation, that is, the methods employed by the Public Health Service, have been those used effectively in the Canal Zone. These are fully and graphically described by C. W. Metz, special investigator of the Service, in the Public Health Reports for January 31, 1919. These methods consist primarily of drainage and oiling, drainage where the water can be disposed of, and oiling where it must remain. Drainage is the most reliable and permanent method of control—no water, no mosquitos. Since all these measures are aimed at the destruction of Anopheles larvæ, attention should first be directed to the general conditions necessary to accomplish this object. As is pointed out, the methods are simple, but upon the proper choice of methods may depend many lives and thousands of dollars. For example, Anopheles larvæ will not develop in a locality if (1) The water is completely drained off; or (2) the water surface is entirely cleared of vegetation or other obstructions, the banks cleaned and cut down vertically, giving a smooth margin; and (*a*) an abundance of suitable fish made available to keep down the larvæ; or (*b*) a complete film of oil applied to the entire surface; or (*c*) a swift flow of water set up to carry off the larvæ or prevent their feeding; or (3) the water is treated with an effective larvicide. As said before, one or other of these measures has been carried out in the zones surrounding cantonments, which means that the work has been very extensive, and its beneficial influence will be doubtless exhibited in a large decrease of malaria among the civilian population.

Galen on Simulation.

In *Il Policlinico* for January 5, Bilancioni quotes this ancient authority on feigned diseases. There are many reasons, said Galen, why men counterfeit various illnesses. Hence the medical men should be able to distinguish between bona fide and assumed illness. Phlegmons and erysipelas may be counterfeited and also edema. Blood from the mouth may appear as if it came from the lungs. The simulator first has a paroxysm of coughing, at the end of which blood sucked from the gums is spat out. Pain is, of course, the easiest to feign and the hardest to detect. In the case of a man seized in public with an alleged attack of colic the surgeon, if he suspect him, may accuse him of lying or order cold applications. In one case the motive in claiming to suffer from colic in a crowded place was evidently to obtain material aid; Galen accused the man of faking and he later admitted it. If the man be really in severe pain he will at once accept any suggestion for treatment and, vice versa, will show timidity if he is shamming. Colic also depends on the mode of living, on exposure or other efficient cause, and in simulators no such causes can be elicited. In a youth who simulated a painful knee Galen found that there was a girl in the case, and that the youth would have had to make a long journey with his master and be separated from her. The knee was indeed swollen but Galen found the condition was an artifact due to the application of some irritant drug. Other simulation is brought about by fasting and the internal use of powerful drugs. Galen wrote at much length on the entire subject of simulation and perhaps nothing in his writings, extensive though they be, gives us a truer idea of his real claim to sagacity and resourcefulness and to a certain medical horse sense which the grotesque theories of his time could not mask.

Coffee in Strangulated Hernia.

At rare intervals cases have been cited in which the use of caffeine or simply coffee has apparently been of value in the reduction of strangulated hernia. Naturally it is associated with localities remote from hospitals. This treatment is by no means new, and as far back as 1857 a case was reported in *El Siglo Medico*. A man of thirty-eight, who wore a double truss for hernia, suffered from strangulation on one side after a powerful muscular effort. Taxis was of no avail, and the patient was suffering much pain. An octogenarian practitioner who was present mentionad an odd but sovereign remedy in use in Havana, which he had seen to be efficacious on many occasions. Invited to test it, he ordered hot black coffee with but little sugar, one cup every quarter hour. After the fifth cup there was a rush of air heard, and after the ninth the hernia was spontaneously reduced. The publication of this case led to a second report in the *Bulletin de thérapeutique* in which two favorable results of the same class are given, both patients being old women. The strangulation had followed removal of the truss. After two and four cups respectively the hernia reduced itself spontaneously.

News of the Week.

Diphtheria Gains Ground in Sing Sing.—Reports from Sing Sing Prison, which is now quarantined because of a diphtheria epidemic, state that up to March 17 there were 65 cases, 25 of which were reported during the last twenty-four hours. These, together with those suffering from influenza and other diseases, brings the number of patients in the prison at the present time up to 115.

State Hospital Inmates Vaccinated Against Pneumonia.—The United States Public Health Service, cooperating with the New York State Hospital Commmission and the State Department of Health, has vaccinated approximately 19,000 in-

mates of State hospitals against pneumonia. The object in extending this form of vaccination to the inmates of State institutions is to ascertain if the method is as effective in these institutions as it has apparently been among the military and naval forces.

Diagnostic Hospital Plans.—The New York Diagnostic Hospital, at No. 125 West Seventy-second Street, will be opened the first week in May. This institution, the first of its kind in this country, has been made possible through the work of more than one thousand physicians, who have raised the necessary funds. At present the hospital will be for diagnosis only, and about 500 cases for special diagnosis can be accommodated daily. The new hospital will represent an outlay of about $500,000, all of which has been pledged but about $90,000. Among the physicians especially interested in the work are Dr. Robert T. Morris, Dr. Thomas E. Satterthwaite, Dr. Abraham Jacobi, and Dr. M. Joseph Mandelbaum, the latter being President of the Board of Directors. Plans are being considered for the erection in the future of two ten-story buildings on either side of the present building which will be able to accommodate 400 patients for operation and study.

To Open Three New Maternity Clinics.—The New York Milk Committee, in line with its plans for extending its prenatal nursing, and infant welfare work, has formally opened three additional maternity clinics in the Bronx. These clinics are located at the Bronx House, 1637 Washington Avenue, and at the Baby Health Stations at 2389 Hughes Avenue and 513 East 149th Street.

Anti-Prohibition Resolutions.—At a meeting of the Homeopathic Medical Society of the County of New York, held March 13, the following resolution was passed:

Whereas, An amendment to the Constitution of the United States calling for the total abolition of the use of alcoholic beverages is now on the eve of enforcement;

Resolved, That this Society, while recognizing the great evils both physical and moral which are due to the abuse of alcoholic beverages, regards the enactment of such a drastic measure as not conducive to the welfare of the public, as it does not solve the problem of the evil of the abuse of alcoholic beverages and will tend to other evils. Furthermore, disastrous results from an economic standpoint appear inevitable, the time most inopportune, and the invasion of personal liberty and rights evident.

Postgraduate Courses in Neurology have again been resumed at the Neurological Institute, New York City. Any graduate in medicine with proper credentials may be admitted to these courses. There is no actual time limit to the length of the courses though a minimum of six weeks is advised.

Influenza Again Epidemic in Brazil.—A despatch from Sao Paulo, Brazil, under date of March 16, reports that influenza has again appeared in epidemic form in that country. The Government is taking measures to prevent the spread of the disease.

English Death Rate Exceeds Birth Rate.—For the first time since the establishment of a system of registration the death rate has exceeded the birth rate in England and Wales in the last quarter of 1918. According to the report of the Registrar General the births during this quarter numbered 161,775 and the deaths 241,218. The deaths exceeded those of the preceding quarter by 127,000. Influenza was found to be either the primary or contributory cause of no fewer than 98,998 deaths in the last quarter of 1918.

Protests Against Davenport-Donohue Bill.—A general meeting of Harlem physicians was called at the rooms of the Harlem Board of Commerce in response to an invitation from that body, on March 5, 1919, for the purpose of discussing the proposed Compulsory Health Insurance Bill now before the Legislature. As a result of the discussion resolutions were adopted which, while expressing neither approval nor disapproval of the general principles of Compulsory Health Insurance, disapproved of certain features of Assembly Bill No. 90, known as the "Health Insurance Law," as partaking of class legislation and inequitable alike to the medical profession and those who would be beneficiaries under this law. The resolutions point out that the bill makes provision only for those steadily and lucratively employed, with no provision for the medical relief of the indigent poor, and that the tendency of the bill would be to increase rather than diminish the number who must seek relief through our hospitals, dispensaries and charitable institutions. From the standpoint of the medical profession, the resolutions point out that the bill denies the insured the right to select his own physician, that physicians are entirely excluded from the councils of the administration and denied membership in the Board of Directors, and are thus without voice in fixing fees or making contracts. The resolutions suggest several amendments which would remedy these defects, among them being one providing that every physician in good and regular standing shall at all times be a member of the local panel so long as he shall honorably and conscientiously continue to practise his profession. The resolutions also call for a Board of Directors comprised of seven members, two of whom shall be physicians. The Harlem Board of Commerce passed resolutions endorsing those presented by the physicians, and expressing the opinion that a Health Insurance Law was not demanded from an economic standpoint by either business or social interests.

At a hearing on the Davenport-Donohue Bill, on March 19, Senator Davenport announced that he had amended the bill to meet some of the objections made by physicians. Chief among the changes is a provision that the head of the proposed bureau of health insurance shall be a physician, and that beneficiaries shall be permitted to select their own physician. Another amendment provides for a more equitable arrangement in regard to fees. At the hearing the bill was opposed by merchants, manufacturers, physicians, and representatives of fraternal orders. Those supporting it were spokesmen from the labor unions and women's organizations.

According to announcement made by the Women's Joint Legislative Conference and the State Federation of Labor, the organizations sponsoring the Health Insurance Bill, this measure will be amended to meet many of the objections voiced by the medical profession. One of the amendments provides that

physicians will not be on a salary, but will be paid according to services rendered under a schedule of fees to be approved by the State Industrial Commission and which may vary according to local conditions. There is provision for public hearings on the schedules and there may be revisions from time to time. There is also a provision for a Statewide panel, thus giving free choice of a physician by the patient. According to recent estimates the cost of this insurance will be about 24 cents each a week from the employer and employee.

Doctors Vote to Increase Fees.—At a recent meeting of the Medical Society of Bessemer, Ala., the members voted to increase their fees on all calls. Calls during the day were raised from $2 to $2.50 up to ten o'clock in the evening. After this time calls in the city will be $5. Calls to the suburbs will be $3 during the day and $6 at night.

Charitable Gifts.—Fifty thousand dollars, or one-half the amount needed to complete the fund for continuing and enlarging the work of the Social Service Department of the Sloane Hospital for Women, New York City, in memory of Dr. Edwin B. Cragin, has been raised by voluntary subscription.

By the will of the late Dr. James Tyson of Philadelphia conditional bequests are made as follows: Rush Hospital for Consumption and Allied Diseases, $3,000; Publication Fund of the College of Physicians of Philadelphia, $500; Mutual Aid Association of the Philadelphia County Medical Society, $500.

Entertainments given by visitors at Palm Beach recently have netted $2,871 for the Pine Ridge Hospital, which was established in that locality a short time ago.

Civil Service Positions Open.—The New York State Civil Service Commission announces the following vacancies to be filled by competitive examination on April 26: *Director of Laboratory*, Department of Health Office, Port of New York, Rosebank, S. I., N. Y. Applicants for this position, which pays $3,500 a year, must have a broad theoretical and practical knowledge of bacteriology as well as a knowledge of general pathology. Experience and executive ability to conduct a laboratory in a businesslike and methodical manner are also required. *Assistant Physician*, regular or homeopathic. This examination is intended to provide eligibles for the position of assistant physician in the State hospitals and for other institutions of a similar nature in various State and county institutions. The salary is $1,200 a year with increase. The examination is open to both men and women who are licensed to practice medicine in this State. Applications must be in the hands of the Commission at Albany not later than April 16.

Scholarships for Nurses.—The American Red Cross announces a scholarship fund of $100,000 to induce graduate nurses released from the Army and Navy Nurse Corps to train for public health nursing. A maximum scholarship of $600 will be granted for an eight months' course of training and $300 for a four months' course. The fund is to be administered by the Red Cross Department of Nursing, and scholarships will be granted on the recommendation of Red Cross division directors of public health nursing.

Eugenics Memorial Planned.—The Eugenics Research Association of Cold Spring Harbor, L. I., proposes that a "Roosevelt Institute of American Family Life" be organized and developed in connection with the eugenics record office of the Carnegie Institution at Washington. The object of proposal is to provide an institution to combat "race suicide" and to "advance those ideas of responsibility and patriotic parenthood for which Theodore Roosevelt so valiantly battled."

Obituary Notes.—Dr. JOHN HENRY BRADSWORTH, a graduate of the Hahnemann Medical College, Philadelphia, in 1889, died at his home in Patterson, N. Y., on March 21, aged 71 years.

Dr. JOHN G. HERSH died of bronchopneumonia at East Greenville, Pa., on February 23, at the age of 66 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1876. He served in 1899 as Representative in the State Legislature from Montgomery County. He was a member of the Chester County Medical Society, of the Medical Society of the State of Pennsylvania, and of the American Medical Association.

Dr. WILLIAM HUGHES WELLS died at Philadelphia on February 24 at the age of 59 years. He was graduated from Jefferson Medical College in the class of 1891. He was assistant professor of obstetrics in his alma mater, assistant obstetrician to Jefferson Hospital, pediatrician to the Charity Hospital, and physician to the Willing Day Nursery. He was a Fellow of the College of Physicians of Philadelphia, and a member of the Obstetrical Society of Philadelphia.

Dr. MAX STALLER died at Philadelphia, of carcinoma of the larynx, on March 2, at the age of 51 years. He was graduated from the University of Illinois College of Medicine in the class of 1895. He was one of the founders and first president of Mt. Sinai Hospital and attending surgeon, and medical director of the Jewish Consumptives' Institute. He was a member of the Philadelphia Medical Club, the Philadelphia County Medical Society, the Medical Society of the State of Pennsylvania, and the American Medical Association.

Dr. JAMES E. COOPER, a graduate of the College of Physicians and Surgeons, New York, in 1867, died suddenly from apoplexy at his home in Shrewsbury, N. J., March 19, aged 75 years.

Dr. FRANCIS RAND BLANCHARD of Eaton Rapids, Mich., was killed by a fall down an elevator shaft at the Harriet Chapman Hospital, on March 4, aged 55 years. He was a graduate of the University of Michigan, Ann Arbor, in 1891, a member of the Medical Reserve Corps, chairman of the local branch of the American Red Cross, and founder of the Harriett Chapman Hospital.

Dr. GEORGE W. KUNZ of New York died of pneumonia at the Lenox Hill Hospital, on February 13, aged 54 years. He was a graduate of Bellevue Hospital Medical College, in 1887. Dr. Kunz was assistant surgeon to the New York Eye and Ear Infirmary and attending otologist at St. Bartholomew's Clinic.

Dr. JAMES THOMAS MEEHAN, a graduate of New York University Medical College, in 1882, died at his home in New York City, on March 16, aged 59 years.

Correspondence.

ACUTE DILATATION OF THE STOMACH.

To the Editor of the Medical Record:

Sir:—Your editorial on this subject in the issue of March 1 interested me very much. These cases are rare. To my knowledge, I have seen but one. That was at least thirty years ago, when I was called to see what massage might do. A very few minutes of this convinced me of its futility. I turned the patient in the prone position, on his chest and abdomen, not dreaming that I was doing anything wonderful. The brother of the patient, a distinguished surgeon, could not see any sense in such a simple procedure, and objected, so it was abandoned. It might have saved the patient's life, according to your editorial, which gives credit to Schnitzler of Vienna for having first recommended it. Every day I am sure that every physician, surgeon, and layman who has any "gumption" at all uses devices far more ingenious than that without thinking he is making an invention.

Before Schnitzler was ever heard of, your distinguished confrère, Dr. A. J. Gallant of New York, proved massage to be not only safe but highly advantageous, as early as thirty hours after operations upon the abdomen. After the failure of laxatives, enemata, and the use of the rectal tube, he has been able in all the cases he has attempted to relieve the bowels of their painful distention and cramps from gas, and he doubtless in this way has saved life. Massage over the ascending transverse and descending colon was followed by the escape of gas, affording the patient great relief and comfort in the course of 10 or 15 minutes. Changing the patient from the back to the side was also found useful in taking the "kinks" out of the bowels. Infection of the line of union or damage to the structures involved in the operation is not likely to occur from the use of massage thirty hours after the operation. Most of the cases reported were for operation upon the uterus and ovaries and for appendicitis and hernia.

Patients suffering from abdominal truoble are apt to have mental peculiarities which the physician will do well to steer clear of, if he can. It was a wise man who said you can't Christianize the world until you have cured dyspepsia. Conversely, patients suffering from mental illness will often be found to have strange conditions of the abdomen. In two I observed extreme relaxation of the abdominal walls, which had been overlooked by the physicians who asked me to give them massage, to which they responded remarkably well. We hope to hear more about the interrelation between abdominal and mental trouble from those who have ample opportunity to observe.

A few years ago we heard a great deal about the benefits to be derived from persistent exercises in locomotor ataxia, and they were called after the man Frenkel, who was said to have invented them. As well say with Sancho Panza, "God bless the man who invented sleep." He does not even advocate the proper manner in which they should be used, such as I have described in my treatise on massage.

Douglas Graham, M.D.

Boston, Mass.

THE HEALTH INSURANCE HEARING.

To the Editor of the Medical Record:

Sir:—The newspaper accounts of the hearing on "Health Insurance" before the Judiciary Committee of the Senate on Wednesday last overlooked or omitted to mention certain important facts in connection with this event. The event that received no comment was the appearance of the president-elect of the American Medical Association and late president of the Medical Society of the State of New York among those who favored this bill, while the entire medical profession of the State as represented by the council and president of the State Society with representatives from all the county societies appeared in opposition to it. Neither the *Sun* nor the *Times* noted this appearance at all. The *Herald* and the *Tribune* reported it, the latter referring to the president-elect as "chairman of the Social Insurance Company of the American Medical Association."

None of the arguments of the medical men against putting the practice of medicine under the State Federation of Labor which controls the State Industrial Commission were given. Every plea, however specious, of the labor leaders was reported in full, on the other hand. James M. Lynch, State Industrial Commissioner, and James P. Holland, president of the State Federation of Labor, were the most favored in this respect. Mr. Holland repeated his annual threat that "as labor demanded the passage of this bill, its demands sooner or later would have to be met whether the doctors objected to it or not." Mr. Lynch saw the brightest augury for the future of Compulsory Health Insurance in the argument that it was unconstitutional. This, to him, was the most promising and potent feature for its success in the present state of the public mind. Some of the arguments that were not reported against the unionizing of medicine under the bill were that medical men were accustomed to work more than eight hours, that if they were called upon to strike the time chosen would in all probability be during the prevalence of an epidemic, and that, while there was nothing derogatory to labor in "working for its pocket all the time," this practise was against all the established principles of our once honored calling. An editorial from a New York newspaper read by Senator Davenport at the hearing compared Health Insurance as a measure of reform to the Workman's Compensation Law. The Senator was told in reply that when the sick poor were exploited by the medical profession as the injured workmen were by the chartered insurance organizations of the State, as well as by the administration of the law under which they lived, we would be the first to demand a form of "Health Insurance" for their protection.

John P. Davin, M.D.

117 West Seventy-sixth Street.

OUR LONDON LETTER.

(From Our Own Correspondent.)

London, February 27, 1919.

Medical Questions in Parliament.—There can be no doubt that medicine is going to come by its own in the new Parliament if the number of questions having a medical bearing which have already been raised can be taken as a guarantee

that a certain proportion of them will be closely discussed. In the last week of February around the Ministry of Health Bill were concentrated some of the most important debates of the House, and members of Parliament, regardless of party, took part in the discussions and showed by their words that they considered the Ministry of Health to provide an unrivalled opportunity for the amelioration of all classes of society. But apart from these important debates a large number of medical questions were raised in the House and received, from the various Ministers in charge of the departments implicated, detailed replies showing that it is the intention of the Government to give as far as possible full play to medical views on domestic government.

The outbreak of rabies in the southwest of England was, for example, fully described by the parliamentary secretary of the Board of Agriculture, whose explanation showed that 94 cases had occurred in Devonshire and 24 in Cornwall but that efficient work by the responsible local authorities had now gone far to stamping out the epidemic. The Board of Agriculture, however, deprecated the view that the danger was over, and a system by which the patients—civilians, soldiers and sailors—should be promptly subjected to Pasteur treatment for hydrophobia will continue. (This has been reported previously in your columns.) On the same day the home secretary answered categorical questions as to the inadequate accommodation for mentally deficient persons throughout the country. To begin with, he admitted the inadequacy, which is, in itself, a sign of progress, for, until recently, no Government Department ever admitted that, from the medical point of view, its provisions were not as perfect as official advice could make them. The defence that action is taken or inaction is condoned under official advice obviously no longer holds good in the House of Commons.

The home secretary on the same day, admitted, in reply to questions, that under stress of war the activities of the local authorities in dealing with mental defectives had been curtailed, but he asserted that the Board of Control, the bureau having charge of this section of local government, was immediately issuing a circular letter to the local authorities on the subject. No doubt there is room for a great deal of hard work here, for the trials of the past four years have led to much mental breakdown, and acute medical discrimination will be required to decide what of this is permanent, what is capable of amelioration, and what are the best therapeutic methods. Almost simultaneously the home secretary was asked whether he was aware that Assistant Medical Officers of Asylums were not allowed to marry, and, if so, whether that rule would be rescinded. The significance of the question is, that the best young men want to marry, and that, if the asylums are to be staffed by such officers, no disability compelling them to remain bachelors ought to be maintained. The treatment of the mentally deficient should largely be in the hands of capable men, and no step should be omitted to secure this. The home secretary admitted the justice of the argument by stating that the Board of Control were already using their influence to secure the provision of such accommodation as would enable the Senior Assistant Medical Officer to marry, and, in larger institutions, the Second Assistant Medical Officer; so that marriage would be their natural course. Undoubtedly until now the question of accommodation has been at the bottom of opposition to this needed reform, and the probability is that separate houses will be provided in the grounds of county asylums enabling the staff to lead the proper domestic life in a wholesome environment which is particularly needed in a very wearing occupation.

The medical treatment of discharged soldiers has also been discussed under a reply of the Parliamentary Secretary to the Secretary of Pensions, and one side of this question, namely, the care of the tuberculous soldier, has also received considerable attention. The debt of the country to the unfit soldier and sailor is one that all classes would wish to have generously discharged, but on the other hand it is reasonable that a Government, sorely burdened with financial responsibilities, should exercise some care in the matter. A soldier is found to be tuberculous: has the infection been incurred while serving as a soldier, or was it latent and called into activity by service as a soldier; or is he the subject of a widespread infection which was as likely, and perhaps even more likely, to attack him in civilian life than while serving his country These are large questions, and large issues depend upon their proper answer, but it is of good omen that in the existing Parliament there should be a readiness to discuss them.

The Ministry of Health Bill.—Various bodies representing activities, groups, and sections of the medical profession are now beginning to take an active interest in the bill, as the intention of the Government to pass it into law with all expediency has become obvious. The General Medical Council has been invited by the Lord President of the Council (that being the cumbersome title of the chairman of His Majesty's Privy Council), to express opinion upon the measure, and this, the General Medical Council has accordingly done through its executive committee. The General Medical Council point out to the Privy Council, while generally blessing the bill for its consolidation of public health powers and duties, that it is extremely important to introduce legislation corresponding to that proposed by the bill for England, Scotland and Wales into Ireland, and the good sense of the suggestion is obvious.

A joint committee of the English Royal Colleges has also issued a memorandum upon the bill which it has had under consideration for some time. The committee presumes that its memorandum deals only with the English and Welsh position, leaving Scotland and Wales to voice their own views; and in the next paragraph is prepared to receive the new government-administration of medicine without enthusiasm, evidently thinking that the measures for the maintenance of health of the community will not receive their best opportunity if administered by any existing bureau too entirely. But it is in the matter of a Medical Advisory Council to assist the minister that the

English colleges take a very firm and useful stand. They say:

"Considering that a large proportion of the work of the Health Ministry, both as regards its policy and its execution, will depend on the knowledge and cooperation of the medical profession, the Joint Committee considered it essential that there should be appointed by the Minister of Health a Medical Advisory Council, drawn from every section of the profession, such council to have direct access to the minister, and the power to initiate advice. Since there will probably be other advisory Council, besides the Medical Advisory Council, the Joint Committee is of the opinion that there should be a connecting committee in the ministry for the correlating of the work of the Advisory Councils in order to prevent overlapping and conflict of advice. The Medical Advisory Council to be of real use to the minister, and through him to the nation, must be of limited size —say, 21 members. It cannot, therefore, be representative of the members of the medical profession in the Parliamentary sense. Its members must be not only individually excellent, but such as will together constitute a good council of advisers."

The composition of the Medical Advisory Council may turn out to be the most important thing in the bill from the professional point of view, and the Royal Colleges have shown discrimination in fastening upon the point that the constituent members must be a good team as well as good individuals. Too often combinations of all the talents have proved sterile, producing by their stock of brilliant antagonisms nothing but sterile commonplaces.

A Medical Advisory Council, by the way the official style of the body will probably be "A Medical Consultative Council"—should include primarily original workers along special lines, so their voices of authority may be heard and the risk of compromise annulled. The Royal Society of Medicine and the British Medical Association are in like manner watching and reporting upon the Ministry of Health Bill, with the result that these bodies are in sympathy with the views of the Royal Corporations. Dr. Addison, who has charge of the bill, will therefore be placed in good time in possession of ideal authoritative medical views.

The Troubles of British Dental Practice.—A report has been received this week from the Privy Council Committee appointed to inquire into the extent and gravity of the evils of dental practice by persons not qualified under the Dentists Acts. The terms of reference of the committee were generally to investigate in accordance with the purpose of their appointment, but specially to consider and report upon three things:—(1) the cause of the persistently inadequate supply of qualified dentists and dental surgeons: (2) the expediency of legislation prohibiting the practice of dentistry and dental surgery by unqualified persons; and (3) the practicability, without impairing the existing guarantee for efficient practice, of modifying the courses of study and the examinations prescribed for dental qualification, by reducing the time occupied and diminishing the cost of training. The Rt. Hon. F. D. Acland, M.P., acted as chairman of the committee, which included Lord Knutsford, chairman of the London Hospital, Sir Almeric Fitzroy, secretary to the Privy Council, Mr. C. S. Tomes and Mr. W. H. Dolamore, well-known dentists, and the principal medical officers of the local Government Board and of the Board of Education. It will be observed that in the terms of reference it was definitely assumed that the supply of qualified dentists and dental surgeons in the country was inadequate, and it is difficult to contest the point. None the less it is denied and on this ground. Every qualified medical practitioner is *ipso facto* a qualified dentist, and could if he chose practise that branch of his profession exactly as he can practise ophthalmology or any specialty. The reasons why he does not do so are, first, that his fees in any dental practice except high-class practice are not inviting; and second that a special diploma exists, qualifying in dentistry alone, and those who possess diplomas of larger range do not compete in any number with the special men. The possibility of forbidding dental quackery by law compelled the committee to face the difficult situation of suspending from their avocation a large mass of perfectly respectable and competent people who are at the present moment practising dentistry without a qualification. Of course such a roll includes a number of mischievous and even dangerous persons, but this is not to say that the unqualified dentist is necessarily either a quack or ignorant of his business. It will be seen therefore that the task which lay before the departmental committee was by no means an easy one.

The institution of the inquiry has been quickly justified by the commission, who point out in drastic manner in the third and fourth sections of the report that the risk incurred by the public is very real under existing British law, where any person, however ignorant, unskilled or untrained, can practise dentistry with freedom, and can inform the public by advertisement or otherwise that he is so practising. The only protection the public has in such circumstances is an action for damages where injury has ensued, and the only deterrent on the part of the unqualified dentist is his fear of a possible prosecution for manslaughter in case of death. Unless a coroner inquires into some glaring example of malpractice, the dentist quack may perpetrate his "dental" enormities with impunity. Severe injuries to the mouth and jaws, septic poisoning and deaths from the unskilful administration of anesthetics are among the tragedies which have followed unqualified dental practice in this country, and there can be little doubt that the recommendation of the Commission that the law should be altered "so as to secure the prohibition of the practice of dentistry by persons not registered" will be acted upon. With regard to the shortage of registered dentists the departmental committee has agreed that it exists. There are only about 5,000 names upon the dental register and assuming that these probably qualified men, and these only, are likely to practise dentistry the shortage may be considered proved. With a view to providing for this shortage all the obvious means are proposed to

be taken. The time, it is suggested, must be reduced during which the student is to be trained, and scholarships for dentist students and dental mechanics must be founded. To relieve somewhat the cost to the individual patient the establishment of a public dental service is put forward as a means of placing the payment of a large number of dentists upon the public expense. Lastly, and this recommendation of the Commission may have been made with hesitation, the commission is willing to admit to a new register a certain number of properly vouched-for unqualified practitioners.

The Influenza Epidemic and Its Prevention.—As in many other parts of the world, so in the United Kingdom the recrudescence of influenza of a serious type has much embarrassed public affairs, and has exacted from the population a serious toll of life. We are still on the rising wave of a third pandemic, and the age incidence of the third outbreak continues to show a marked virulence toward the elders, which was specially absent in the previous attacks. The Local Government Board has issued a memorandum full of pious advice—cultivate good habits; lie up early when attacked; avoid infection where possible; and so on—but the memorandum gives little definite advice beyond prescribing a gargle. This is not the fault of those who have issued it, for in the absence of any certain information about the germ of influenza direct or specific therapy must be all guesswork. Many of the public would have welcomed a government order enjoining the use of masks, but masks permitting of respiration and vision would probably be permeable by any spittle borne germs. Many medical men are sure that vaccines have been useful, but there are at least as many records of failure as of success. But so much and such widespread attention is now directed to possible immunization that the hope of some definite and early information is reasonable.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

PARIS, February 1, 1919.

The Army Leave Area at Nice.—The Army Headquarters has created two great leave areas; one in Savoie in the north of France with Aix-les-Bains as its center and another on the Mediterranean with Nice as the center.

Nice is the greatest American Resort in Europe. More Americans gather here during the season than in any other European pleasure center. In 1890 Nice was a place of 60,000. It now has 175,000. No city in France has had such a percentage of increase during the past century, and this unprecedented growth can be attributed almost wholly to the American patronage.

As a first step, the army authorities secured four of the large modern hotels as hospitals for long term and convalescent patients; the Y. M. C. A. immediately came along and took over the Jetée Promenade, a handsome, imposing building built over the sea, comprising a concert hall, theater, and enormous reception rooms; here the "Y" has its headquarters. A military band gives daily concerts in the great reception hall where three thousand can circulate. In another large hall an orchestra plays afternoon and evening for dancing. In the concert hall there are daily entertainments by the traveling vaudeville and special artists employed by the amusement department; afternoon tea is served with cakes and biscuits, at a minimum cost. An excursion bureau books those who want to take in the diverse excursions to Mentone, Monte Carlo, Cannes, Grasse, and the Litorale. An information bureau helps newcomers to locate rooms and boarding places and gives information as to the fixed rates of various hotels. In the center of the great hall a canteen is placed where all the ordinary wants of the men can be supplied at cost, as at the commissary.

For the officers, the building of one of the city clubs, on the Place Masséna was requisitioned, comprising reading, writing, smoking, billiard, card, and lounging rooms and a large hall where an orchestra plays afternoon and evening for dancing, and here I find exercised for the first time a comprehensive and concerted plan for controlling the habituées of a place of amusement created for the benefit of the army. No lady is admitted to this club without a card of admission, no matter if she be accompanied by an officer.

Applications for cards are made by the ladies themselves or by their friends, giving name and residence and the names of two city references. These cards are handed over to a French committee named the committee of French Homes, who investigate the references and accept or reject the application. This has resulted in bringing together for the afternoon and evening dances the mothers and daughters of the best families and the exclusion of all questionable characters. The cards are issued for a given period, which permits the retiring of any who by any means have secured cards and are found questionable. Here also is a supply depot of cigars, tobacco, cigarettes, candies, eatables, and little necessaries very convenient to those constantly coming and going.

The dancing hall has been found too small to accommodate the crowd that daily frequent it and arrangements are being made to double the floor space. So far, there are not enough ladies to pair with officers, who outnumber them 3 to 1, but new cards are constantly being issued and this promises to become the most popular resort in Nice.

A very pretty and commodious theater has been taken over and consecrated to the nightly entertainment of the officers, free of charge of course, and here there flows the regular stream of Y. M. C. A. corps of entertainers, numbering thousands.

The Red Cross have a commodious club for officers on the Promenade des Anglais, comprising reading, lounging, and tea rooms, where tea and cakes and American home-made pies are served daily free to all in uniform. This one club does not seem to be popular or largely frequented despite the fact that it is the only resort where refreshments are furnished free, and I think the chief reason is that ladies are not admitted. If the officers were permitted to bring their lady friends, paying for their entertainment, I am of opinion this club would daily be crowded, for it looks out over the sea, is commodious and luxur-

iously furnished; but afternoon tea is a distinctly social function and a man does not care to go in and sit alone, no matter what the advantages.

The British Y. M. C. A. have rooms on the Promenade where they serve real ice cream three times per week, and this long unknown luxury brings together a crowd on ice cream days. Also the Knights of Columbus have club rooms pleasantly situated and much frequented.

There is a beautiful golf course just out of the city bordering on the sea, which with the snow-capped mountains for a background forms a paradise of beauty these sunshiny days. Nice has two fine public tennis courts open to officers at one-half rates and there is good fishing off any part of the coast, so that from morning to midnight men on leave can find healthy occupation and amusement in the midst of the finest paradise this world can offer.

The transportation authorities have decided to run a special Riviera express for all officers and men proceeding south on leave. The new service will be known as the "A.E.F. Personnel Special Train Service," and will run between Paris and Mentone daily, on and after February 17 next. The train will be reserved exclusively for A. E. F. Personnel, which is understood to include American Red Cross, Y. M. C. A., Knights of Columbus, Salvation Army nurses, naval attachés, as well as officers and enlisted men of the army proper.

116, Avenue des Champs Elysées.

Progress of Medical Science.

New York Medical Journal.

March 15, 1919.

1. Influenza Therapeutics in History. James J. Walsh.
2. Official Provision for the Tuberculous Soldier and What He Should Know About His Disease. S. Adolphus Knopf.
3. Nonspecific Hemoprotein Antigen for the Treatment of Arthritis. Clyde Brooks and F. M. Stanton.
4. The Rôle of Focal Infections in the Psychoses. Henry A. Cotton.
5. Chronic Discharging Ear. C. M. Sautter.
6. Acute Posterior Urethritis. A. Strachstein.
7. A Rapid Method for Determining the Type of Meningococcus Infection. George H. Robinson.
8. Envenomization Suggested as Etiology of Hydrophobia, Yellow Fever, Rocky Mountain Spotted Fever, and Cowpox. Anne Young.
9. Recent Gleanings Relative to Prophylaxis and Treatment of Influenza. Louis T. de M. Sajous.

8. Envenomization Suggested as Etiology of Hydrophobia, Yellow Fever, Rocky Mountain Spotted Fever, and Cowpox.—Anne Young has noted a striking parallelism between the symptoms and pathology produced by bites of venomous animals and hydrophobia and suggests that the failure to demonstrate bacteria or protozoa in hydrophobia may be due to the fact that they are not the causative factors. She points out that a dog manifesting rabies is not necessarily suffering as a result of a bite from a rabid animal, but may have eaten an animal dying or dead from the bite of a venomous animal and that the fact has not been sufficiently recognized that the muzzling of dogs prevents them not only from biting, but also from nosing and coming in contact with or eating the flesh of animals that have been bitten by a viper. Human beings have been poisoned by eating the flesh of cattle poisoned by eating blister beetles. It is possible that infantile paralysis and beriberi may be caused by a neurotoxin venom. Yellow fever, cowpox, and Rocky Mountain spotted fever are possible results of a hemolytic venom, and in the case of yellow fever a sick stegomyia may inoculate a venomous digestive substance, which is a feasible explanation of infected eggs. In the preparation of the Pasteur treatment for rabies the virus is fixed by passage through successive rabbits; may not the same procedure take place outside the laboratory, but not necessarily through the same host? She suggests that in the investigation of obscure diseases, envenomization is at least worthy of elimination.

The Journal of the American Medical Association.

March 15, 1919

1. The Occurrence of Superfetation. Arthur William Meyer.
2. Experimental Mosquito Control in Ricefields. J. G. Geiger and W. C. Purdy.
3. The Reliability of the Nystagmus Test. Lewis Fisher and Harold L. Babcock.
4. *Streptococcus Hemolyticus* in War Wounds. Allen H. Bunce, Louis Berlin, and Charles E. Lawrence.
5. Military Hospital Mess Management. R. G. Hoskins.
6. Employment of Calipers in Fractures of the Femur. Dennis W. Crile.

3. The Reliability of the Nystagmus Test.—Lewis Fisher and Harold L. Babcock refute the contention that there is a suppression of the eye reaction in persons subjected to certain types of acrobatic exercises. They point out that since clinical medicine has relied for years on the permanency and constancy of reflex phenomena, the question of the reliability of reflex response is a most important one and, therefore, it was natural that the theory, promulgated by certain psychologists, that persons subjected to considerable whirling or tumbling lost their nystagmus as a result of their training, should be made a subject of investigation. Attention was first directed to the nystagmus reaction in aviators, since flying, and especially stunt flying, entails a great deal of whirling. It was found that fliers of even 2,000 hours' experience exhibited a good active nystagmus of approximately 24 seconds, and whenever possible these findings were checked up with the nystagmus findings of the same persons at the time of their original examination; in no instance was there found a reduction in the duration of the nystagmus. At Mineola 942 veteran fliers were examined and similar investigations were conducted by trained otologists in other flying fields throughout the country, with identical results. A large number of acrobats and whirling stage dancers were also examined, the average nystagmus in these persons being 26.1 seconds on turning to the right, and 26.05 seconds on turning to the left. A series of experiments was also undertaken by the Otological Department of the Medical Research Laboratory at Mineola, in which persons were subjected to frequent rotation in the turning chair to determine whether the results obtained were in accordance with those reported by a group of psychologists who carried out a similar series of experiments and who found that persons who started with a nystagmus of 24 seconds or more, on being subjected to daily turnings for several weeks, would show a complete loss of nystagmus reaction to turning, or a marked diminution. The results of the Mineola experiments, however, clearly indicated that (a) not a single subject lost the nystagmus; (b) not a single subject showed even a marked impairment of the nystagmus reaction. Fisher and Babcock conclude, therefore, that (1) The duration of after-turning nystagmus is not impaired by flying. Such a very large number of aviators have been reexamined as to make this conclusion absolute and final. (2) From the evidence at hand, it would seem that in acrobats, whirling dancers, airdrome performers, and in athletes in general, there is no diminution of nystagmus response. More examinations of such persons, however, would be necessary before any final conclusion should be drawn. (3) Repeated turning experiments on normal persons occasionally produce an "apparent" and slight shortening of the nystagmus, but that this is only apparent and not real is demonstrated by the convex glasses. (4) In medical practice, an absence or impairment of eye responses following ear stimulation definitely indicates a pathological condition within the vestibular mechanism.

The Lancet.

February 22, 1919.

1. The Hunterian Oration on British Military Surgery in the Time of Hunter and in the Great War. Delivered before the Royal College of Surgeons of England on February 14, 1919, the Anniversary of Hunter's birth. Sir Anthony Bowlby, K.C.M.G., K.C.V.O., C.B.

2. The Buried Sequestrum: A Post-war Problem. Major James Phillips
3. "Propeller" Fracture. Lieutenant-Colonel A. L. Johnson.
4. An Investigation into the Blood Supply of Muscles with Special Reference to War Surgery. Captains J. Campbell and C. M. Pennefather.
5. A New Germ of Paratyphoid. L. Hirschfeld.

2. The Buried Sequestrum: A Post-war Problem.—Major James Phillips draws attention to the fact that surgical skill will be required for a long time to come to remedy conditions resulting from gunshot wounds received during the war. The cases reported in the present article have been treated in the Bradford War Hospital in England, where the method indicated by the author has been followed since 1917. The buried sequestrum is associated with the extraordinary multiplicity of comminution which characterizes war wound fractures. The bone is splintered into many fragments; the periosteum is torn and separated from the bone; the spaces between the various fragments and between them and the periosteum become filled with new bone, in the midst of which lie one or more sequestra, which are responsible for the persistent suppuration. In the majority of cases *x*-ray examination is of little aid in diagnosis, nor does the condition or direction of the sinuses throw much light upon the character, size, or position of the sequestra. The only treatment likely to be successful consists in baring the bone from overlying soft tissues and freely chiseling through bone until the sequestrum is exposed. This is a severe operation and, as multiple sequestra are not uncommon, more than one operation may be required. The removal of necrotic tissue makes it possible to treat bone cases by the Carrel method; the wound can be made surgically clean and secondary suture successfully practised. Illustrations are given showing the manner in which overgrowth of bone takes place. In all cases in which rough, bare bone, felt by a probe or a persistent sinus, leads to the seat of an old bone injury of the femur, and especially if the *x*-ray examination points to sequestrum formation, the author operates in the following way: An incision long enough to permit of the exposure of the whole of the damaged area of bone is made and carried down to and through the periosteum. All the soft parts, including periosteum, are cleared from the bone with an elevator; bony irregularities are chiseled away, sinuses in the bone are followed up, and an attempt made to find and remove all sequestra—an operation which may present no little difficulty. In the case of a patient who has been absorbing toxins from a suppurating wound possibly for months, the necessary chiseling may be associated with a good deal of shock; the author, therefore, on more than one occasion, has thought it best to complete this stage of the operation at a later sitting. When every obvious crevice and cranny in the bone has been smoothed away with the chisel, the soft parts are stitched *open* by passing one or more mattress sutures of thick iodined silk through the muscles and then through the skin at some distance from the edge of the wound. The wound is sterilized by Carrel's method. Dakin's solution is instilled every two hours and at least once in 24 hours a thorough cleansing of the wound is undertaken. When the cavity is deep it is important that the gauze and wool swabs used for packing be counted. At first the packing is likely to cause pain and may have to be done under an anesthetic; sepsis is the chief cause of pain, however, and as the wound becomes sterile the pain and tenderness disappear. The discharge is examined bacteriologically twice a week, and when the "film chart" shows three or less organisms per field the wound is closed. In this operation the granulations are thoroughly curetted, the soft parts are raised from the bone until they can be brought together without tension, and the skin is freely undercut and its edges trimmed. The undercutting is essential if a non-adherent linear scar is to result. The raw surface is swabbed first with methylated spirit and then with bipp. A running catgut stitch brings the deep fascia edges together over the muscles. Thick silk stitches are passed through all the soft tissues so as to close the wound, leaving no dead cavity. A continuous catgut stitch is used to secure accurate apposition of the skin edges. An absorbent dressing is applied and left in position for fourteen days; it is then renewed, but the sutures are left *in situ* for another week. In making free incisions care, of course, must be taken to avoid the nerves. When the fractured bone is subcutaneous or poorly covered with soft tissues, different treatment is required. Phillips reports the case of a man admitted to hospital with badly smashed tibia and fibula. Carrel's tubes were inserted and the leg was placed in Thomas' splint. Firm union of the fibula and partial union of the tibia took place and the extension apparatus was removed. A month later, the clean, granulating surface over the front of the head of the tibia was skin grafted. No dressing was applied, the leg being simply covered by a cage. Two weeks later, the graft wound had healed and the patient was getting about on crutches. In this case the bone continued to form beneath the healed grafts, a phenomenon which had been noted in other cases. Phillips adds that in such cases the radical methods described are the only ones likely to lead to healing of what must otherwise remain, in many instances, permanently discharging wounds.

British Medical Journal.

February 22, 1919.

1. The Hunterian Oration on British Military Surgery in the Time of Hunter and in the Great War. Sir Anthony Bowlby, K.C.M.G., K.C.V.O., C.B.
2. Capacity for Work in Amputations of the Lower Extremity. S. T. Irwin.
3. Note on the Use of Ionization in the Treatment of Certain Types of Facial Scars. Lieutenant H. S. Carter and Captain A. D. E. Shefford.

3. Note on the Use of Ionization in the Treatment of Certain Types of Facial Scars.—Lieutenant H. S. Carter and Captain A. D. E. Shefford submit the results they have obtained by ionic treatment of facial cicatrices, due to war injuries of the facial tissues, and especially where damage has been done to the masticatory muscles, a method of treatment which has received scant attention. They point out that the commonest disability arising from such injury is the condition of "false" trismus, which is due, as a rule, to one of three causes: (1) Fracture of the ascending ramus of the mandible, with actual damage to contiguous tissues; (2) In the absence of fracture, injuries of such a nature as to involve some fibers of the masseter, temporal, or pterygoid muscles, the scar tissue limiting movement; (3) Reflex spasm of all the masticatory muscles consequent upon organic injury of remoter parts. These observers have found that the treatment of scars by ionization results in a progressive decrease in their densities and an increased flexibility, both subjective and objective, with marked permanent improvement in ability to open the mouth and masticate. This has definitely occurred even when ionization has been unaccompanied by intraoral gagging or facial massage. Cases in which there is adherence of scar to osseous tissue often require treatment for three months or more. They have used the alternating current from the city mains, which is run through a motor transformer so as to give a constant current of 100 volts E.M.F. This is conveyed to the patient through a distributing board, fitted with a wire resistance rheostat for the purpose of varying the strength of the current, and with a milliammeter for registering the amount of current used. The electrodes consist of small zinc plates about two inches square, between which and the skin they place from sixteen to twenty-four layers of folded lint. These coverings are about half an inch larger all round than the metallic electrodes, in order to prevent possible burns by contact of the metal with the skin. The pad of the negative or active electrode is soaked in the therapeutic agent (in Carter and Shefford's cases NaCl, KI, or sodium salicylate) in 1 or 2 per cent. solution in hot distilled water. The pad of the positive pole is soaked in hot water to which a trace of sodium chloride has been added to ensure easy passage of the current. The negative electrode is placed over the cicatricial area, while the positive electrode is placed under the chin (most often) or over the deltoid or on the nape of the neck. These are made secure by bandages which also ensure efficient contact with the skin area to be treated. The current is turned on very slowly, and they start with a current of 2 to 3 milliampères, gradually working up, according to the patient's tolerance, to 15 or 20 milliampères. The

maximum current which each patient can support comfortably varies, and is usually not reached until the third or fourth treatment. By this gradual method these observers have been able to obviate the unpleasant after-effects of headaches, vertigo, and nystagmus, which are liable to occur from the passage of an electric current so near to the semicircular canals and their endolymph system. The duration of each treatment was from thirty to fifty minutes, daily when the condition of the skin permitted, and on alternate days when the skin was sensitive. They point out that it is useless to attempt ionization when oral sepsis is present, or, at any rate, until it is under control; also that it should not be used while metallic foreign bodies exist in the tissues, otherwise burns are liable to occur, with the formation of slowly healing ulcers. In the event of an abraded surface happening to be in the area under treatment, it is sealed with a drop of collodion, which is allowed to dry before proceeding. If a small indolent sinus persists, it is plugged with gauze soaked in the electrolyte used and usually heals early in the treatment. At the end of each treatment the current is always gradually reduced before withdrawal to avoid unpleasant subjective shock to the patient. It should be remembered that the ionic effect is directly proportional to the intensity of the current and the time of application, so that as large a current as can be comfortably borne should be used, and the treatment should be of a long rather than short duration.

In the experience of the authors, sodium chloride as an electrolyte has given the best results. Ionization with iodides or with sodium salicylate is useful for the alleviation of pain, but with iodides is apt to cause irritation of the skin, and as far as softening of the scar is concerned, the sodium chloride is more effective than either of the other drugs. It was found that better results were obtained with the negative pole as the active electrode, but there seems to be no doubt that this was due to a considerable extent to the condition of induced hyperemia, which persists for an hour or two after treatment. The authors consider it improbable that the ions penetrating the tissues, or formed in the tissues by the passage of the current, retain their ionic or active state for more than a fraction of time, but believe that they immediately enter the general circulation in combination as inert substances and that any benefit due to introduction of ions or ionic dissociation in the tissues must be limited to the time of passage of the current and to the period of active bombardment during the actual treatment. The results obtained in 24 cases treated have led the authors to conclude that the method indicated may with advantage, be combined with the mechanical procedures of intermittent intraoral gagging and massage, the best results being given when the gag is applied for an hour immediately before treatment (in cold weather the area to be treated should first be thoroughly warmed with hot water or by radiant heat), and that in the treatment of facial cicatrices ionization is of undoubted value. The circulation through the scar tends to become reestablished; there is loss of stiffness and adherence, permitting the play of underlying muscles and reduction of the limiting effect of the scar upon the masticatory muscles; and in cases where the edges of the flaps, after facial plastic operations, are rolled and thickened, causing retraction of surrounding normal tissues, softness and flexibility are increased and the deformative effects of such scars are diminished.

Berliner klinische Wochenschrift.

January 20, 1919.

Abdominal Drainage After Laparotomy.—W. Nagel is in favor of drainage after abdominal operations and says that it is too much neglected at present. Drainage prevents the formation of blood or serous collections which offer an excellent culture medium for later infections. Drainage may be made through the abdominal incision or vagina. The reality of an ascending infection from the vagina is a myth. The writer advises drainage with the cigarette drain, such as he has seen employed by American surgeons.

Blood Pressure in Healthy Men.—F. Groedel refers to the divergence of opinion existing in the profession in regard to blood pressure, as well as to the various results obtained by different procedures. He publishes the results obtained in healthy soldiers and in children of various ages. The writer's figures are arranged in tables based upon the age, height, weight, chest measure, rapidity of the pulse and orthodiagraphic diameters of the heart. Both the systolic and diastolic pressures increase quite regularly with advancing years, but this is more evident in the systolic pressure and it therefore results that the amplitude of the oscillations of the pressure increases with age (35 mm. Hg. at ten years of age, 60 mm. at sixty years of age). It would also appear from the writer's tables that the height, weight, and the dimensions of the heart increase quite parallel with the pressure. The mean figures obtained in one hundred recruits of twenty years of age were: Height 175.5 centimeters, chest measure 86 to 94 centimeters, weight 69.8 kilograms, pulse 69, maximum pressure 150 mm. Hg., minimum pressure 98.5 mm. Hg., amplitude 60 mm. Hg.

A Case of Quadrilocular Intraabdominal Hydrocele.—Hübotter describes a case of hydrocele of the cord with four distinct pockets having no communication between them. The tumor was supposed to be a hernia and came out of the abdomen, but was easily reduced. After a review of the literature the writer concludes that this case is of extreme infrequency.

Münchener medizinische Wochenschrift.

January 17, 1919.

The Pathogenesis of Arteriosclerosis.—B. Fischer gives a very good exposé of the present state of our knowledge of this subject, which is now fairly well understood. The arteriosclerotic process is essentially a hyperplastic proliferation of the intima and a degeneration of the musculo-elastic layer. The lipoid or calcarious nature of the incrustations on the vessel walls is by no means different in the arteriosclerotic processes. These deposits result from a primary degeneration and may vary in degree, according to the arterial soil. Thus the arteries of the elastic type undergo calcification more readily. Those of the musculo-elastic type are more prone to develop atheroma. As to the pathogenesis, experimental work has shown that injections and divers intoxications play the principal part. Certain diets have produced marked arteriosclerosis in animals. The writer next refers to the relationship existing between arteriosclerosis and functional superactivity of the arteries. The onset of arteriosclerosis can be traced back to infancy and has been anatomically demonstrated in babies. The arteries simply undergo the process of wearing out from advancing age and lose their extensibility and elasticity in a rather constant progression. The inherent peculiarities of each organism favor either a slow or rapid process of degeneration. The presence of cholesterin in excessive amounts is a particularly important factor in the etiology of arteriosclerosis.

Red Light in Therapeutics.—Thedering opposes the exciting inflammatory action of the violet rays to the sedative action of red rays. The cutaneous pigments arrest the ultra-violet rays and at the same time fix the red caloric rays, thus neutralizing the action of the former. Taking these data as a basis the writer has employed red light in the treatment of the following conditions: (1) Inflammation of the skin, following exposure to the sun or to excessive doses of the rays of the quartz lamp; (2) In erysipelas and acute and chronic eczema; (3) In pustular eruptions and (4) In pigmentary anomalies such as vitiligo, ephelides, etc.

Deutsche medizinische Wochenschrift.

January 16, 1919.

The New Problems of Malaria Arising from the War.—M. Mayer sums up the present status of malaria derived from experience acquired during the war. Most of the papers referred to by the writer have been abstracted in the RECORD. The writer states that the mean time of incubation is from ten to twelve days, but may be occasionally much longer, as much even as eighteen months. The question of hibernation of the plasmodium in the interior of the mosquito is regarded as improbable.

The Diagnostic Signification of Urobilinogen in the Differentiation of Cancer and Anemia.—H. Scholz remarks that certain writers have wished to give a certain diagnostic importance to the amount of urobilinogen eliminated in the feces. These should be an index to a more or less intense process hemolysis taking place in the organism (Salomon and Charnass). Pernicious anemia is likewise to be recognized by a marked elimination of urobilin following the destruction of large numbers of erythrocytes; cancerous processes and gastric cancer in partlcular should offer a decrease in these substances resulting from a profound disturbance of the metabolism of the red blood corpuscles. To these remarks the writer offers the following considerations: The hemolytic origin of the pernicious anemias is as yet far from being proved, and experimental work hardly confirms the value of the quantitative analysis of urobilinogene in the feces (examination of thirteen cases of gastric cancer and two of anemia). It was also impossible for the writer to establish a relationship between the urobilin in the urine and the presence of metastatic cancerous foci in the liver.

The Cardiodystrophies and Their Treatment by Intravenous Injections of Glucose.—T. Büdinger believes that certain states of cardiac failure are the result of insufficient nourishment of the myocardium. The failure occurs more easily when the percentage of glycemia falls, the glucose being the essential element of the cardiac function. The writer discusses the indications and technique of glucose injections destined to counteract these states of cardiac asthenia which are revealed on auscultation by weak cardiac sounds over the base of the heart.

Wiener medizinische Wochenschrift.

January 4, 1919.

The State of Nutrition of the Viennese Children.—Von Pirquet notes the fearful condition of denutrition of the Vienna children. Compared with Camerer's tables of mean normal weight, the children at present are lacking 21 per cent. This state of defective nutrition involves 9.2 per cent. of children.

Wiener medizinische Wochenschrift.

January 11, 1919.

Influenza.—I. Pal gives a résumé of his experience with influenza. The paper confirms, in a general way, the current views held by the profession in respect to this epidemic affection. The writer offers some remarks on the probable mechanism of death from this disease, which he regards as a "vascular death," resulting from a faulty distribution of the blood, due to toxins acting electively on the peripheral vessels. However, cardiac and vascular medication (digitalis, adrenalin, extract of the hypophysis), is insufficient.

Crónica Médico-Quirúrgica de la Habana.

December, 1918.

1. The Treatment by the Mercurial Salts of Non-Specific Eye Diseases. J. Santos Fernandez.
2. The Present Epidemics of Grippe. Luis Ortega.
3. Post Graduate Course for Ophthalmic Doctors. J. Santos Fernandez.
4. Grippe? A. Dubois.
5. Traumatic Bilateral Detachment of the Retina. F. M. Fernandez.
6. Syphilis of the Cranial Bones. J. E. Lopez Silvero.
7. Medical Aspects of the War. F. M. Fernandez.
8. The Hour of France. F. Dominguez Roldan.
9. The University of Havana. F. M. Fernandez.
10. The Germ Producing Influenza. F. M. Fernandez.

6. Syphilis of the Cranial Bones.—Silvero states that lesions may be of acquired or congenital origin. The hereditary forms may vary from the most simple periostitis to the most grave necrosis and exostosis. There is a special inclination for late hereditary syphilis to affect the cranial bones, especially the frontal bone. In the variety due to acquired syphilis, the lesions are usually a manifestation of tertiary symptoms, and are not very frequent. In his three cases two were benign, and the frontal and parietal bones were affected. In the third case, the temporal bone was also affected and the patient died comatose after having serious meningeal symptoms.

The Dublin Journal of Medical Science.

February, 1919.

1. Ireland and a Ministry of Health. T. Hennessey.
2. The Diagnosis and Treatment of Syphilis. George E. Pugin Meldon.
3. The Diagnosis and Treatment of Syphilis. H. C. Donald.

2. The Diagnosis and Treatment of Syphilis.—George E. Pugin Meldon, after briefly sketching the history of syphilis, points out that in looking for the *Spirocheta pallida* two facts are well worth bearing in mind. Firstly, it is the exudate from the base and margins of the sore that is rich in spirochetæ, which can seldom be found in the débris on the surface. Secondly, if the sore has been treated recently with antiseptics, especially mercurial preparations, the search is useless. While it has been shown that the complement fixation can no longer be looked upon as a specific antigen antibody reaction and deducted from the theoretical value, still experience has demonstrated that the Wassermann reaction is a reliable clinical test for syphilis. As far as Meldon's experience goes, a fully positive report by a competent serologist means that, excluding such a condition as yaws, the patient is, or has been, suffering from syphilis. A partially positive Wassermann reaction in a patient who has no obvious wasting disease, points strongly to syphilis, but Meldon thinks it is wiser to have a second test made after a provocative injection of salvarsan before making a definite diagnosis. So far as syphilitic disease of the central nervous system is concerned, a positive Wassermann reaction in the cerebrospinal fluid is practically conclusive evidence of syphilitic disease of the nervous system, the only exception being in the case of a patient with a positive reaction in his serum who is suffering from a nonsyphilitic meningitis. A negative Wassermann reaction indicates that the nervous system is not involved, with the following exceptions: (1) In very early acute meningitis, during the secondary stages, the fluid may be examined before it has had time to become positive. (2) The fluid may become negative owing to treatment, but on account of the disease not being fully eradicated, relapse is possible. (3) In some cases of purely cerebral lesions the fluid drawn off by lumbar puncture may be negative. Meldon thinks that all workers in the genitourinary branch of the profession will agree that we are in a position to promise a definite cure in a comparatively short time to patients who present themselves for treatment while yet in the primary or early secondary stage of syphilis. In the later stages of the disease one does not yet feel justified in making such a definite prognosis. The method which Meldon adopts is to give a course of some six or eight injections of salvarsan, or neosalvarsan, combined with mercurial treatment extending over a period of some twelve weeks. In early syphilis this may suffice, but in later cases more treatment may be required. There is just one point in the treatment of primary syphilis that deserves special mention. This is the local energetic treatment of the chancre. For it is here that there is most danger of some spirochetes escaping and giving rise to a recurrence. In syphilis of the central nervous system if treatment is started early, before there has been actual destruction of nerve cells, and while the disease is still confined to the vascular and intercellular tissues, Meldon believes one may hope for as good results as are got in the later syphilitic lesions of other parts of the body. In nervous syphilis experience has taught us that intravenous injections of salvarsan and neosalvarsan are just as effective as intrathecal injections of salvarsanized serum.

Correspondenz-Blatt für Schweizer Aerzte.

January 18, 1919.

Pathological Anatomy of Influenza.—Two articles appear on this subject from the Berne and Basle clinics. Professor Wegelin of the former has found no autopsy case which did not present some evidence of pneumonia. In the most recent cases the lesion was focal in type, with tendency to hemorrhage, while the entire lungs were hyperemic. These foci are not infarcts, although greatly resembling them. But so numerous and varied are the pathological alterations, and so difficult is it to

sum them up in a few words that a detailed description is only wearisome. Some of the pathological processes seem to be conservative as well as destructive. In some cases the exclusive or predominant work of the hemolytic streptococcus can be traced. It is of interest to note that one year before the epidemic the *Streptococcus pleomorphus* was causing considerable mortality under various forms. This is now identified with the streptococcus of influenza. As often stated elsewhere influenza may kill both by pneumonia and by sepsis. In sepsis from the streptococcus there is in influenza, as in other conditions, a heavy production of toxins which damage severely the viscera and muscles. In many septic cases the lungs are almost normal, which explains certain deaths with minimal lung symptoms. This sepsis is believed to be one of the leading factors in the fatally prognostic cyanosis, the toxin acting somewhat after the fashion of illuminating gas. There is some unknown predisposition which acts in spite of youth and vigor, but none of the factors thus far adduced, as underfeeding, can be held responsible. Occasional factors are active and latent tuberculosis and cardiac valvular lesions. In the second paper by Glaus and Fritsche, assistants of Professor Hedinger, is found a record of over 400 autopsies, with special reference to histological studies. The pneumonia is lobular to pseudolobar and the extreme frequency of hemorrhages must be regarded as a typical find. In the case of a death in twelve hours in a healthy woman of twenty-five the sole find was multiple lobular hemorrhages. The alveoli elsewhere were in part edematous. Whether the occlusion of alveoli by blood and edematous fluid was sufficient to kill by asphyxia is not stated. In general there was a marked parallelism between macro- and microscopic lesions with impossibility of summing up in a few words. The totality of the pathological changes showed marked similarity in the fatal cases, a phenomenon not beheld in other specific diseases where there may be remarkable inconstancies.

Annales de Dermatologie et de Syphiligraphie.

December 19, 1918

Vincent's Angina Simulating Chancre of the Tonsil Cured by Novarsenobenzol.—Clement briefly describes the case of a soldier who was originally under treatment for some joint trouble when he presented a membranous angina on one tonsil. When reinterned this lesion had undergone change to an ulcer and there was regional adenopathy. The diagnosis was made of syphilitic chancre of the right tonsil and the patient transferred to the venereal section. No secondary manifestations had appeared and the microscope showed Vincent's fusiform bacillus. Patient now underwent further transfer and was isolated, as having a contagious disease. In his new quarters he was given an injection of novarsenobenzol, with almost immediate improvement. After a second injection he made a complete recovery and was pronounced free from the presence of pathogenic organisms. Clinically it would have been impossible to make a differential diagnosis for the lesion characteristic of a certain type of tonsillar chancre was present.

Acanthosis Nigricans in the Cancerous.—Dubreuilh reports a case of this association which has been known to exist for many years. The youth of the patient was remarkable, for he was only twenty-two. He had been interned for a wound when it was noted that he presented a peculiar melanosis. At the same time there were severe gastric symptoms. He improved sufficiently to return to the ranks, but in three weeks was back in the hospital, where it was noted that his melanosis was much worse and was now of a papular character. There were two components, localized melanosis and a more generalized papillomatous appearance of the skin. In other words, he presented the condition acanthosis nigricans. It also became possible to recognize the presence of a probable cancer of the stomach. The hyperkeratosis of the skin became universal and of the highest degree. The author for this particular type would use the designation "melanic papillomatosis of the cancerous" to distinguish it from other forms of acanthosis nigricans. Autopsy in this case showed that the skin was actually the seat of a potential generalized carcinosis, so that we are not dealing with an obscure disease association but a vagary of cancer. The melanosis is doubtless explained by a deposit of cancer material in the adrenals.

El Siglo Medico.

January 11, 1919.

A Dramatic Case of Influenza.—Dr. Gonzales Castro of Barcelona describes a case of influenza in his own daughter, who was healthy, twenty-six years old, married, the mother of healthy children, and six months pregnant. On September 20, when a grippe wave was at its height in Barcelona, she was attacked with relatively mild symptoms. On the fourth day there was an exacerbation which for the first time caused the patient to take permanently to bed. The father, apparently himself a victim, was summoned at night to the home of the daughter, whom he found suffering with orthopnea and cyanosis. There was only a dry cough, without expectoration. Both lungs appeared involved in a process which affected much of the bronchial tree and alveoli. Free use of wet cups failed to relieve the orthopnea and asphyxia seemed imminent, while the pulse rapidly became worse. The author seized a lancet and opened a vein in the arm, which gave vent to 300 grams of black blood, and the evil symptoms at once showed decided improvement. To further disburden the lungs the author injected emetin, for the dry cough seemed to indicate the existence of complete bronchoplegia. In forty minutes a profuse, frothy sputum appeared, rosy but not at all rusty or pneumonic. Strong counterirritation followed, for relief was only temporary—dry cups, sinapisms, etc., with oxygen inhalations, all to little purpose—and on the following day a second venesection was practised. The symptoms became aggravated and the cough again became dry, orthopnea returned, and for the first time profound delirium appeared and asphyxia again became imminent. Despite his decision to bleed no more, the author had to do something, and once more the lancet was used, this time with marked benefit. During the next days venesections to the total of six were performed. On the eighth day there was violent coughing and sputum suggesting a fibrinous cast of the bronchial tree was expelled. For a while the lungs were unburdened, but the picture returned and the respirations became sixty a minute. The patient was given up and the mother begged the author to give a narcotic to render death less agonizing. He gave an injection of heroin and the next moment was unforgetable. The entire picture changed strikingly for the better. Strangulation ceased, consciousness returned, and the patient fell into a natural sleep for many hours, to be awakened by a return of the distressing symptoms. Fleshy masses of fibrin were again expelled, after which patient again improved. Heroin injections were repeated whenever dyspnea appeared. Improvement was progressive and on the eleventh day the patient was afebrile. But a relapse set in, in the shape of alarming cardiac symptoms. The author for the first time mentions counsel (which he probably had throughout the illness). He now feels that the account of his case is so marvelous that testimony of others should be cited. One of these, Dr. Crespo, testifies that he saw the patient on October 7, the eighteenth day of the affection. The condition was recognized as heart flutter, doubtless the result of toxemia and due perhaps to the toxins formed by Pfeiffer's bacillus, which has been credited with this form of pathogenicity. Digalen given by mouth and intravenously gave a brilliant result. Caffeine and camphorated oil were added as alternates. These remedies were given daily to combat the condition and later whenever there were signs of relapse, until the circulation had become permanently normal. Convalescence was normal save for the usual debility. Pregnancy was not interrupted and labor and its sequelæ were normal. A slight heroin addiction was readily overcome (the author had not mentioned that this drug had been given continually). The drug had been necessitated by the sluggishness of the respiratory center which caused recurrent attacks of dyspnea. The child was especially robust, a boy weighing 3 kilos. The lungs cleared up by slow resolution.

Il Policlinico.

January 26, 1919.

Influenza, Spring and Fall.—Calo refers to the original outbreak at Modena from June 1 to June 15, which coincided nearly in point of time with the Madrid outbreak. It ran its course in fifteen days. The author refers especially to the cases in the military school. The symptoms of this mild affection are described in great detail, and agree well enough with the simple type of influenza in which fever, myalgia, prostration, slight catarrh of the respiratory tract, etc., occur. The only microorganism found in the secretions resembled the *Bacillus influenzæ*, but was not identified with it. There were but three cases of bronchopneumonia, one of which was fatal. The diagnosis made at the time was three-day fever, but, looking back, we must endeavor to distinguish between this and mild grippe. The former can now be excluded, owing to subsequent developments. There were also other elements which independently spoke for influenza, for there was no evidence of the presence of phlebotomous flies and the spread of the malady spoke for rapid man to man transmission. In October the epidemic returned to Modena and attacked the military school as before. Its character was more severe, although it was less diffusible. There were 721 victims with 23 deaths. An interesting observation was the relative immunity of the victims of the first epidemic, and also the immunity of many to both attacks. The second epidemic passed over in about twenty-two days, and was apparently preceded by a few sporadic cases. The second outbreak, while severe in comparison with the first, was still relatively mild, and differed in the greater number of complications which were almost wanting in the first. In other words, the epidemic comprised many localizing cases, so-called, in which one organ or part of one bore the brunt, as the lung parenchyma and intestines. Septic and toxemic cases were represented in small numbers.

New Orleans Medical and Surgical Journal.

March, 1919.

1. The Histological and Bacteriological Investigation of a Juxta-Articular Nodule in a Leper. Donald H. Currie and Harry I. Hollman.
2. Antityphoid Serotherapy: Preparation and Application of the Serum. A. Rodet.
3. The Proposed League of Nations. Delvaille H. Theard.
4. Report of President of Orleans Parish Medical Society for 1918. Paul T. Gelpi.
5. Address of Incoming President of Orleans Parish Medical Society. H. E. Bernadas.

2. Antityphoid Serotherapy: Preparation and Application of the Serum.—Rodet points out that an experimental study of long duration, pursued first by Lagriffoud, has convinced him that the serum of an immunized animal may be endowed with a high degree of specific properties with reference to the bacillus of Eberth, and still be without therapeutic value, or even injurious. Rodet has been led by degrees to group together a series of conditions all indispensable to the result sought, for the preparation and maintenance of the horses furnishing the serum. These are not simply the choice of the immunizing substance and the avenue of introduction, which have a primary importance, but also various details constituting, so to speak, the dosage of immunization. The avenue of introduction adopted exclusively is that of intravenous injection. Rodet for immunizing purposes rejects the dead bacilli, and even living bacilli cultivated on a solid media. He uses cultures in bouillon, which cultures, almost entirely reduced to soluble principles, are sufficiently toxic to kill the guinea-pig on intravenous injection in less than twenty-four hours with a dose of about 2 c.c. for a subject of 400 grams. At first the horse receives in the veins doses increasing progressively. After a certain optimum, realized in four or five months with a relatively small quantity of immunizing substance, there is a disadvantage in prolonging the impregnation of the subjects by ever-increasing quantities, or even by sustained strong doses. If this is done there is apt to be a reduction in value of the serum. Rodet avoids this by the following technique: After each bleeding the treatment is resumed with a reduced dose; the injections following are in increasing doses, in such manner that the last of the series of four to six injections may be, at least, equal to that of the preceding series. For the experimental control of the serum he foregoes the classic test by injection of the bacillus of Eberth into the peritoneal cavity of the guinea-pig as having no significance for the therapeutic value of the serum. Rodet injects the cultures, in bouillon, complete and living into the veins of the guinea-pig; the animal dies in less than twenty-four hours by pure intoxication, without bacillar multiplication and with lesions which are the same, whether with the bacilli alone, the complete liquid cultures, or the filtered cultures. The serum injected preventively under the skin in the dose of 0.2 c.c. or 0.3 c.c. ought to protect against a dose notably superior to the minimal lethal dose injected into the veins. This test betrays an antitoxic quality in the large sense of the word, which, considered in several samples of serum, is by no means proportional to the agglutinative quality, nor even to the antiinfectious quality. As for application the influence of the serotherapy may be summarized in the following formula: When the serum is administered soon enough, in the absence of established complications, in sufficient doses and at suitable intervals, in the great majority of cases it prevents the progress of the intoxication, attenuates the toxic disturbances, already existing, initiates defervescence, and, finally, shortens the duration of the disease. In order to have its full effect the serum ought to be given befor the eleventh day of the febrile period. Later the useful effects are far from being always nil, but they are inconstant and generally less pronounced. The treatment ought to begin by a relatively strong dose 15 to 20 c.c. The dose may be repeated, but very often one may content himself with decreasing doses. As a rule, three injections suffice, sometimes two; a fourth may be necessary. The interval between the injection which seems the most suitable is forty-eight hours. The happy influence of the serum is evidenced definitely by an abbreviation of the disease, at least when the treatment is undertaken early enough. In order that the serum may have its complete effect it is necessary that the typhoid infection should be free from every secondary infection. The preexistence of advanced tuberculous lesions, a simultaneous or secondary infection streptococcus, staphylococcus, diphtheria bacillus, etc restricts its efficacy. The efficacy of the serum is emphasized by the specific character of its therapeutic action. It constitutes in a certain measure a touchstone of diagnosis. The specificity goes to the point of distinguishing between the typhoid fevers properly called Eberthian and the paratyphoid infections. In these the serum is of restricted or no efficacy.

Edinburgh Medical Journal.

February, 1919.

1. Fracture of the Cervix Femoris in Children. David M. Greig.
2. Notes on Radium Treatment. Dawson Turner.
3. Scopolamine-Morphine Narcosis or Twilight Sleep. Robert Wallace.
4. Carcinoma of the Liver Associated with Infection by *Clonorchis Sinensis*. H. L. Watson-Wemyss.
5. The Training of the Student. Dental Surgery for Medical Students. William Guy.
6. The Teaching of Dental Surgery to Medical Students. J. H. Gibbs.
7. The Teaching of Diseases of the Ear, Nose, and Throat in the Undergraduate Curriculum. A. Logan Turner.
8. The Instruction of the Undergraduate in Diseases of the Ear, Nose, and Throat. J. Malcolm Farquhar.

2. Notes on Radium Treatment.—Dawson Turner says stress on the fact that in recent years radium has been found consistently useful in the treatment of exophthalmic goiter. The benefit that patients with exophthalmic goiter derive from the expert application of radium is in their general condition and in their special symptoms. Thus they regain strength, lose the tired feeling, put on weight, and at the same time the tachycardia, tremor and breathlessness are diminished and may disappear altogether. The thyroid gland becomes harder and denser, but usually does not diminish in size, and the exophthalmos is but little affected. It is well to warn patients of this, lest they suffer disappointment when the neck swelling remains the same. Operative measures to reduce the size of the gland might now be considered, both because the vascularity is diminished and because the patient is better able to stand an operation. The

writer is in the habit of treating each lobe, and the isthmus of the thyroid, and the thymus. As the skin over the front of the throat appears to be very sensitive to radium rays, great care should be taken to avoid overexposing it. As compared with *x*-rays in the treatment of this condition, radium has the following advantages: 1. Absolutely constant emission of rays and therefore exact dosage possible. 2. Far greater penetration of its rays, so that the deeper parts of the gland are reached. 3. No noisy, exciting apparatus, so that the treatment can be applied at the bedside without in any way disturbing the patient. The words *cito, tuto, et jucunde* can fairly be applied to the radium treatment of exophthalmic goiter. Turner sums up the advantages of radium in the treatment of malignant disease as follows: That owing to their penetrative power they attack the deeper parts of the growth, the very roots of the disease, as well as the superficial. In proper doses they have a selective action upon the diseased tissues. Lastly they relieve pain instead of occasioning it. As to the variety of malignant disease most susceptible to radium it is admitted that sarcomas are more easily dispersed than carcinomas and of sarcomas, lymphosarcomas, in the writer's experience, are the most amenable. As for position of the growths in its bearing on prognosis, the author says that those on the surface of the body and those affecting the cervix uteri are the most favorably situated for removal by radium.

Interstate Medical Journal.

January, 1919.

1. Clinical Aspects of the Influenza Pneumonia Pandemic. S. Neuhof.
2. The Upper Air Passages as Carriers of Infection. D. Bryson Delavan
3. Résumé of Reconstructive Therapeutics. J. Madison Taylor.
4. Traumatic Rupture of the Urinary Bladder. Oliver J. Fay.
5. A Case of Chronic Fibroid Pneumonitis, Involving Pericardium and Great Vessels. John B. Hawes.
6. Diagnostic Demonstration of *Spirocheta Pallida*. Herman Goodman.
7. The Remote Results of Tonsillectomy in the Young Child. John Zahorsky.

7. The Remote Results of Tonsillectomy in the Young Child.—John Zahorsky says that while the immediate results of the removal of the tonsils and adenoid vegetations is often gratifying, it is not enough to judge by the immediate results. Not sufficient studies of the remote results of tonsillectomy have been made, and this problem must be solved by the pediatrist and not by the rhinologist. Zahorsky offers a summary of the clinical observation of 150 children, aged two to twelve years, who were seen in private practice. He tried to ascertain in the study of these cases what effect the removal of tonsils and adenoid vegetations had on the nutrition and health of the child six months to five years after the operation. The opinion arrived at was that so far as the nose, ears, larynx, bronchial tubes, lungs, asthma, rheumatism and endocarditis, chorea, diphtheria, and adenopathy were concerned tonsillectomy exerted little favorable effect and in some instances did more harm than good. With regard to malnutrition, it was found that after the removal of the tonsils a large number of cases of nervous anorexia, defective growth, and slow bodily development followed. As for conferring immunity to infection Zahorsky's observations shows that the child beginning school life without tonsils is in greater danger of acute diseases than one who still has tonsils. It is at this age that the tonsils are so frequently removed simply because they are large; the physician apparently forgets that this enlargement is a physiological and probably a compensatory process. The tonsils constitute the first line of defense in the infections of the mucous membrane of the nose and throat. Clinical experience supports the view of Sonneman that the infectious material in the nose or nasopharynx that penetrates the muous membrane is carried to the tonsils. Here it is silently destroyed if the proper ferments are present. If immunity does not exist the tonsil becomes inflamed and the offending microorganisms are quickly extended, with the leucocytes and lymphoid cells, into the follicles of the tonsils. At the same time toxins and, sometimes, living bacteria enter the circulation and stimulate the production of antibodies. It is a clinical fact that an acute tonsillitis prevents the spread of a respiratory infection. The tonsil, whatever be its other functions, may be regarded as a submucous lymphatic node, and it resembles in function Peyer's patches and the solitary follicles of the intestine which also have the function of extruding bacteria, as is observed in various forms of enteritis. Zahorsky makes a plea for a conservative attitude toward the question of tonsillectomy in the young child. The tonsils should not be removed for fancied or trivial causes in a child under seven years of age.

Southern Medical Journal.

February, 1919.

1. Differentiation of Organic and Functional Disorders of the Stomach. J. Heyward Gibbes.
2. Standardized Rest in the Treatment of Pulmonary Tuberculosis. Sam. E. Thompson.
3. The Problems of a Base Hospital Laboratory. Allen H. Bunce.
4. Who Pays? J. H. Florence.
5. Malaria Control Demonstration at Hamburg, Ark. H. A. Taylor.
6. The Roentgen Ray Treatment of Cutaneous Cancer. H. H. Hazen.
7. Large Angio-Lipo-Fibroma of the Thigh. Fred C. Watson.
8. Judgment Versus Operative Technique in Obstetrical Work. James R. Garber.
9. Some Notes from the Examination of Five Thousand Selective Service Registrants. Alexis McGlannan, W. W. Reguart, and E. H. Hutchins.
10. Mastoid Abscess Without Suppuration in Tympanic Cavity. Report of Two Cases. Clifton M. Miller.
11. Some Clinical Sundries. E. W. Carpenter.

2. Standardized Rest in the Treatment of Pulmonary Tuberculosis.—S. E. Thompson commences this paper by saying that its purpose is to present in a practical way the subject of prolonged rest in bed in the treatment of phthisis pulmonalis. He endeavors to prove the following: 1. That the word rest as applied to the treatment of tuberculosis is not standardized; that it is used to express just what one has in mind, and therefore does not mean the same thing to any two of us. 2. That complete rest in bed is just as fundamental in the treatment of the disease as it is in the treatment of typhoid fever or pneumonia. 3. That a long rest in bed is essential for healing the lungs. 4. That exercise has no place in the treatment of a tuberculous lesion, regardless of its location. Thompson points out that the views regarding rest are interpreted in different ways by the average patient and by most doctors. He thinks therefore that the word "rest" should be standardized so that no doubt exists in the patient's mind as to its meaning. He then controverts the advice given with regard to the treatment of tuberculosis in text books, including those of Austin Flint, Osler, and Thompson, that patients suffering from the disease should exercise in the open air. He is even opposed to regulated exercise and always explains to his patient exactly what he expects him to do. He does not dismiss with the advice to go to bed and rest. If symptoms are at all marked he puts him in bed, has a black cloth tied over his eyes during the day and adjures him to keep still. No reading, writing, or talking is permitted. Meals and bath are given in bed. Thompson explains to the patient why he requires this and just what it will do. As a rule the patient does not follow the course very long before the advice is found to be good and he can see the results for himself. It is argued that what is accomplished by immobilization in bed is to stop absorption. When absorption is stopped, septic symptoms disappear, the patient gets fat, and thinks he is recovering. The lesion, however, is unhealed and treatment by complete rest must be continued. When the scar tissue is formed and healing is well established the patient may get up. It is strongly urged that exercise should never be countenanced in the treatment of a tuberculous lesion, regardless of its location. The author does not wish to leave the impression that absolute rest in bed is the only essential thing in the treatment of tuberculosis. Proper food, a desirable climate, therapeutic agents when needed, are important factors; but rest in bed is fundamental in every case of active tuberculosis and should be so regarded by the medical profession.

Book Reviews.

ROENTGEN DIAGNOSIS OF DISEASES OF THE HEAD. By Dr. ARTHUR SCHÜLLER, Head of the Clinic for Nervous Diseases at the Franz-Joseph Ambulatorium, Vienna. Authorized Translation by FRED F. STOCKING, M.D., M.R.C. With a Foreword by ERNEST SACHS, M.D., Associate Professor of Surgery in Washington University. Approved for publication by the Surgeon General of the United States Army. Price $4. St. Louis: C. U. Mosby Company, 1918.

THIS is an excellent translation of a work by a German authority dealing with diagnosis of diseases and injuries of the head by Roentgen rays. The editor makes the suggestion, that wherever possible *x*-ray pictures of the skull should be made and studied stereoscopically. By studying them in this way shadows that present difficulties are readily interpreted. This book is the first comprehensive study of the roentgenology of the head published and should be of much service to specialists on cranial surgery and also to the general practitioner.

COMMOTIONS ET EMOTIONS DE GUERRE. Par A. LERI, Professeur agrégé à la Faculté de Paris. Collection Horizon. Prix, 5 francs. Paris: Masson et Cie, 1918.

THIS work is not intended alone for the neurologist and psychiatrist but makes an appeal to all practitioners alike. The subject matter appears to be comprehended under the rubric "wounded yet woundless." From the preface by Professor Marie it appears that the author devoted four years to the preparation of this book; and that it is based not only upon truth but on equity as well. The victims are characterized as "poor devils," a verdict seemingly endorsed by general experience. Throughout the work a clinical distinction is made between subjects who are, respectively, "commotioned," "contused" and "emotioned." Commotioned and contused subjects are much more easily comprehended than the so-called "emotioned" cases. The latter are complex in character and are divided into neuroses and neurasthenia. In addition there are affections secondary to both emotions and commotion. While emotional accidents pave the way for hysterical ailments, commotion, in so far as it determines organic lesions, causes symptoms which point to the encephalon, medulla, mesencephalon, and other nerve centers.

PROGRESSIVE MEDICINE—A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics, Materia Medica, and Diagnosis in the Jefferson Medical College, Philadelphia; assisted by LEIGHTON F. APPLEMAN, M.D., Instructor in Therapeutics, Jefferson Medical College, Philadelphia. Price $6.00 per annum. Philadelphia and New York: December 1, 1919.

THIS volume contains chapters on: Diseases of the digestive tract and allied organs, the liver, pancreas, and peritoneum, by M. E. Rehfuss; Diseases of the kidneys, by H. A. Christian; Genitourinary diseases, by C. W. Bonney; Surgery of the extremities, shock anesthesia, infections, fractures and dislocations, and tumors, by J. C. Bloodgood; and Practical therapeutic referendum, by H. R. M. Landis. Readers will find this a particularly interesting number; the chapter on Surgery contains a most valuable résumé of some of the aspects of war surgery; and apart from this, Dr. Bloodgood's contributions from year to year show a continuity and connection which add greatly to their value.

THE AUTOMATIC FUNCTIONS AND THE PERSONALITY. By Dr. EDWARD J. KEMPF, Washington, Clinical Psychiatrist, Saint Elizabeth's Hospital, Washington, D. C. (Nervous and Mental Disease Monograph Series 28.) Price $2.00 net. New York and Washington: Nervous and Mental Disease Publishing Co., 1918.

IN this representative work of the psychoanalytical school the author considers the human organism as composed of two systems: the autonomical, comprising the sympathetic nervous system—the circulatory, digestive, genitourinary, and glandular system—and the "proficient apparatus"—the central nervous system, the bones, and striped muscles. Part I shows how anatomical construction is regulated by the autonomical system. Part II deals with the physiology of the affections. The author's theory is, briefly, that when viscera are stimulated in some manner there ensues a "postural tension," and the corresponding segment of the autonomical system likewise assumes a "postural tension"; these tensions produce sensations of desire, unrest, or incompleteness which the "proficient apparatus" relieves by causing appropriate stimuli to be received. Repetitions of this process cause fairly well-defined modes of behavior, the summation of which is personality. The author draws largely on Cannon's studies of the physiological effects of pain, fear, etc. In Part III this doctrine is extended to cover the psychoanalytical conceptions of repression, introversion, sublimation, and so on. Part IV is a recapitulation. The book is bound in heavy paper, like all of this series.

PATHOLOGICAL TECHNIQUE—A Practical Manual for Workers in Pathological Histology and Bacteriology, including directions for the performance of autopsies and for clinical diagnosis by laboratory methods. By FRANK BURR MALLORY, A.M., M.D., Associate Professor of Pathology, Harvard Medical School; Pathologist to the Boston City Hospital; and JAMES HOMER WRIGHT, A.M., M.D., S.D., Pathologist to the Massachusetts General Hospital; Assistant Professor of Pathology, Harvard Medical School. Seventh Edition. Revised and Enlarged. With 181 illustrations. Price $3.75. Philadelphia and London: W. W. Saunders Company, 1918.

THIS is the seventh edition of Sears and Mallory's Pathological Technique, a work so well and favorably known that it is superfluous to say much about it. The present edition has been rearranged and revised and certain additions have been made. For instance, the approved method of classifying pneumococci with reference to serum treatment has been included. The book is useful and practical, and easily ranks as one of the best of its kind.

STUDIES IN ELECTRO-PATHOLOGY. By A. WHITE ROBERTSON, L.R.C.P. and S.E. Temp. Major R.A.M.C. Illustrated. Price $5. New York: E. P. Dutton & Co.: London: George Routledge & Sons, 1918.

PHYSICAL science is still in its infancy, but we are daily learning more concerning the elementary facts which have determined the life, reproduction, and decay of animal and all other matter which exists on this globe. The object of the physician is to ward off death from members of the human species, and according to the writer of this book physical science harnessed to the service of man is best adapted to achieve this end. The book is an account, of how electricity or rather the electric potentialities of the body, can be employed in surgery and medicine. The work is interesting and suggestive.

TEXT-BOOK OF CHEMISTRY INORGANIC AND ORGANIC, WITH TOXICOLOGY. For Students of Medicine, Pharmacy, Dentistry, and Biology. By R. A. WITTHAUS, A.M., M.D., Late Professor of Chemistry, Physics and Toxicology in Cornell University. Seventh, Revised Edition. By R. J. E. Scott, M.A., B.C.L., M.D., Fellow of the New York Academy of Medicine; Editor of "Witthaus' Essentials of Chemistry and Toxicology," etc., etc. Price $4. New York: William Wood and Company, 1919.

THIS work on chemistry possesses such great sterling merit and is so firmly established in favor as a students' text-book that praise is superfluous. However, this the seventh edition has undergone a considerable amount of revision rendered necessary by changes in the medical curriculum before it was brought into its present shape. For this revision Dr. R. J. E. Scott, the editor, is responsible, and he has succeeded admirably in keeping the size of the book within reasonable bounds and at the same time including all the information that is necessary to the education of the student in this particular branch of science. A good deal of the old matter has been excluded for one sufficient reason or another, and the work in its present form contains little or nothing that is not absolutely essential in a text-book of this description.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held February 20, 1919.

THE PRESIDENT, DR. GEORGE DAVID STEWART, IN THE CHAIR.

Report on Prevention of Influenza of the Public Health Committee of the New York Academy of Medicine.—Dr. CHARLES L. DANA submitted this report. (See page 516.

The Dangers of Secondary Infection in the Ward Treatment of Influenza and Pneumonia.—Captain FRANCIS G. BLAKE, M. C., U. S. Army, presented this communication, in which he stated that one of the most pressing problems that presented itself in the care of influenza and pneumonia patients in our army cantonments during the recent epidemic was the danger of secondary contact infection because of the overcrowding of the base hospitals, nearly all of which had been taxed beyond the limits of their capacity. In their experience at Camp Pike it was found that a very large percentage of the pneumonias following influenza were caused by a secondary infection with pneumococcus, some few being caused by hemolytic streptococcus. The types of pneumococci encountered were almost entirely those that were normally found in the mouths of healthy men, approximately 85 per cent. being Types IV (II atypical), and III. It had been generally accepted that infection with these types of pneumococci was usually autogenous. Observations made during the course of their work had suggested that this was probably not so in most instances and that the patient was not so much in danger from his own pneumococci as he was from that carried by his neighbor, in other words the danger was from contact infection. The same consideration held true with respect to hemolytic streptococcus infection. Secondary contact infection in cases of already existing pneumonia were also found to occur frequently. That contact infection played a very important and serious rôle was brought out by bacteriological studies made during life and at autopsy upon cases in the wards of the hospital. Charts showed the comparative death rate from pneumonia, on one hand, in wards which had long been organized for the care of patients with pneumonia and, on the other hand, in wards which were opened for patients with pneumonia and immediately overfilled at a time when the hospital was overwhelmed by the epidemic of influenza. An inspection of the tables showed that the death rate from pneumonia gradually increased as the ward became more and more crowded. This might be attributed in part to the increased severity of the pneumonia during the early days of the influenza epidemic. A detailed study of various wards was presented which showed that streptococcus infection might spread by contagion throughout an entire ward. Other observations had demonstrated that pneumococcus infection might be transferred in the same way. Three instances of secondary contact infection with pneumococci were cited which occurred in wards where every precaution was supposedly taken against the transfer of infection from one patient to another. Numerous other instances of secondary pneumococcus infection were met, nearly all possible combinations of different types of pneumococci being found. This was a condition almost never encountered in pneumonia patients treated under the conditions of civilian practice in normal times. While the data presented dealt with contact infection in cases of pneumonia, similar, though less extensive studies had shown that the same general considerations held with respect to secondary contact infection when cases of influenza were treated in crowded hospital wards, the incidence of pneumonia being proportional to the opportunity presented for the dissemination of pneumococci and hemolytic streptococci. The methods in vogue for preventing the spread of contagion in wards devoted to the care of influenza and pneumonia patients consisted in the separation of patients by means of sheets hung between the beds, the wearing of masks and gowns by the ward personnel, and to some extent by convalescent patients who were up and about the ward, and in some hospitals the separation of streptococcus carriers from non-carriers as determined by throat culture at the time of admission. That these methods might be of some value in preventing the spread of infection could not be denied, and it was probable that they would be fairly effective under ordinary conditions, when conscientiously carried out. That they inevitably broke down in the presence of an overwhelming epidemic was only too evident. Sheet cubicles were not proof against a patient's curiosity as to the identity and condition of the man in the adjoining bed; masks could not be worn by patients seriously ill with pneumonia, the very time when they were most dangerous and in greatest danger; the separation of streptococcus carriers from non-carriers could not keep pace with the ever increasing influx of patients nor with the rapidity of the spread of the hemolytic streptococcus, because of the time required to make the bacteriological diagnosis. Not only did these methods break down in the face of an epidemic, but they often provided a false sense of security that did not really exist. In searching for the solution of the problem it was essential to have clearly in mind that every patient with influenza must be considered a potential source of pneumococcus or streptococcus infection for his neighbor; that every person engaged in the care of patients with respiratory diseases must also be regarded as a potential source of danger; that pneumonia could no longer be regarded as one disease but must be looked upon as a group of different diseases, with similar physical signs and symptoms, it was true, but caused by a great variety of bacteria, infection with any one of which not only provided no protection against infection with another, but might even render the individual more susceptible to secondary infection. Since secondary infection in respiratory disease was undoubtedly spread in large part by droplet and contact infection, the prevention of secondary infection must depend upon the elimination of these methods of transmission. Two solutions presented themselves, either segregation of patients according to type of bacterial infection, or effective individual isolation of all patients. Segregation according to type of infection in the presence of an overwhelming epidemic was obviously impossible since one could not make an immediate diagnosis of the type of infection by inspection of the patient, and the time required to make a bacteriological diagnosis defeated this purpose. In view of these considerations it was believed that the clear and most fundamental indication for the management of epidemic respiratory diseases, not only in the army but in the civilian population, was to scatter patients as widely as possible, instead of following the time honored custom of concentrating them. In brief, ward treatment should be abandoned and effective individual isolation of every case adopted.

The Treatment of Influenza and Bronchopneumonia by the Use of Human Serum.—Lieutenant WILLIAM R. REDDEN, M. C., U. S. N., of the United States Naval Hospital, Chelsea, Mass., read this paper, in which he stated that in a preliminary report Dr. Maguire and he presented data of 37 cases of bronchopneumonia, following the epidemic of so-called influenza, treated with serum obtained from patients recovered from a similar pneumonia. The present report gave as complete data as were obtainable on 151 cases at the Naval Hospital at Chelsea. This represented all cases of the above type admitted to the hospital from September 27 to January 1 and included the original 37 cases reported. In their preliminary report they had noticed that the severity of the disease was on the wane and they naturally wanted a field to carry on the work in which the severity of the epidemic was unquestionably great. After several futile attempts there came to them a group of men from the U. S. S. *Yacoma*, in which the incidence of influenza, the complicating pneumonia, and the severity of the infection appeared quite comparable with the situation at the beginning of the epidemic. Hence this group were considered in the total and also separately. In addition to the *Yacoma* group 80 cases represented the latter part of the first epidemic, whereas the remainder represented those in the December recrudescence of the epidemic where the severity of the disease was undoubtedly great, though somewhat modified. Most of the cases received serum treatment within the first four days of the pneumonia,

and the majority received it within the first forty-eight hours. Three injections of the serum were sufficient in 132 cases, two-thirds of these required only two injections, and one-third but one. The majority requiring more than one injection had advanced at least three days in their pneumonias. The average amount at each injection was 120 c.c. As to the immediate results of the injections, in about 5 per cent. of the cases a chill occurred coming on from 10 to 30 minutes after the administration of the serum. This was associated with a rise in temperature, pulse, and respiration, but never amounted to so much as reactions from horse serum, there being no latent reactions such as urticaria. In from two to twenty-four hours the patient showed signs of decided improvement. The toxic symptoms such as nausea, vomiting, vasomotor disturbances, and irritative cough, if present, disappeared along with the headache, etc. The anxious expression of a sick patient was transformed to that of a convalescent. The temperature, pulse, and respiration fell, the temperature and pulse reading normal before the respirations fell. In this series of 151 cases 83 had a normal temperature within 24 hours and 135 within three days; 51.7 per cent. in three days or less irrespective of the amount of lung involvement; 85.6 per cent. were normal in five days or less. This was a decided shortening of the course of the pneumonic disease. The length of time the lung disease persisted after the temperature reached normal varied according to the amount of lung involvement and the time of the pneumonic complication when the serum was given. Those cases which received the serum early in the disease before extensive consolidation occurred cleared more readily, while in those treated later in the course of the disease the signs persisted, a week, two weeks, and sometimes a month. This persistence of the signs of consolidation which were frequently more the signs of fluid, was one of the striking features of the disease. A study of the blood count showed that the majority of these bronchopneumonias had either a normal count or a leucopenia. It was noteworthy that all cases that did not respond readily to serum treatment were included in the group having high white counts, although many with high white counts did respond readily. The above group also included all who showed the hemolytic streptococcus complication. Complications in this series had been infrequent. Lieutenant Redden insisted on the prime importance of proper diagnosis in the matter of serum therapy, and stated that the clinical onset of lobar pneumonia was usually quite different from the influenzal in onset, being characterized by a high white count. They had typed all the sputa from the pneumonias with a high white count and suspicious history and they felt that few if any lobar pneumonias had remained undiagnosed, but the differentiation between the hemolytic streptococcus and the influenzal pneumonias was difficult, though not impossible. Sputum from low down thoroughly washed usually gave a pure culture or a predominating culture of hemolytic streptococcus if the pneumonia was of that type. Then a dominant sore throat was also suggestive of this type of pneumonia. Moreover, a chest tap in nine cases out of ten would yield fluid, and in the tenth case one would get blood showing pure cultures of the hemolytic streptococcus, a picture quite different from the influenza bronchopneumonia. It had been their desire to run parallel control groups without the serum treatment, with treatment with normal human serum, and with treatment by the use of serum from those having influenza without lung complications. For obvious reasons they had been unable to let patients with the pneumonia complications go on without serum treatment. However, a few cases were treated as controls or partial controls, and the results in such cases seemed to be in harmony with those obtained in the group receiving the serum treatment and seemed to confirm the conclusions as to the value of the convalescent serum treatment. Careful blood examinations were made in 130 cases and from the data obtained it was evident that that a low white blood count was characteristic of the usual bronchopneumonia following influenza. Hence it was of prime importance to get the blood count before instituting serum therapy. The extent and distribution of lung signs could not be used to distinguish broncho- from lobar pneumonia, for it frequently happened that the broncho gave signs of lobar. A low respiration and low pulse rate compared to the lung involvement and high temperature aided in making a diagnosis of the former. At the present time the only method of testing the potency of the convalescent serum was by its effect on the patients. From their observations it might be safe to say that the serum had some antitoxin action. Beyond this they believed that discussion was futile at the present time. The mortality rate of this series of 151 cases of influenza pneumonia was 4 per cent. Three of these deaths were due to streptococcus pneumonia after the patients were recovering from the influenza pneumonia. This death rate was apparently directly due to the proper use of the serum. Their records had been examined by the State Commissioner, Dr. Frederick Lord, who had recommended the establishment of hospital centers to carry out this treatment.

Dr. Rufus Cole said that the papers of the evening had touched on the whole field of acute respiratory disease, including influenza. This made the discussion of the various problems concerning respiratory infections very difficult, since knowledge concerning influenza was so fragmentary and opinions held by various observers were so divergent. If one read the older literature concerning influenza, he found that the discussion which accompanied each epidemic was almost identical with that which one heard today. There was one striking difference, however. Today there was little opposition to the view that it was an infectious disease. Moreover, most persons now agreed that it was a communicable disease, transmitted largely by personal contact, even in spite of the failure of the experiments which had been made to transmit it artificially from person to person. It seemed that, having accepted these views, the next step would follow as a matter of course; that was that an attempt should be made to isolate the patients sick of the disease, since from what we knew of other infections it seemed likely that the infectious agent existed in its most virulent and concentrated form in the persons sick of the disease. These principles would seem to apply not only to influenza, but also to all acute infections of the respiratory tract. The epidemics of influenza occurring every thirty years or so were not isolated phenomena. Last winter there occurred a considerable epidemic of respiratory infection in this city and this country due apparently to virulent hemolytic streptococci. Lesser epidemics of pneumonia we had every winter. If these infections of the respiratory tract were spread by personal contact, the first step in prevention would seem to consist in isolating those sick of the disease. Isolation of carriers or the prevention of carriers from spreading the disease was another matter, obviously more difficult. Because this could not be done, however, was no reason why an effort should not be made to carry out the other more simple procedure. Patients having smallpox, scarlet fever, or pneumonic plague were isolated as a matter of course, but persons suffering from acute respiratory infections were allowed to spread the disease by sneezing and coughing, even though this latter kind of infection might be more serious than the former, as the recent epidemic of influenza shows. In order that such measures of prevention as the speaker had mentioned might be undertaken, however, it was necessary that we have definite and convincing proof of the contagious nature of these respiratory infections, and Dr. Blake's work was of very great importance since it brought additional and convincing evidence. In regard to the treatment of influenzal pneumonia by the serum of convalescents, Dr. Redden had started with certain assumptions in regard to the nature of the infection. If the results which he had presented tonight concerning the efficacy of serum were confirmed, his assumption would probably be proven. At the present time, however, there was a great difference of opinion in regard to the nature of the pneumonia occurring with influenza. He thought most observers believed that the pneumonia was due to secondary infection, and that by the time this stage was reached an immune serum which would neutralize the effects of the primary disease would have little effect. It was to be hoped that Dr. Redden will continue his observations and that others who had facilities for carrying out this method with proper attention to detail and with opportunities for accurately recording observations might also inves-

tigate this method of treatment. He supposed Dr. Redden would be the last one to assert that the value of the method of treatment had been finally proven, or that he would desire that the method should be carried out at the present time indiscriminately, in a routine and uncontrolled manner.

Dr. Morris Manges, referring to the treatment of influenza with convalescent serum, said he could only envy Dr. Redden the privilege of working in a military hospital where he was not hampered by the disadvantages that were met with in attempting to carry out the treatment with convalescent serum in civil hospitals and private practice. Those who had tried it had met with the difficulty of getting blood. He had treated hundreds of cases of influenza and he could recall only one who was willing to give his blood; and others who had wished to carry out this treatment had had similar difficulties. At a military hospital blood could be obtained easily and was of all varieties, from very poor to very rich in antibodies, so that a very good pooled blood was easily available. Therefore those present could not corroborate what had been said by their personal experience. He believed, however, that this work represented a great advance in the right direction, because Dr. Redden was not treating symptoms but was treating the disease itself. It was undoubtedly the treatment of the future. It was, however, a pity that some method could not be devised to get the serum from a lower animal; but as it has been impossible to experimentally infect human beings, and the specific cause being unknown, it would be at present impossible to obtain serum from lower animals. When one listened to these reports from the military hospitals the accounts of the overcrowding made one shudder at the horrible picture. He mentioned this not in the way of criticism, but in a tone of regret that such conditions could not have been avoided. It was a pity that they could not have more hospitals with porches instead of wards, and that brought up a point in Dana's report, namely, that he felt it was unfair to say that those treated in the hospitals of the city during the epidemic of influenza were not as well off as those treated in their own homes. He felt that, with the scarcity of nurses and of domestic help and the poor quality of the nurses, that the patients received much better care in the hospitals and that the hospitals were not unduly overcrowded. Dr. Redden had attempted to differentiate the *Streptococcus viridans* infection from the other kinds of infections by stating that it was usually accompanied by a sore throat, but in cases of influenza, sore throat was present long before the viridans made its presence known. In the pneumonias seen during the epidemic the number of empyemas had been singularly small, and the number of cases complicated by pleurisy with effusion had likewise been small. As to the question of the classification of lobar and lobular pneumonias and their differentiation, this was a question of physical signs and not a real pathological difference. Finally, he would like to say that the continuation of the signs of consolidation was not due to fluid, for he had tapped and fluoroscoped many of these patients and usually had found no fluid; it was due most frequently to interstitial changes in the lungs, a point to which Dr. Delafield had called attention many years ago, and which Dr. Symmers had recently emphasized.

Lieut. E. W. Gould, M. C., U. S. N. R. F., of the Naval Hospital, Brooklyn, said that since last September they had treated, under the jurisdiction of the United States Naval Hospital at New York, 842 cases of pneumonia, 320 having come under their immediate supervision at the Naval Hospital. The others were sent to civilian hospitals that had so kindly assisted them in caring for the great number of sick and wounded brought to this port. The mortality rate among the 320 cases treated at the Naval Hospital was 26.16, but in connection with this mortality rate the fact must be taken into consideration that on account of their limited accommodations all cases diagnosed as influenza were sent to civilian hospitals, although a large number of these cases undoubtedly had pneumonia at the time or developed it later. Statistics in regard to pneumonia were very misleading. Last spring during the months of February, March, and April their mortality was a little over 21 per cent. In May and June they ran a series of eighty-five cases without a death, although practically the same lines of treatment were pursued. At the beginning of the influenza epidemic in September, when they received pneumonia cases only, their mortality rate was 50 per cent.; at the end of the epidemic it had dropped to about 10 per cent. This was about the time when they began the use of the human serum. Recently they had had a much higher mortality rate, due, it was believed, to a different infecting organism. Thus it might be seen that from month to month the kind and virulence of the infecting organism, and perhaps the immunity of the individual, varied greatly. The results of their treatment in the early cases of influenza-pneumonia in September were so discouraging that they most gladly welcomed Dr. Redden's method which was proposed at that time. They ran a series of about thirty cases of apparent influenza type which were treated by the use of human serum from convalescent cases, with a loss of only two patients. While the low mortality was perhaps not so striking owing to the fact that the death rate had already begun to drop, they felt that the immediate and remarkable response in many of these cases could be attributed only to some specific antibody that was injected. They felt warranted at that time in concluding that they could materially, if not completely, modify the course of the disease in most of these cases by the use of the human serum. During the recent severe epidemic they had experienced the same difficulties that had been met with elsewhere. Many of their cases had presented clinical pictures simulating influenza-pneumonia very closely, showing the characteristic early depression, cyanosis, and leucopenia, but giving no response to repeated injections of human serum. Many of these cases had been later shown to be cases of infection with the *Streptococcus hemolyticus*, and on account of the severe general toxemia, the frequent development of empyema and pleurisy, and the unusually severe pulmonary hemorrhages, they believed that the *Streptococcus hemolyticus* played a more important rôle than they were always able to demonstrate. They did not feel justified in puncturing the lung for diagnostic purposes only. Inasmuch as this differential diagnosis could not be made in the early stages of the disease, and they felt that the treatment should be begun at the earliest possible moment, the mortality rate of their cases treated recently with the human serum had been very unsatisfactory. They had included in this list all those who had received even a single dose of the serum and their mortality rate among all those so treated during the past two months had been 26 per cent. During the last epidemic they had at first tried to select their cases and to use human serum on those cases only that were very probably influenza, using Type 1 and sometimes polyvalent serum on those that could be typed. They soon found, however, that their bacteriological results were not very reliable and that even those cases that had a leucocytosis and a sputum that would type showed upon postmortem examination a lobular consolidation with that peculiar, serous bloody exudate, so frequently spoken of as hemorrhagic pneumonitis. It seemed likely that the influenza bacillus as well as the streptococcus organism was a frequent offending agent with the pneumococcus. During this whole season they had not more than two or three cases examined post-mortem that showed the characteristic red or gray hepatization of the ordinary pneumococcus infection. They had, therefore, been using recently as donors many of these cases of pneumonia which had previously had a leucocytosis and even some of those whose sputum had been typed, and had noticed that excellent results were apparently obtained with the blood of some donors who had shown a moderate leucocytosis during their previous attack. It was quite possible that they might thus be using a serum from a case of mixed infection, including the influenza bacillus and the *Streptococcus hemolyticus*, and that the serum contained valuable immune bodies for homologous strains, but would not protect those infected with a strain serologically different. In using the human serum they had not employed the pooling method, but had endeavored to match the donors and recipients as far as possible. They had no reliable way of measuring the potency of any serum, but had frequently been struck with the remarkable results obtained from the use of cer-

tain donors. They had not been able to confirm the contention of Dr. Redden that the amount of lung involvement in the donor was necessarily a reliable criterion in determining the value of his serum, although they believed in general that it was of some importance. As a result of their work they had been impressed with the belief that the human serum from convalescent pneumonias undoubtedly contained valuable antibodies and that its use in cases infected with homologous strains would give satisfactory results, but with their present limited ability to definitely isolate the infecting organism of the donor and the recipient the method could not yet be placed upon a practical basis where definite results could be reasonably expected. Furthermore, this method could not be used except in a large, well equipped hospital, where access could be had to many willing donors. They had had no bad results from the withdrawal of 400 c.c. to 500 c.c. of blood from the donors at each of two sittings, at intervals of two or three days. They, of course, did not use the donors until their temperature had been normal for two or three days. In no case had they seen any untoward effect from the injection of the serum.

Dr. Dudley Roberts stated that during the tragic days of the first and second weeks of October everyone had been deeply interested in Dr. Redden's first report of the treatment of influenza pneumonias with transfusion. At U. S. Army General Hospital No. 1 transfusion was tried only a few times with unsatisfactory results, but it was only fair to say that it was not used as an early routine measure, but reserved for the obviously severe cases. He questioned whether the results which Dr. Redden had secured were in fact due to the conferring of a passive immunity from the blood of recovered cases rather than the result of the phenomena of "non-specific protein reaction." It seemed hardly possible that through an attack of the disease a transferable immunity could be established unless enormous amounts of blood were used. Dr. Roberts referred to the fact that at the October meeting of the Academy he had recounted their experience at Base Hospital No. 1 with the intravenous injection of mixed influenza vaccines. At that time the series of cases so treated was not large and the results were more problematical than they became later. They ultimately satisfied themselves that the good results came in those cases in which there was a definite reaction. Two consecutive series of cases were studied, those in the first series, treated by an expectant plan, 86 in number, showed a mortality of 31.3 per cent., while the patients in the second series, 200 in number, up to the middle of November, who were treated by intravenous vaccine injections showed a mortality of only 9.6 per cent.

Lieutenant Redden, in closing the discussion, said that a man in Boston had told him that he could not use the serum treatment in private practice and his reply to that statement would be made when he reported, as he hoped to do in about a month, on seventy-six cases in private practice treated with convalescent serum. In treating these cases he had done all the work himself, withdrawing the blood, preparing the serum, and making the injections. In doing the work he had used only the simplest apparatus and not the complicated apparatus shown this evening. He, therefore, hoped to show that it was entirely practicable to employ this method in private practice. The reaction was not a non-specific protein reaction in the sense just mentioned. He did not look for a chill and in over 600 injections had only about four chills. The result of the injection was not a rise in temperature, but a drop. In the use of non-specific protein there was usually a fall of temperature after a rise, then a secondary rise. As to the etiological agent responsible for the disease, he did not know what it was, but he felt that since they had a group of cases with similar signs and symptoms and a practically similar bacteriology, and since the changes shown at autopsy were the same, and the changes produced by giving the serum were the same, thought that he was fully justified in assuming that they were dealing in all these cases with a similar disease. His positiveness was only apparent, he said, being due solely to the attempt to present as much proof as possible in the short time at his disposal.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, Wednesday, February 5, 1919.

The President, Colonel William J. Taylor, in the Chair.

Concerning Concussion and Contusion Injuries of the Eye in Warfare.—Lieutenant Colonel George E. de Schweinitz in this communication dealt mainly with some of the results of ocular concussion and contusion in warfare, and made mention of some of the pathogenetic problems which they presented, of certain of the differences which were evident as compared with the results of such injuries in civilian life, and of one or two new clinical pictures. A large literature was said to have accumulated on the subject, and at least two important atlases had been produced, one by Lagrange and one by von Szily. Colonel W. T. Lister of the Royal Army Medical Corps had made notable contributions. In general terms Colonel de Schweinitz said that the fundus lesions under discussion were caused *directly* by a blow or sudden forceful pressure on the eyeball, behind, from the side, or tangentially; or *indirectly*, by the transmission of concussion or shock (contrecoup). In the first instance the lesions were classified as lesions by contact; in the second instance, as lesions by concussion. The contact lesions were said to be caused by a missile which grazed the globe but did not rupture it, or by a fragment or portion of a fractured orbital wall or floor or roof thrust harshly against the eyeball. The concussion lesions were caused by (*a*) concussion at a distance; (*b*) transmission of concussion or shock through the bony facial structures; (*c*) slight blows on the anterior part of the eye, the concussion being transmitted through the transparent media to the posterior pole (Lagrange). The lesions might be summarized as (1) lesions by concussion; (2) lesions by impact; (3) combined lesions, *i.e.* by both concussion and impact. Should the lesions of the inner membranes result from a concussion at a distance, their development was attributed to the commotion of the air-column shaking the ocular wall in the same manner as it shakes the door of a room. Should the concussion waves reach the eye in a line of transmission through the bony facial structure, the effect was likened to the lifting up and shaking of a ship by a ground swell, and the entire adipose envelope was concussioned, resulting in ruptures of the inner ocular coats (Lagrange). Of external manifestations there might be none at all; therefore routine ophthalmoscopic examination of the eyes of wounded soldiers should be made. The statement that lowered eyeball tension is an important sign of perforating scleral wounds must not, the author said, be taken unreservedly, in view of the many observations in this war. Notable were the cases of injury of the optic nerve in the canal by a missile passing through the orbit posteriorly, which sometimes cut across the nerve, or the nerve was injured by a radiating fracture of the orbit. Mostly the result was an irremediable atrophy of the nerve and blindness. Avulsion of the optic nerve, when an eye was jerked from its socket, was not infrequent. Contusion and concussion injuries of the eye in this war which had followed oblique wounds of the facial bony structures had represented about 6 to 8 per cent. of the whole number. There seemed very little doubt that lesions of the inner eye by concussion from a distance, by concussion transmitted through the bony facial structures and following blows on the point of the eye, were located by preference in the macula and paramacular area; that impact lesions were equatorial and always adjacent to the site of contact; that a contact lesion might spread toward the center; that posterior pole and equatorial contact lesions might approach and join each other; and that missiles traversing the structures behind the bulbus and radiating fractures of the orbital vault were responsible for most of the direct optic nerve injuries. Whether it was safe to say that impact lesions were always, or almost always, retinochoroidal and concussion lesions choroidal, as Lagrange contended, it would seem was not definitely settled. In the hope of stimulating the absorption of extravasated blood and exudation, the usual alterative, diaphoretic and lymphagogue remedies might be tried, as might electricity, especially for those eyes with much vitreous

change. Thyroid extract was also employed. Colonel de Schweinitz was frankly skeptical whether remedial agents had much influence, and more than skeptical as to the value of subconjunctival injections. In a certain number of apparently severely concussioned eyes, notable improvement in vision had occurred after long periods of time. Transitory astigmatism after direct concussion had often been noted. (The paper was illustrated and the various types of concussion and impact injuries portrayed by means of a series of diagrams taken from Lagrange's and von Szily's Atlases, and some water colors by the late Miss Margaretta Washington of concussion injuries in civil practice. Drawings which are to be made of the fundus lesions studied in the various American "eye centers" were not at the time available.)

Captain GEORGE H. CROSS said that the markedly interesting picture presented in the ophthalmological service in Hospital No. 11 at Cape May was the enormity of the hemorrhages or involvement of the fundus which masked temporarily the true condition. A long time after the injury there would be the appearance of a rupture, but it was difficult to tell whether there was atrophy or rupture of the structures beneath. They had three cases of so-called "holes" in the macula, all due to injury of the skull and not directly to the eye. Another type was observed in the case of a soldier with a piece of shrapnel about a centimeter square in the median line of the sphenoid, which penetrated straight in without injuring either eye directly, although the visual fields were most unusually contracted. Externally the eyes were perfectly normal. In other cases the missile had struck the antrum, injuring the orbital rim and floor. While the eyeball showed no external evidence of injury, rare fundus conditions were found internally. In some cases the orbital rim and parts of the bony wall had been torn away, but without injury to the eyeball itself, except displacing it from its normal position. Examination showed that there might be only light perception, with this peculiar condition of the fundus; in others a surprisingly large percentage of vision was retained. In one soldier the foreign body, while not injuring the globe directly, struck the rim of the orbit, traveling along the nasal side, finally lodging in the orbital fat. The patient stated that when struck he had become temporarily blind in both eyes; that in three or four days he began to recover vision in the right eye; when he arrived at Cape May the picture was that of a fine granular pigment in a triangular area below the disc, with no other evidence of injury. There was a perceptible diminution of vision in an area corresponding to the pigmented area noted in the fundus, but no scotoma was found, and no other pathological condition.

Reeducation of the Blind Soldiers.—Lieutenant Colonel JAMES BORDLEY, Director, Red Cross Institute for the Blind, Baltimore, Md., stated that in an investigation of the wage-earning pursuits of the civilian blind it was shown that the vast majority of the 85,000 blind in this country were dependent, in part or in whole, upon their friends or the State; that in 100 cities 43 per cent of the professional beggars were blind people; that the average wage of conscientious, willing, working blind men was about $4 per week and that of the same type of blind women about half as much. Blind people, he claimed, had a very definite economic value when properly trained. More money, he said, was wasted each year in foolish charity than would be required to train and place our whole blind population. Few people knew that there was not a single school in the United States for the vocational training of the adult blind; that there never had been devised a scientific scheme for their education and training, and that not a single normal school trains teachers for the blind. The medical profession was not altogether blameless for the mental deterioration of many blind people; through mistaken sympathy the blind were kept in ignorance of their real condition. The attitude of the family was often a most serious drawback to their occupational development. The attitude of the public, he felt, was responsible for much of the trouble of blind people, and it was primarily to overcome this attitude that St. Dunstan's in England and Evergreen in this country were opened. They were not schools in the narrow sense, but rather universities, where the blind were taught hope and courage, trades and professions, ambition and success. The men there were not "poor dear blind boys," but strong, resolute, normal men expecting to win. The courses of instruction at Evergreen were divided into recreational, essential handwork, and vocational. The blind man was said to have more difficulty learning to play than to work, and for this purpose music, dancing, bowling, swimming, gymnasium exercises were available as indoor activities, and field events as outdoor sports. Included in the essential handwork was typewriting. Another essential study was the raised dot type of the blind—Braille. The usual schemes for developing the sense of touch were taught. As occupations of profit there were taught bookbinding, telephone operating, massage, and other industrial and commercial subjects. Included in the commercial course was the application of an experimental store, the advance agent of a chain of stores to be operated by and in the interest of blinded military men. The experimental store in size, color, shape, and fixtures was the model that had been adopted for all the stores, and from this experimental store at Evergreen the men would be transferred to experimental stores in the business section of Baltimore. These stores were to be called "The Victory Stores," meaning the defeat of gloom, despair, and affliction by the blind man himself. The plan for teaching industrial work for the blind had been evolved by having an industrial engineer make a survey of industry and by a process of elimination it was readily discovered what jobs the blind could best fill.

Research Work on the Problems of Aviation.—Major WALTER B. LANCASTER of Boston said that for the study of the problems of flight the visual function might be divided into the purely sensory or percipient, the adjusting mechanism, and the psychic side of vision. Sensory functions withstood the strain of asphyxiation and fatigue without breakdown. Under this head were the retinal functions of light sense, color sense, form sense. The adjusting mechanisms were three: Fixation, focusing, adaptation to light. These were rather complex functions, and likely to break down under strain; whether they would or not in a given case depended upon whether any defect was present, and on how well the defect was compensated, some defects being better compensated than others. To insure the best compensation the mental and physical conditions must be maintained at their best, hence the importance of the "care of the flier." The psychic side of vision included stereoscopic vision and various matters of judgment and discrimination based on visual perception. They were not much affected by asphyxiation and fatigue. Investigations were being carried on regarding stereoscopic vision, and other methods of estimating distances at long range, as to light, sense, and adaptation, as to accommodation speed, and as to the relative value of different ways of measuring heterophoria. The motion pictures from the Mineola Laboratory which were shown illustrated the problem of the blind angle and the way things look to the flier.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, Wednesday, February 12, 1919.

THE PRESIDENT, DR. B. FRANKLIN STAHL, IN THE CHAIR.

The Work of the Health Insurance Committee of Pennsylvania.—WILLIAM DRAPER LEWIS, Esq., Dean of the Law School, University of Pennsylvania, in describing the work of the Health Insurance Committee of Pennsylvania appointed two years ago said it had made a survey of typical but different districts of this city, of country districts, and of other cities of the State, gathering certain facts regarding the quantity and the economic results of sickness among wage earners. Having this knowledge it had sought to ascertain the various plans in operation abroad or which had been suggested at home and find a solution of the problem encountered. The two main results of the investigations were that the actual amount of sickness in the community among wage earners and the days lost, the estimates running from 20 to over 50 per cent., were very much increased by the fact that the wage earner could not afford to lay off when he was sick. The his-

tory of one case after another was that a man who was sick kept on his feet with the result that the sickness which might have been of only short duration became a long and serious one. From the survey made in Kensington it had been found that while many workmen were not sick, the average number of days lost by the men was 36 days in the year. The charitable organizations helping the commission showed sickness to be the greatest single cause of poverty and destitution, the estimate being between 40 and 60 per cent. This condition obtained in the family of the man who was steadily employed but who could not afford to be sick. The problem presented was typical of the case of "John Callahan." This John Callahan was employed by a large corporation, had married young and had several children. He was a sober, industrious man and received good wages from the standpoint of similar work, sufficient to provide his family with nourishing food and to enable him to save a little money. John Callahan, however, could not afford to get sick, and when he did get sick all his savings disappeared. The doctor who had been attending him, who had been paid very little or not at all, continued to come; the grocer allowed him to run up bills, and the doctor and the grocer carried the load. Then Mrs. Callahan got sick and after this the children, from being underfed; the family ran down hill until Mrs. Callahan took the young child to the hospital. Then it was that through the Social Service the family was restored to a self-supporting position. That "John Callahan," though alive to-day and at work, would never do a full day's work again. Emphasis was placed upon the fact that the loss of wages, the result of sickness, fell upon the one man in the community who was least able to bear it. The question asked by the State of the Health Commission was: "Is there any remedy for the problem of 'John Callahan,' any machinery of the State by which the incidence would not fall upon him, by which when he was sick he could get adequate medical care decently paid for? In Europe it was believed that the problem had been solved. The author did not say that the system of England was right; nor that any particular insurance was right. What he would say, however, was that the economic loss from sickness must be removed from "John Callahan," if there was to be removed the destitution which doctors, more than the average members of the community, were paying for. The problem, he said, was a big administrative one which affected the medical profession more than any other. He expressed the desire that societies such as the Philadelphia County Medical Society appoint representatives to work with the committee in trying to find a working practicable plan. He did not think any great insurance plan which would cover millions of people would ever be a practical success unless through it the medical profession were rightfully compensated from the point of view of members of the profession. A plan by which the medical profession ceased to carry the burden which it was now largely doing was essential. It was no more right that such burden should be carried by the physician than that it should be borne by John Callahan. In his opinion it should be carried by the community in part, by John Callahan in part, and perhaps in part by the employer. He believed that any important service in the community should be paid for adequately; otherwise the community suffered.

Health Insurance as a State Policy.—Dr. JOHN B. MCALISTER of Harrisburg said that it was not his intention to present any arguments for or against health insurance as a State policy, but rather to present the sickness problem as developed by the investigation of the commission. Sickness, he said, produced a problem between five and seven times as great as that caused by industrial accidents. In 1916 3,025,375 working days were lost in Pennsylvania through accidents, while approximately 16,800,000 working days were lost on account of illness. Among the facts obtained through investigation, it was noted that more than 385,000 employees in the State were constantly suffering from illness, and that the average loss of working time to employees in the State was at least six days each year because of sickness. At the nominal rate of $2 per day the wage loss to employees because of illness was thus at least $33,000,000. The average cost of medical care for every employee's family was between $30 and $50 per year. During the influenza epidemic anthracite coal production dropped behind 500,000 tons in a few days. The statement was made that the State spent over $6,000,000 every year directly for the treatment of sickness. In addition, $4,000,000 was spent for the maintenance of institutions for the care of defectives, due partly to the neglect of sickness. Sickness seemed to be the principal single factor forcing the wage earner's family to seek help. It was the primary cause of dependency in 50 per cent. of 5,000 cases studied in California and 42 per cent. of the 1,141 cases in New Jersey. In Pennsylvania the same general conclusions were borne out. The present facilities for medical care among wage earners were shown to be not satisfactory. The number of beds per one thousand population was three and one-tenth. Authorities said that five beds per one thousand population was necessary. Sixteen of the sixty-seven counties in Pennsylvania were said to have no hospital beds and nine other counties had less than one per thousand persons. When the cost of ward beds was beyond the means of probably half the employees of the State, when in a single year nearly 2,000,000 days of free hospital treatment were given and almost 900,000 persons patronized charity dispensaries, some change was needed which would make medical care available as a right and not a charity. Ninety-one per cent. of all deaths of persons of working age in 1916 were from diseases whose connection with important Pennsylvania industries had been established. It was claimed that one-half of existing sickness could be eliminated were preventive measures established. A large number of communities in the State had no active health work, and from 70 to 75 per cent. of the school children in the State were said to be physically defective. Responsibility for illness rested upon the community, industry, and the individual, and these three groups were meeting the loss from sickness in wholly unequal shares; the burden on the individual was often disastrous and out of proportion to his individual responsibility. Whether the corrective distribution should be accomplished by an extension of existing voluntary insurance agencies, or by a system based on a modification of the English or other European plan, he was not prepared to say. Physicians as a profession must face a great change in the social structure of the country. Dr. McAlister believed there was no danger of health insurance legislation at the present time, but the situation was similar in his opinion to that of a few years ago, when the Workmen's Compensation was under discussion and which suddenly became a law. Had the medical profession taken its part in the development of this legislation many of its present defects, so far as it applied to the profession, might have been prevented. He wished that every county medical society would appoint a special committee composed of its best constructive brains to study this subject alone, and if a commission were continued by the present legislature, that these committees would be prepared to meet with the commission and help it to arrive at a conclusion, so that there might be avoided the bitter experience of the British medical profession.

Health Insurance.—ISADORE STERN, Esq., of the Philadelphia Bar said that in 1917 the Pennsylvania Health Insurance Commission had been established to investigate: (1) Sickness and accidents of employees and their families not compensated under the provisions of the Workmen's Compensation Act. (2) The adequacy of the present method of treatment and care of such sickness and injury. (3) The adequacy of the present methods of meeting the losses caused by such sickness or injury either by mutual or stock insurance companies or associations, by fraternal or other mutual benefit associations, by employers and employees jointly, by employees alone, or otherwise. (4) The influence of working conditions on the health of employed persons; and (5) Methods for the prevention of such sickness or with a view to recommending ways and means for the better protection of employees from sickness and accident and their effects, and the health of employed persons and their families in the Commonwealth.

The commission after a year's study asked for an extension of time to set forth its findings to the Legislature in 1921. Mr. Stern suggested that the Phila-

delphia County Medical Society appoint a committee to work with the Health Insurance Commission in making the report fair from the physicians' standpoint as well as from that of any other individual or group involved. Many questions arose in contemplating the subject of health insurance: Would the State be successful in its effort to compel the insured to go to designated physicians? How would the physicians be selected under a system of health insurance? What percentage of illness is genuine? Would the necessity of dental care be put on a par with vaccination? Could health insurance be inaugurated at a reasonable cost? The commission was in the dark on this question. The data in the hands of insurance organizations were based upon the results of medical examination, and the only persons insured are those able to pass the physical test required by the insurance company. Would the adoption of health insurance place all physicians on the payroll of the State at a standard subsidy? If physicians were to be standardized why not inventors, lawyers, painters, and singers? Should health insurance in its greatest estate not compel a regular periodical examination by a physician instead of supplying medical aid after the person is sick? If a system of health insurance could be devised which would satisfy both the employer and the employed, which would not humiliate the employee by compelling him to consult a physician not his choice, or take against his will a form of treatment at a State institution; and if such insurance could be inaugurated at a reasonable cost, would not stifle individuality among physicians, or be paternal in its aspects, then he would favor health insurance. Health insurance on any other basis, he claimed, would be contrary to common sense.

Dr. FREDERICK L. VAN SICKLE, president Pennsylvania State Medical Society, said that he gathered from the discussion that the subject of health insurance as it related to the physician and the public, and in its problems was far away from what was known of American practice. The profession was in the position of knowing nothing of the finished structure of health insurance. A problem must be attacked with a certain amount of knowledge before it could be discussed intelligently. He felt that the Commission on Health Insurance had been very wise in not presenting to the Legislature immature, improperly constructed plans to be accepted unwillingly by the people. The Workmen's Compensation Law had been framed without the consultation with the medical profession which physicians would have been glad to give. If the Health Insurance Commission continued in power and would open the door, he did not doubt that the great profession of medicine in Pennsylvania would welcome an opportunity to collect facts and material and co-ordinate their work to assist the commission. He had encountered some "John Callahans" in his own experience, and remembered very distinctly one John Callahan, whose sickness problem was brought about by an evil which was fortunately now about to be eliminated. He disclaimed that the medical profession believed that poverty was caused primarily by illness; as president of the Medical Society of the State of Pennsylvania he welcomed the discussion, feeling that it had awakened an interest among physicians as nothing else could possibly do, and would do much toward arousing the medical profession to take the place it should have in the affairs of the State in such problems as the present. He emphasized the claim that the medical profession should have the same right as the legal profession in determining the price which should be set upon its services. He thought that every county medical society should have its committee interested in a health insurance measure which would protect the interests of the doctor. Many times the medical profession has made mistakes because it had failed to cooperate upon legislative matters. If health insurance must come, it was highly important that physicians get together in the framing of a measure which should be equitable to the people and to the medical profession.

Dr. L. WEBSTER FOX moved a vote of thanks to the gentlemen who had spoken, and as chairman of the Committee on Legislation expressed his personal appreciation of the information given. He agreed with Dr. VanSickle that it was essential that the profession should be alert and that it co-operate in an earnest effort to obtain a measure equitable to all concerned. So long as the profession was represented by Dr. McAlister on the commission he felt that the interests of the medical profession would be protected. Thanks were due also to Dr. VanSickle, who was working for the protection of the medical profession.

State Medical Licensing Boards.

CALIFORNIA STATE BOARD OF EXAMINERS.

Sacramento, October 22-23, 1918.

(*Continued from page* 470.)

CHEMISTRY AND TOXICOLOGY

(Answer ten questions only.)

1. Define organic chemistry.
2. Given dried kelp prepare resublimed iodine.
3. Give formula of formaldehyde and one method of its preparation.
4. Name four coal tar products used in medicine.
5. In what ways through blood and urine chemistry may acidosis be determined?
6. Give formula for urea and one method for its quantitative estimation.
7. Describe in detail Marsh's test for arsenic.
8. Give clinical picture of poisoning by $HgCl_2$ and describe treatment.
9. What poisons may cause sudden death?
10. State the toxicological effect of carbolic acid and the antidotal measures to be employed.
11. What is indican? Discuss the significance of its appearance in the urine and give test.
12. Give the chemical and physiological treatment of phosphorus poisoning.

BACTERIOLOGY AND PATHOLOGY.

(Answer ten questions only.)

1. Describe bacillus influenzæ.
2. Give ten different varieties of pathogenic bacteria with their microscopical characteristics.
3. Discuss the production of (a) active and (b) passive immunity.
4. What is a vaccine? How is it made?
5. Describe method of examining secretion from a chancre for treponema pallidum.
6. Mention five bacteria which grow best on blood-streaked agar.
7. Discuss adenomata and indicate their usual sites.
8. Discuss emboli and state under what conditions they are apt to occur.
9. Discuss bronchiectasis.
10. Discuss the pathology in acromegaly.
11. Describe the blood picture in pernicious anemia.
12. In what different ways may arterio-sclerosis cause death?

ANSWERS.

CHEMISTRY AND TOXICOLOGY.

1. *Organic chemistry* is the chemistry of the compounds of carbon.

2. *Preparations of iodine from kelp:* "The liquid obtained by lixiviating kelp contains the iodine as sodium iodide and potassium iodide. A concentrated solution of the impure iodide is treated with sulphuric acid, then distilled with manganese dioxide; the separated iodine condenses in a series of glass receivers."—(Remington's *Pharmacy.*)

$$2NaI + 2H_2SO_4 + MnO_2 = I_2 + MnSO_4 + Na_2SO_4 + 2H_2O.$$

3. The *formula of formaldehyde* is H·CHO.

It may be *prepared* by the distillation of calcium formate: $Ca(H{\cdot}COO)_2 = CaCO_3 + H{\cdot}CHO$.

4. *Four coal tar products used in medicine:* Phenol, cresol, beta-naphthol, resorcinol.

5. *Acidosis may be determined by:* (1) The determination of the alkali reserve, and carbon dioxide capacity of the blood pressure; (2) estimation of the hydrogen in concentration of the blood; (3) estimation of the acetone bodies (acetone, oxybutyric acid and

diacetic acid) in the urine; (4) determination of the ammonia quotient of the urine.

6. The *formula for urea* is $CO(NH_2)_2$.

Quantitative Estimation—Folin's Method: "Put 3 c.c. of urine, 20 grams of magnesium chloride, and 2 c.c. of concentrated hydrochloric acid into an Erlenmeyer flask of 200 c.c. capacity fitted with a short backflow tube (200 mm. long and 10 mm. in diameter). Add a small piece of paraffin to prevent foaming. Boil briskly, and then continue boiling moderately for forty-five to sixty minutes. Now cautiously dilute the mixture with water and wash it into a liter flask. Add about 7 c.c. of a 20 per cent. solution of sodium hydroxide, and distill off into decinormal acid. Usually about 350 c.c. of water should be distilled off, which takes about sixty minutes. Then titrate the acid with decinormal alkali (sodium hydroxide). Deduct from the number of cubic centimeters of acid taken the number of cubic centimeters of the decinormal alkali needed to neutralize it. The difference gives the number of cubic centimeters of decinormal ammonia which passed into the acid. Each cubic centimeter of decinormal ammonia contained in the distillate corresponds to 3 mg., of 1 per cent. of urea. Corrections for the ammonia content of the magnesium chloride used, as well as for preformed ammonia in the urine, are made separately." —(Stewart's *Physiology.*)

7. *Marsh's test for arsenic:* "This test depends on the fact that arsenic hydride is formed when nascent hydrogen acts on a compound of arsenic:

$$H_3AsO_3 + 3H_2 = AsH_3 + 3H_2O.$$

"A small flask fitted with thistle funnel and a delivery tube, as for the production of hydrogen, is used; pure zinc and hydrochloric acid are introduced, and after a short time the hydrogen is ignited. It is advisable to cover the flask with a cloth before igniting the gas, as an explosion may happen unless the air has all been driven out. If the materials are pure the hydrogen flame gives no deposit upon a piece of cold porcelain brought into it, but commercial zinc usually contains arsenic. When the purity of the gas is proved, a little solution of arsenite may be poured down the thistle funnel, which will produce a more rapid evolution of gas, and the flame will become larger and perceptibly colored. A piece of cold porcelain depressed upon the flame will be covered with a deposit of metallic arsenic. The films of arsenic are metallic looking in the thicker places, brownish near the edges; they are easily volatilized by heat, and dissolve in solution of bleaching powder. A portion of the glass tube from which the gas is burned should be heated to redness; the gas decomposes and a deposit of arsenic appears on the tube, which may be identified in a similar way, or may be converted into crystals of oxide by cautious sublimation in an open tube."—(Fisher's *Elementary Chemistry.*)

8. *Symptoms of acute mercurial (corrosive sublimate) poisoning:* "The nauseous, metallic taste is experienced during the act of swallowing. Within a few moment this is followed by an intense, burning pain in the mouth, throat, and stomach, the mouth and tongue are whitened and shriveled. There are vomitings of a white material, containing shreds of mucous membrane and tinged with blood, and bloody stools. Salivation occurs if life be sufficiently prolonged. Death sometimes occurs early from collapse, accompanied by convulsions, or in the deep coma; but in most fatal cases life is prolonged for from three to six days." (Witthaus' *Essentials of Chemistry.*)

Treatment consists in the administration of a moderate quantity of white of egg, and the removal of the compound formed, by emesis.

9. *Poisons which may cause sudden death:* Hydrocyanic acid, potassium cyanide, phenol, oxalic acid.

10. *Symptoms of carbolic acid poisoning:* Buccal mucous membrane is whitened and hardened; vomiting; burning pain in mouth, esophagus, and stomach; pulse and body temperature are lowered; the pupils are contracted; collapse, and finally death. The urine may become dark.

The *treatment* consists in administering white of egg, sodium sulphate, or saccharated lime, followed by lavage. Alcohol is said to be antidotal. At one time alcohol was much used; just now the older remedies (such as sodium sulphate) are more relied on. Soluble sulphates form with carbolic acid the insoluble sulphocarbolates, which can be removed by lavage.

11. *Indican* is indoxyl potassium sulphate; it is found (in excess) in the urine in hypochlorhydria; in hyperchlorhydria of gastric ulcer; in conditions in which there is diminished persistalsis of the small intestines, as an ileus and peritonitis, not in simple constipation; also in conditions in which putrefactive changes occur in the body elsewhere than in the intestine, as in empyema, putrid bronchitis, gangrene of the lungs, etc.

Test for Indican:—The urine is mixed with one-fifth of its volume of 20 per cent. solution of lead acetate and filtered. The filtrate is mixed with an equal volume of fuming hydrochloric acid containing 3:1000 of ferric chloride; a few drops of chloroform are added, and the mixture strongly shaken 1 to 2 minutes. With normal urine the chloroform remains colorless or almost so; but if an excess of indoxyl compounds be present the chloroform is colored blue, and the depth of the color is a rough indication of the degree of the excess.—(From Witthaus' *Essentials of Chemistry.*)

12. There is no known chemical antidote to phosphorus; potassium permanganate is efficacious; old French oil of turpentine is said to be the physiological antidote; fixed oils or fats must not be administered. The unabsorbed portion should be removed promptly by an emetic (apomorphine hydrochloride).

BACTERIOLOGY AND PATHOLOGY.

1. The *Bacillus influenzæ* is a small bacillus, about 0.5 mikron long and 0.2 mikron wide; it has rounded ends, is non-motile, does not form spores, is Gram negative, stains with Loeffler's methylene blue but not readily with the usual anilin dyes, it is aërobic and is difficult to cultivate.

2. *Ten pathogenic bacteria.*—(1) *Typhoid fever* is caused by the *Bacillus typhosus* of Eberth. This organism is rod shaped, with rounded ends, is from 2 to 4 mikrons in length, and about three-fourths of a mikron in breadth; it does not stain by Gram's method, but stains with all the anilin dyes; it has flagella, no spores, is aërobic and facultative anaërobic, and is motile.

(2) The *characteristics of the bacillus of diphtheria:* The bacilli are from 2 to 6 mikrons in length and from 0.2 to 1.0 mikron in breadth; are slightly curved, and often have clubbed and rounded ends; occur either singly or in pairs, or in irregular groups, but do not form chains; they have no flagella, are non-motile, and aërobic; they are noted for their pleomorphism; they do not stain uniformly, but stain well by Gram's method and very beautifully with Löffler's alkaline-methylene blue.

(3) The cause of *syphilis* is the *Treponema pallidum.* It is a very slender spiral, about 4 to 20 mikrons in length, with very close and regular turns, the curves vary in number from three or four to twelve to twenty. At each pole is a fine flagellum. It can move forward and backward, and also rotate on its axis. It is not settled whether division is transverse or longitudinal. It has not yet been cultivated on artificial media.

(4) *Plague* is produced by the *Bacillus pestis.* This is non-motile, with rounded ends, is about 1½ mikrons in length and a little more than half a mikron in breadth; it stains readily with all the anilin dyes, but not by Gram's method; it has no spores, and is not encapsulated.

(5) *The bacillus of tetanus* is characterized by its peculiar spore, formed at one end of the bacillus and giving it the appearance of a pin; it is purely anaërobic, and cannot be developed at all in the presence of oxygen. It generally comes from the soil, and is found in penetrating wounds. It appears in two forms, the spore-bearing form, as described above, and the vegetative form, which is a short bacillus with rounded ends, and which may occur singly or in pairs, or may form long filaments. It grows in gelatin stab cultures in the middle of the medium and the colonies look something like a fir tree; its growth is slow, and a disagreeable odor is at the same time emitted. In bouillon, it grows near the bottom of the tube, and produces gases.

(6) *Bacillus anthracis* is a large rod-shaped micro-organism, with slightly thickened ends; it is from 5 to 20 mikrons in length, and a little more than one mikron in breadth; it has a tendency to form long threads; it is non-motile and non-flagellated; it is aërobic. It stains

by all the alkaline anilin dyes, and also by Gram's method. It grows on practically all media, as a film on potato, in tree form in gelatin stab, it liquefies gelatin and also serum.

(7) The *meningococcus* is a small, non-motile, non-flagellate coccus; it does not form spores, does not liquefy gelatin, is aërobic, and pathogenic; it appears in diplococcus groups, and may be found within or outside the cells; it stains readily with the ordinary anilin dyes, but is Gram negative. It grows readily upon meat infusions, and especially so on media to which ascitic fluid or blood serum has been added.

(8) Tuberculosis is caused by the *Bacillus tuberculosis.* This is a small, slender rod, slightly curved, occurring singly or in chains; it is 3 or 4 mikrons long, and about 0.2 to 0.4 mikron broad. It is non-motile, does not form spores, is aërobic, and stains with difficulty.

(9) Pneumonia is caused by the *Diplococcus pneumoniæ* (of Fraenkel). This is a coccus, occurring in pairs, it has a capsule, is non-motile, stains readily with anilin dyes and by Gram's method; it is aërobic and facultative anaërobic.

(10) *Gonorrhea* is caused by the *gonococcus,* which is a diplococcus with an appearance like that of two coffee beans; it is aërobic, can be cultivated on human blood serum; will not grow on gelatin, agar, bouillon or potato; it stains with ordinary anilin dyes but not by Gram's method.

3. *Active immunity* is that form of acquired resistance to infection which is brought about by the activity of the cells of a person or animal as a result of having had the disease, or as a result of artificial inoculation with a modified or attenuated form of the causative microorganism.

Passive immunity is that form of acquired immunity which depends upon defensive factors not originating in the person or animal protected, but is passively acquired by the injection of serum from one that has acquired an active immunity to the disease in question. It is a sort of secondary immunity acquired by virtue of having received antibodies actively formed by another animal that has had to resist the infecting agent in order to produce them.—(From Kolmer's *Infection, Immunity,* etc.)

4. A *vaccine* is an emulsion of dead or attenuated bacteria.

To prepare a vaccine: "All media and apparatus should be sterilized. Having isolated the organism, it is inoculated upon one or more agar slants, and after a growth of from five to seven hours (with streptococci) the growth upon these inoculated slants is taken up with salt solution, thoroughly shaken up in the diluting solution and standardized. The most practical way is to gently rub off the growth on the agar in about 1 or 2 c.c. of salt solution with a platinum loop. Then pour the bacterial emulsion into a sterile test-tube and repeat the process with three to five agar slants, until we have from 6 to 10 c.c. of the emulsion in the sterile test-tube. By heating to melting point in the flame a piece of glass tubing and attaching it to the rim of the test-tube (also melted), we have a handle with which to draw out the test-tube when heated about 1 inch from the mouth in a blowpipe flame. Drawing this out, we let it cool, and then filing the constricted portion we break it off and seal it in the flame. By shaking up and down vigorously from five to fifteen minutes, the bacteria are distributed evenly in the salt solution. A piece of platinum wire, twisted into corkscrew shape and fused in the draw-out end of the containing test-tube, helps in breaking up the bacterial emulsion. The sealed test-tube is then placed in a water-bath at 60° C. and heated at this temperature for one hour. Again shake. The constricted sealed end is again filed off and a few drops shaken out in a watch glass for standardization, and at the same time a few drops are deposited on an agar slant as a test for sterility. (Incubation for twenty-four hours should not show growth.)" —(Stitt's *Practical Bacteriology.*)

5. "*Treponema pallidum* is most easily demonstrated in chancres and mucous patches. . . . Tissue-juice from the deeper portions of the lesions is the most favorable material for examination, because the organisms are commonly more abundant than upon ulcerated surfaces and are rarely accompanied by other microorganisms. After cleansing, the surface is gently scraped with a curet or rubbed briskly with a swab of cotton or gauze. In a few moments serum will exude. The rubbing should not be so vigorous as to bring the blood, because the corpuscles may hide the treponema. Very thin cover-glass smears are then made from the serum. . . . A drop of India ink of good grade is diluted with 1 to 5 drops of water. A loopful of this is mixed on a slide with a similar quantity of serum from the lesion. The mixture is then spread over the slide and allowed to dry. After drying it is examined with an oil-immersion lens. Microorganisms, including the *Treponema pallidum,* appear clear white on a brown or black background, much as they do with the dark ground condenser."—(Todd's *Clinical Diagnosis.*)

6. *Five bacteria which grow best on blood-streaked agar:* Influenza bacillus, Ducrey's bacillus (chancroid), Koch-Weeks bacillus (conjunctivitis), Bordet-Gengou's bacillus (whooping cough), and Müller's bacillus (trachoma).

7. "An *adenoma* is a tumor that in its structure resembles an epithelial gland. It is frequently very difficult to tell whether it is a true growth or only an enlargement of a normal gland. In the new growth the tissues, though arranged typically, do not carry on any useful function. The secretion may be imperfect or there may be no duct through which it can escape. Adenomata arise from epithelial glands, are circumscribed, encapsulated, and rounded, or nodular. Have been found in all glandular tissues. Microscopically they consist of a framework of connective tissue, the meshes of which are covered by one or two layers of epithelial cells that resemble in shape and size those of the normal glands. The important point that distinguishes these growths from malignant ones is the relation of the cells to the basement membrane. In the benign adenomata, the membrane is preserved and the cells show no tendency to invade the surrounding tissue. If the connective tissue and epithelium are in normal proportion the growth is called a *simple adenoma;* if the connective tissue predominates, a *fibro-adenoma* If the tumor has a pedicle, it is known as an adenomatous polyp. Through degenerations, particularly colloid or mucoid, an adenoma may become very large through cystic formation. It is then called an *adenocystoma.*"—(McConnell's *Pathology.*)

Usual sites of adenomata: Skin, mucous membranes, breast, ovary, uterus, suprarenals, rectum, thyroid.

8. An *embolus* is a plug in the circulation; the process is called embolism. *Causes:* Thrombi, detached pieces from the heart valves, microorganisms, oil, fat, parasites, pieces of new growths. *Results:* Obstruction to the circulation; infarction; inflammation of blood-vessel; dilatation of blood-vessel.

9. *Bronchiectasis* is dilatation of the bronchi. "This is due to increased pressure within the bronchi or to some weakness of the walls, or to both. The weakening of the walls is most frequently due to chronic bronchitis. If it is extreme, simply the force of the inspired air may suffice to cause dilatation, but the increased expiratory efforts of coughing may add materially. When a part of the lung is collapsed (atelectasis) the impediment to the entrance of air leads to dilatations of the bronchi above the collapsed area. This is especially noted in children. The weight of accumulating secretions in the tubes is rarely the cause of bronchiectasis. Finally, in fibrous pneumonia the traction of the connective tissue, attaching itself, on the one hand, to the outer wall of the bronchus, and, on the other hand, to the pleura, may bring about considerable dilatations. The enlargement of the bronchus may be localized, when it is termed *saccular bronchiectasis;* or more uniform, when the names *cylindrical* and *fusiform* are applied, according to the shape of the bronchus. The mucous membrane may be almost normal in appearance in small dilatations, but more commonly is thickened and irregular on the surface. There may even be actual polypoid outgrowths, and ulcerations may occur when the secretions are specially abundant and irritating. Microscopically the epithelium is found to approach the squamous type; while the wall of the bronchus is generally infiltrated and cirrhotic. The exudation is generally purulent and copious, and may be very fetid. Occasionally it is thick and cheesy."—(Stengel's *Pathology.*)

10. *Acromegaly.* "This rare disease is especially marked by an overgrowth of the terminal portions of the extremities, and of the bones of the face. But there may be a general involvement of the skeleton—gigantism. This excessive growth is in the diameter rather than in the length of the bones, and is accompanied by local exostoses. Equally important and common is a general hyperplasia of the connective tissue of the body. Various lesions of the thyroid have been described, but they are not constant. The thymus may be persistent; there may be fibrous-tissue formation in the walls of the vessels and in the sympathetic ganglia. The skin is often pigmented. (The hypophysis is frequently the seat of hyperplasia.)"—Delafield and Prudden's *Pathology.*)

11. In *progressive pernicious anemia:* The marked feature of the disease is pronounced oligocythemia. This progresses rapidly, and in ordinary cases the number of red corpuscles sinks to 1,000,000 or less per cu. mm.; at the same time, changes in size (microcytes and megalocytes) and in shape (poikilocytes) make their appearance and reach grades rarely attained in other diseases. Nucleated red corpuscles are always present in some number, and are usually abundant. The largest forms (megaloblasts) as a rule predominate, but in some cases the smaller forms are more abundant. Karyokinetic figures may be found in the nuclei. Polychromatophilia is generally present. The leucocytes may be decreased or normal in number; in the late stages leucocytosis is not uncommon, and it may become extreme. The larger mononuclear leucocytes are usually more abundant than in health, and myelocytes often occur in considerable numbers. In the terminal leucocytosis of pernicious anemia the lymphocytes often predominate.

12. *Ways in which arteriosclerosis may cause death:* By rupture of a cerebral blood-vessel; thrombosis of a coronary artery; acute dilatation of the heart; rupture of an aneurysm; uremia; senile gangrene; myocarditis.

(*To be concluded.*)

BULLETIN OF APPROACHING EXAMINATIONS

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION†	
Alabama*	S. W. Welch, Montgomery	Montgomery	July 8
Arizona*	A. H. Williams, 219 Goodrich Building, Phoenix	Phoenix	April 1
Arkansas	T. J. Stont, Brinkley	Little Rock	May 13
California	C. B. Pinkham, Sacramento	Los Angeles	
Colorado	David A. Strickler, Empire Building, Denver	Denver	April 2
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	July 8
Delaware		Wilmington	
Dist. of Col'bia	E. P. Copeland, Washington	Washington	April 8
Florida*	W. M. Rowlett, Tampa	Jacksonville	June 16
Georgia	C. T. Nolan, Marietta	Atlanta	June 5
Idaho*	Ray H. Fisher, Rigby	Pocatello	April 1
Illinois	F. C. Dodds, Springfield.	Chicago	
Indiana	W. T. Gott, Crawfordsville	Indianapolis	
Iowa	G. H. Sumner, Des Moines	Iowa City	
Kansas	H. A. Dykes, Lebanon	Topeka	
Kentucky	J. N. McCormack, Bowling Green	Louisville	
Louisiana	E. W. Mahler, New Orleans	New Orleans	July 1
Maine	F. W. Searle, Portland	Augusta	July 1
Maryland	J. McP. Scott, Hagerstown	Baltimore	July 15
Massachusetts*	W. P. Bowers, 1 Beacon St., Boston	Boston	May 13
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor	June 10
Minnesota	T. McDavitt, St. Paul	Minneapolis	April 1
Mississippi	J. D. Gilleylen, Jackson	Jackson	
Missouri	G. H. Jones, Jefferson City	St. Louis	June 9
Montana*	S. A. Cooney, Helena	Helena	April 1
Nebraska	H. J. Lehnhoff, Lincoln	Lincoln	
Nevada	S. L. Lee, Carson City	Carson City	May 5
N. Hampshire	Walter T. Crosby, Manchester.	Concord	
New Jersey	A. MacAlister, Trenton	Trenton	June 17
New Mexico	R. K. McClanahan, East Las Vegas	Santa Fe	April 14
New York	G. M. Wiley, Univ. of State of New York, Albany	New York Albany Syracuse Buffalo	May 20
N. Carolina	H. A. Royster, Raleigh	Raleigh	June 23
N. Dakota	G. M. Williamson, Grand Forks	Grand Forks	July 1
Ohio	H. M. Platter, Columbus	Columbus	
Oklahoma	J. J. Williams, Weatherford	Oklahoma City	
Oregon	B. E. Miller, Portland	Portland	July 1
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia Pittsburgh	July 8
Rhode Island	B. U. Richards, Pawtucket	Providence	April 3
S. Carolina	A. E. Boozer, Columbia	Columbia	June 10
S. Dakota	P. B. Jenkins, Waubay	Deadwood	July 8
Tennessee	A. B. DeLoach, Memphis	Memphis Nashville Knoxville.	June
Texas	M. F. Bettencourt, Mart	Austin	June 24
Utah	G. F. Harding, Salt Lake City.	Salt Lake City.	April 7
Vermont	W. Scott Nay, Underhill	Burlington	July 8
Virginia	J. W. Preston, Roanoke	Richmond	June 17
Washington*	C. N. Suttner, Spokane	Seattle	July 1
W. Virginia	S. L. Jepson, Charleston	Huntington	July 15
Wisconsin	J. M. Dodd, Ashland	Milwaukee	June 24
Wyoming	H. E. McCollum, Laramie	Moorcroft	
National Board	J. S. Rodman, 1310 Medical Arts Building, Philadelphia	Philadelphia	June 2

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for all the details regarding the examination in any particular State.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

STENOSI ESOFAGEA DA DIAFRAMMA DI SHRAPNELL PENETRATO NEL MEDIASTINO POSTERIORE. By Prof. ALFONSO POPPI. 22 pages. Illustrated. Published by Tipografia Gamberini e Parmeggiani, Bologna, Italy.

ESTUDIO CLINICO DE LA LITIASIS URINARIA. By Dr. ANGEL PULIDO MARTIN. 236 pages. Illustrated. Published by Imprenta del Sucesor de Enrique Teodoro, Madrid, Spain.

QUARTERLY MEDICAL CLINICS. By FRANK SMITHIES, M.D. 188 pages. Illustrated. Price, $1.50. Published by Medicine & Surgery Publishing Company, Inc., St. Louis, Mo.

NOTES ON PATHOLOGICAL AND OPERATIVE OBSTETRICS. By LYLE G. MCNEILE, M.D. 215 pages. Published by The Division of Obstetrics, Los Angeles, Cal.

SQUIBB'S ATLAS OF THE OFFICIAL DRUGS. By WILLIAM MANSFIELD, A.M., Phar.D. 674 pages. Illustrated. Price, $2.00. Published by E. R. Squibb & Sons, New York.

FIFTY-FOURTH ANNUAL REPORT OF THE TRUSTEES OF THE BOSTON CITY HOSPITAL. 82 pages. Illustrated. Published by Boston Printing Department, Boston, Mass.

REPORT OF THE PHILIPPINE HEALTH SERVICE. 240 pages. Published by Bureau of Printing, Manila, P. I.

SIXTEENTH ANNUAL REPORT OF THE DIRECTOR OF THE BUREAU OF SCIENCE. 103 pages. Illustrated. Published by Bureau of Printing, Manila, P. I.

DIAGNOSTICS AND TREATMENT OF TROPICAL DISEASES. By E. R. STITT, A.B., Ph.G., M.D., LL.D. 524 pages. Illustrated. Price, $2.00. Published by P. Blakiston's Son & Co., Philadelphia, Pa.

BEVERAGES AND THEIR ADULTERATION. By HARVEY W. WILEY, M.D. 404 pages. Illustrated. Price, $3.50. Published by P. Blakiston's Son & Co., Philadelphia, Pa.

BIDRAG TIL DEN MEDIKAMENTELLE FODSELSHJAELP. By GEORGE BENESTAD. 171 pages. Published by Steen'ske Bogtrykkeri, Kristiania, Sweden.

THE MEDICAL CLINICS OF NORTH AMERICA. Vol. II, No. 3. 920 pages. Illustrated. Published by W. B. Saunders Company, Philadelphia, Pa.

USE OF FACTORY STATISTICS IN THE INVESTIGATION OF INDUSTRIAL FATIGUE. By PHILIP SARGANT FLORENCE, M.A. 153 pages. Published by Longmans, Green & Co., New York, N. Y.

HOSPITAL ACCOUNTING AND STATISTICS. By WILLIAM V. S. THORNE. 119 pages. Published by E. P. Dutton & Co., New York, N. Y.

FIRST LESSONS IN BACTERIOLOGY FOR NURSES. By M. E. MORSE, M.D. 133 pages. Illustrated. Price, 25 cents net. Published by W. B. Saunders Company, Philadelphia.

CLINICAL MICROSCOPY AND CHEMISTRY. By F. A. MCJUNKIN, M.D. 449 pages. Illustrated. Price, $3.50. Published by W. B. Saunders Company, Philadelphia.

WAR SURGERY OF THE FACE. By JOHN B. ROBERTS, A.M., M.D., F.A.C.S. 434 pages. Illustrated. Price, $4.50. Published by William Wood & Co., New York, N. Y.

HUGHES' NERVES OF THE HUMAN BODY. By CHARLES R. WHITTAKER, F.R.C.S. 72 pages. Illustrated. Price, $1.25. Published by William Wood & Co., New York, N. Y.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 95, No. 14.
Whole No. 2526.

New York, April 5, 1919.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

THE CANCER PROBLEM—A CHAPTER IN MEDICINE.*

By ISAAC LEVIN, M.D.

NEW YORK.

CLINICAL PROFESSOR OF CANCER RESEARCH, NEW YORK UNIVERSITY AND BELLEVUE HOSPITAL MEDICAL COLLEGE; CHIEF OF THE DEPARTMENT OF CANCER RESEARCH, MONTEFIORE HOSPITAL AND HOME.

Is cancer on the increase in the civilized world? Is the disease inheritable, or is it communicable from a diseased to a healthy individual? Is there any way of protecting oneself against the onset of the disease? Is there any hope for ever discovering a specific remedy which will relieve mankind of this awful scourge? These are the questions that agitate the lay mind, and which find ready discussion in the lay press.

The placing of these questions presupposes the conception that cancer is in every instance an identical constitutional, or possibly an infectious disease, and that the care and prevention of it is a subject in Public Health and public education.

The present publication aims to show that cancer is a common name for a group of neoplastic diseases, and that cancer is a subject for clinical study, medical research, and medical education, rather than a subject in preventive medicine and hygiene.

The education of the laity can best be done, in the opinion of the writer, by each individual family physician in his own narrow circle.

Definition of the Term Cancer.—The term cancer as it is applied at present designates a disease, the chief manifestation of which is the change of a normal cell of an adult organism into a cancer cell. With few exceptions the cells of an adult animal or plant possess a very limited capacity for proliferation and are endowed instead with differentiated and highly specialized functions. A cancer cell, on the other hand, is a cell which has lost its specialization and regained its power for proliferation which normal cells possess only during the fetal life of the organism. Furthermore, the cancer cells obtain the power of destruction of the normal tissues which lie in the path of their development and proliferation. There are two phases in this transformation to be considered in order to obtain a true conception of the etiology of cancer, and many points of both of these phases have been cleared up by the aid of experimental cancer research on lower animals and plants.

*Read by invitation before the Bronx County Medical Society on Feb. 19, 1919.

It will be shown later that the first phase in the formation of cancer, namely the transformation of a normal cell into a cancer cell, may be due to different causes in the different types of cancer. Cancer will thus be shown to represent in reality a group of pathological processes, having in common their neoplastic nature.

The second phase consists in the continuous endless proliferation of the cancer cells. This phase of the problem cannot be cleared up entirely until a better conception is gained of the phenomenon of growth in a multicellular organism. Two highly differentiated cells—an ovum and a spermatozoon—unite. As a result of the fusion of these two cells one undifferentiated cell is formed, which then begins to proliferate with the utmost rapidity and forms a complete organism, then suddenly the proliferation ceases.

The power which incites the first germinal cell to proliferate and then inhibits its further proliferation is as mysterious in the development of an organism as it is in the formation of cancer. Still, as will be shown later, many points in this second phase were elucidated with the aid of experimental and clinical cancer research.

Etiology of Cancer.—The possible rôle of a parasite: Ever since the discovery of the parasitic etiology of the large class of contagious diseases, the question has been debated whether cancer is also a parasitic disease. This opinion seems to have become even more plausible with the advent of experimental cancer research. Malignant tumors occur in nearly every species of lower animals and plants. In the human an inoculation of cancer tissue severed from the primary tumor succeeds only in the same individual. No inoculation of human cancer tissue has ever succeeded in another individual or in an animal. In other words, human cancer is not a communicable disease in any meaning of the term. In certain species of lower animals, notably in white mice and rats, the growth of a malignant tumor may be induced artificially by an inoculation into a previously healthy animal of a piece of fresh tumor tissue.

The tumors which develop upon such an inoculation of a piece of tumor tissue into a parenchymatous organ (brain, liver, spleen, kidney, or testicle) show many characteristics of malignancy described in human cancer. The tumor cells infiltrate diffusely, destroy and replace the substance of the organ, metastatic tumors develop frequently, and the animals die in a few weeks after the inoculation. The basic difference between these malignant tumors and human cancer consists in the important fact that the former may be propagated into normal individuals of the same species of animals.

A spindle cell sarcoma of a fowl, described by Raus, also represents a malignant tumor analogous to human cancer. The tumor infiltrates and destroys the surrounding tissues and metastasizes in the internal organs. The inoculated animals emaciate and die within three weeks after the inoculation. This tumor can be propagated not only by inoculation with fresh living sarcoma tissue, but also by means of tumor filtrate passed through a Berkefeld filter. In the white mice and rats described previously, it required the placing of viable cancer cells into a normal animal in order that a new tumor might develop. In the chicken sarcoma, on the other hand, an injection of a tumor filtrate which cannot contain living cancer cells, but only either a chemical agent or an ultramicroscopic organism, is followed by the development of the identical sarcoma in the new host.

Dr. Erwin F. Smith has described a disease of plants called the "crown gall" which he considers identical with human cancer. Crown gall is a new growth caused by a proliferation of a group of cells within a tissue, the normal cells of which ordinarily do not proliferate. The tumor grows invasively and destroys normal tissue. The plants become stunted and die; this disease is caused by a parasite (*Bacterium tumefaciens*) and may be induced artificially by inoculating the plant with a pure agar culture of the microorganism. The fact thus shown that malignant tumors of the lower animals and plants are easily transmissible into normal individuals, even, in the case of a chicken sarcoma by a tumor filtrate and in the crown gall by inoculation of a pure culture of the microorganism, again suggests the possibility of the parasitic origin of cancer. Indeed, Smith expresses an opinion based on his studies of the "crown gall" that all types of human cancer are due to an identical microorganism yet to be discovered.

A closer analysis of the results of experimental study as well as the human material indicates that the only possible function a parasite could have in the mechanism of the development of a malignant tumor would be to change one or a group of normal tissue cells into cancer cells and endow them with the power of limitless proliferation. The further development of a malignant tumor is a purely cellular phenomenon. When a small group of cancer cells from a primary tumor in the rectum metastasizes in the brain, and there develops into a discrete secondary tumor, the newly developed cells not only obtain the form of a cell of the rectal mucosa but align themselves in accordance with the glandular structure of the latter organ. It is inconceivable that any parasite could produce such results.

Pathogenesis.—The mechanism of immunity in cancer: As stated above, the ultimate cause which transforms a normal organ cell into a cancer cell remains a mystery. But the mechanism of the formation of a malignant tumor does not end there and, as it will later be shown, it is quite probable that such newly formed small groups of cancer cells may be destroyed by the resisting powers of the organism of the animal before they develop into a discrete malignant tumor. The mechanism of this resistance has been elucidated to a great extent by experimental research on inoculable tumors of lower animals.

Indeed, the most important phenomenon observed in the study of experimental cancer consists in the so-called immunity or resistance of certain animals to the growth of the inoculated tumors. This resistance depends upon a number of various complex conditions, most of which present as yet no tangible explanation. The phenomenon is a resultant of two component parts: the power in the inoculated cancer cell of unlimited proliferation and the reaction of the organism of the host. When a spontaneous tumor is inoculated it grows successfully only in a small number of animals used; frequently in less than 10 per cent. In subsequent inoculations with material taken from the implanted cancer cell it increases its proliferating power—its virulence. The fact, on the other hand, that a certain number of animals always retain their resistance to the tumor growth shows the influence of the reactivity of the host.

The usual method of propagating the tumors of the white mice and rats consists in a subcutaneous inoculation of a small particle of tumor tissue. The writer employed for a number of his investigations a different technique which consisted in an inoculation of the piece of tumor tissue directly into the organs, *i.e.* brain, kidney, liver, spleen, and testicle. The aim was to imitate as nearly as possible the conditions obtaining in the human. A number of interesting phenomena were observed by this method, which would have escaped the old method of subcutaneous inoculation.

The tumors which develop upon an inoculation of a piece of tumor tissue into a parenchymatous organ, as stated above, show all the characteristics of malignancy described in human cancer. The tumor cells infiltrate diffusely and replace the substance of the organ, consequently symptoms of clinical malignancy must occur as soon as a sufficient amount of an organ substance has been destroyed by the tumor. Indeed, these animals do not live any longer than about ten weeks after the inoculation, frequently die with much smaller tumors than are obtained by a subcutaneous inoculation, and true metastases form with greater frequency.

But of the greatest importance from both the theoretical and practical standpoint, is the condition of local organ resistance which the writer has demonstrated by this research method. In the experiments with an andenocarcinoma of the white rat, the writer observed that while the tumor grows when inoculated subcutaneously or into any other organ in a large percentage of animals used, it does not grow when inoculated into a normal testicle; but when a testicle is treated before the inoculation either with an emulsion of Scharlach R in oil or an emulsion of ether in water, an inflammation takes place in the organ accompanied with a proliferation of the intertubular connective tissue, and then the inoculation of the same tumor into the organ becomes successful.

This failure of the growth of the tumor in the normal testicle is not due to a general condition of the organism, but to a local action of the testicle on the tumor cells. The percentage of animals which are generally resistant to a subcutaneous inoculation of this adenocarcinoma is very small, but all the animals used for the inoculation into the testicle could not have been resistant to the growth

of the tumor, nor was the failure due to the mechanical influence of the tunica interfering with the expansion of the organ by the growing tumor, since other types of tumors grow readily in the testicle. The mechanism of this local resistance can thus be due only to an inhibitory action upon the cells of this tumor by the cells of the tubules of the testicle. This investigation further shows that it is possible to render the same testicle artificially susceptible to the growth of the tumor.

In another investigation the writer again found a striking proof of the possibility that a certain organ may react differently toward the growth of an inoculated tumor than the rest of the organism. It was shown that when a tumor inoculated subcutaneously is removed surgically, and then a piece of the same tumor is introduced into the subcutaneous tissue of another region of the same animal, the second inoculation will fail if the operation has been complete; but if the tumor at the site of the operation has recurred, then the second inoculation also succeeds. The writer repeated these experiments with the difference that the second inoculation was done not subcutaneously but into an organ. The results obtained coincided with the results obtained by the other investigations. The experiments were then varied so that the second inoculation was not done in one organ, but in two (liver and spleen) simultaneously, and the results obtained were quite remarkable. When the operation was radical and the subcutaneous tumor did not recur, then the secondary inoculation was not successful in either organ: on the other hand, when the operated subcutaneous tumor recurred, then in a certain number of cases the secondary inoculation succeeded in both organs while in another series of experiments the secondary inoculation succeeded in one organ and failed in the other.

These experiments show another instance of a purely local organ resistance in an otherwise susceptible animal. The subcutaneous tumor, for instance, recurs, and a subsequent inoculation into the spleen is successful, but a simultaneous inoculation into the liver fails. It is interesting to note that the spleen is the organ in which the inoculation most frequently succeeded, and the spleen is also the organ which is most frequently found diseased in tumor animals. Again as in the experiments with the testicle, there is an experimental proof of the supposition supported by the clinic that a diseased organ may be more readily susceptible to the growth of cancer.

The phenomenon of general inhibitory activity or general immunity of the organism against the growth of cancer is undoubtedly of paramount importance from the theoretical standpoint, but for the practical application of our knowledge of the pathogenesis of the disease, the factor of the local organ immunity of a healthy organ and the possibility that this resistance may be destroyed in a diseased organ is of great significance.

In men who reach the cancer age, only about 10 per cent. die of cancer; it is possible that the balance, or fully 90 per cent., are immune against the development of the disease. The general active immunity, the nature of which we do not know as yet, is consequently of such general occurrence that it seems plausible to suppose that when the local irritation in a certain organ is great enough, then cancer may develop even in an organism which is generally immune against tumor growth. It is thus obvious that the study of the conditions of local organ susceptibility or immunity may be of great importance in combating the disease and the care of such "precancerous conditions" in the various organs may present the real methods of prevention of cancer.

Meaning of Malignancy. — The experimental studies reported above show how malignancy, *i.e.* the proliferating and destructive power of the cancer cells on one hand, and the resistance of the organism, both general and local, on the other, manifests itself in the inoculable tumors of the lower animals. The identical phenomena observed as a result of pathological study of human material indicate the probable mechanism of this resistance of the organism.

It may be well to preface the discussion of this phase of the problem with the recapitulation of the characteristics of malignancy. The text-books of pathology state that malignancy in tumors means: *invasive growth* with destruction of normal tissue, *recurrenee* after operative removal, formation of *metastases* and *cachexia*.

The first characteristic is self-explanatory and is a purely local manifestation of malignancy. It will later be shown that formation of metastases as well as post-operative recurrences are also manifestations of local malignancy only caused by the invasive growth of the secondary tumors. Cachexia, which is seemingly a general constitutional manifestation, is not a constant nor even a frequent occurrence in malignancy. It most frequently takes place in cancer of the gastrointestinal tract, and is undoubtedly a secondary manifestation due possibly to absorption of dead cancer material, or to a secondary infection through an ulcerated tumor. The majority of cancer patients die without the evidence of cachexia through the destruction of vital organs caused by the primary or metastatic tumor. The difference between these two types of tumors consists only in the fact that in the former an unknown cause transforms a group of normal cells into cancer cells, while in the latter the development of a metastatic tumor begins from a group of already developed cancer cells transported from the primary tumor.

Bone tissue, in view of its characteristic morphological differences from all other tissues, presents a favorable object for the minute study of the changes taking place in the soil under the influence of tumor growth, and thus is best able to indicate the mechanism of the resistance offered by the organism to the growth of cancer. The pathological study of skeletal metastases of carcinoma by the writer elucidates many points in the pathogenesis of cancer and corroborates the findings of his animal experimentation.

Statistical study has shown that skeletal metastases occur in 2.5 per cent. of the cases of carcinoma of the stomach, in 3.03 per cent, of the uterus, in 52.3 per cent. of the breast, and in 66 per cent. of the prostate. The difference between 3.03 per cent. of skeletal metastases in carcinoma of the uterus and 66 per cent. in that of the prostate is very striking and cannot be explained by mechanical dif-

ferences, caused by variations in the anatomical structure of the organs. The topographic relationship between the uterus and the skeleton on one hand, and the prostate and the skeleton on the other is practically identical; so is the vascularization of the two organs, and it is as easy for the cancer cells from the uterus as those from the prostate to find lodgment in the bone marrow. The only plausible explanation of this difference between the formation of metastatic tumors of the two organs seems to be that while both the cells of the uterine cancer and the carcinoma of the prostate find lodgment in the marrow, the latter cells find there a better soil for development than do the cells of the uterine cancer.

A very striking instance indicating the existence of a peculiar affinity between the cancer cells and bone tissue was recently presented by Schmorl. He found in a series of cases of carcinoma, metastases not only in the bones of the skeleton, but in bone tissue abnormally developed in the cartilage of the larynx and trachea, and in one case a metastasis developed in a bone plaque on the wall of the aorta. In the latter case no metastases were formed in any organ with the exception of the bones of the skeleton and the bone tissue in the wall of the aorta. It is inconceivable that cancer cells should have been able to reach the small bits of bone tissue of the aortic plaque more easily than the parenchymatous organs.

Thus the probabilities are strongly in favor of the conception that tumor emboli are transported everywhere with the same ease and find lodgment in any part or organ of the body; the further growth, on the other hand, of the small transported group of cancer cells depends upon a correct metabolic affinity between the cancer cells on the one hand, and the organ cells, the soil as it were, on the other.

The metastasis begins its development within the marrow and when the group of cancer cells is small, the surrounding bone marrow appears quite normal; as the tumor nodules increase in size the growth approaches and invades the compact osseous tissue, or the compact osseous partitions of the cancellated bone, and then there begin to appear the characteristic changes in the bone tissue. It is generally accepted that there are two classes of skeletal metastases of carcinoma: *osteoplastic*, in which extensive new bone formation takes place around the metastatic tumor, and *osteoporotic*, in which the changes in the normal tissue surrounding the metastasis consist in extensive destruction of the compact bone. These two distinct conditions can easily be differentiated on gross inspection of skeletal metastases. However, the microscopic examination of the cases studied by the writer has shown that both conditions are usually present side by side. The difference in the gross appearance is due to the fact that in one case osteosclerosis or new bone formation predominates, while in another osteoporosis or the destruction of the old bone is mostly in evidence.

In the specimens studied by the writer both carcinoma cells and the small connective tissue stroma cells were found in immediate apposition to the walls of the lacunæ of the bone. The carcinoma cells were so frequently the only cellular elements within the lacunæ, that there cannot be any doubt but that carcinoma cells act directly as osteoclasts, destroy normal bone tissue, and then grow by occupying the space so formed.

On the other hand, the writer observed frequently that the cancer cells were surrounded by connective tissue fibrils formed in abundance from the old bone. These fibrils gradually unite in thick bundles and subsequently form new bone tissue. The latter is clearly formed from the constituent parts of the old bone tissue. On the other hand, the writer did not observe any hyperemia, inflammation, or any other abnormality of the bone marrow at the beginning of the development of the metastases, neither did he find any necrosis of the bone in any of the specimens examined. It must then be concluded that some unknown chemical irritant emanating from the carcinoma cells acts on the old bone tissue and stimulates its proliferation, and this new bone formation again acts as a protection to the organism against the further growth of cancer. It is thus evident that the malignancy and the destructive power of the cancer cell, as well as the power of resistance of the organism, are both local processes.

Spontaneous Cure of Cancer.—As seen above, the mechanism of the formation of osteoplastic skeletal metastases indicates an attempt at cure by the organism. That this attempt may be at least partially successful is seen from the fact that a skeletal metastasis may develop several years after a radical amputation of the breast without a local recurrence. In this instance the lodgment of the group of cancer cells in the bone took place before or at the operation, then for several years the bone tissue succeeded in checking the further development of the cancer embolus until, for some unknown reason, the protective action of the bone tissue failed and the metastatic tumor developed.

A similar condition in which an attempt at cure by nature is manifested, is cited by M. B. Schmidt. He examined forty-one cases of carcinoma of the abdominal viscera, selected at random from his autopsy material, for possible metastases in the lungs. In fifteen cases he found, on microscopic examination, small nodules either surrounded by a stroma of connective tissue formed apparently by the endothelium of the blood-vessels, or else consisting of a free group of cancer cells which seemed to have been transported more recently.

The coats of the small pulmonary arteries in which the cancer nodules were usually formed showed no lesion. The tumor cells apparently did not break through the walls of the blood-vessel from a focus of local dissemination, but were transported from the primary tumor or from a distant metastasis. Schmidt arrived at the conclusion that in carcinoma of the abdominal organs, cancerous embolism of the small arteries of the lungs occurs with great frequency; only a small proportion of these emboli give rise to metastatic tumors, because most of them are encapsulated and rendered harmless.

The mechanism of this spontaneous curative action by the organism consists mainly in the formation of a connective tissue capsule which surrounds the group of cancer cells and thus interferes with their further proliferation and development. This protective and curative action of the organism, while

à priori possible is apparently very inefficient, since authentic cases of spontaneous cures of cancer in the human occur extremely rarely, if at all.

Results of the Surgical Treatment of Cancer.—A malignant tumor represents in the final analysis an abnormality, a disease of a group of cells of a certain organ. Carcinoma of the breast, for instance, is a disease of a group of the breast cells. All the secondary metastastic tumors also represent accumulations of groups of diseased breast cells. Cancer thus begins with a local change in a group of cells of one organ; it then remains during a great part of its development a local disease, and even the secondary metastatic tumors represent in their respective regions purely local processes, caused by the growth of a minute group of transported cancer cells surrounded by normal tissue.

In view of this, it seems reasonable to expect *à priori* that results may be obtained by correct methods of purely local therapy. Indeed, in recent years the progress in such local treatment has been considerable. The main method of local therapy consists in the surgical treatment of malignant tumor. A great deal of progress has been achieved during the last two decades in the surgery of cancer. The modern surgical treatment is based on the fact that cancer spreads through the regional lymph glands; the surgeon strives to remove all the normal tissue adjacent to the malignant tumor and into which the latter spreads most frequently. The rule of modern surgery is also to make the incisions in the normal tissue as far from the tumor as safety will permit, and furthermore to remove all the regional lymph-glands. By the aid of these methods, which represent a very recent advance in the surgical treatment of cancer, Halsted and Willy Meyer obtained nearly 40 per cent. of cures in carcinoma of the breast. Wertheimer reports that 50 per cent. of the operated cases of carcinoma of the uterus remain cured, Mayo states that 25 per cent. of the operated cases of carcinoma of the stomach are cured, and so on. But notwithstanding this wonderful showing of operative statistics, clinical experience shows that only a small minority of the cancer patients remain cured.

In order to obtain a true estimate of the actual percentage of all cancer patients cured by surgical treatment, the writer has undertaken a comparative analysis between vital statistics and surgical statics of cancer.

The accompanying table was constructed in the following manner. The report of the U. S. Census in 1900 was taken as the basis of the statistical analysis. The total number of deaths from cancer in the registration area of the U. S. in the year 1900 were 17,286 men and women.

The first vertical column of the table shows how the cases were distributed among the various organs. The second vertical column shows the percentage relation of the number of cases in which a certain organ is involved to the whole number of cases of cancer in a certain unit of time. In order to obtain a correct numerical estimation of the percentage of cases of cancer cured by a certain operation, the relation of the number of operated cases to the whole number of cancer patients must be calculated. The following vertical column shows the manner in which the figures were deducted. The third vertical column shows the percentage of cases of cancer in each organ which are considered to be operable when first examined by the surgeon. This very necessary statistical information is rarely given in the published operative statistics.

TABLE I

Organ.	Number of Cases Reported by U. S. Census 1900.	Number of Cases of Each Organ, per Cent.	Number of Cases Operable for Each Organ, per Cent.	Number of Cases Cured by Operation, High Estimate, per Cent.	Number of Cases Cured by Operation, Low Estimate, per Cent.	Per Cent Relation of the Cured Cases of Each Organ to the Whole Number of Cancer Cases, High Estimate.	Per Cent Relation of the Cured Cases of Each Organ to the Whole Number of Cancer Cases, Low Estimate.
Bladder	180	1.0	..	30 0	6.8	0.15	0.05
Breast	1334	7.8	.	38 8	16.0	1.50	0.60
Head, face and neck	791	4.5	.	83.8	30.7	1.80	0.75
Liver	1784	13.0	..	..	..	1.00	0.15
Mouth, tongue and throat	692	4.0	..	20 0	13.0	0.40	0.30
Rectum	574	3.3		50 0	9.0	0.80	0.15
Uterus	2291	13.2	50	50 0	10.0	3.30	0 66
Stomach	4220	24 3	35	25 0	3.0	2.10	0.30
Abdomen	1107	6.4	..	12 0	4 3	0.40	0.15
Not specified	4313	24.9	..	..	.	3.80	1 04
	..	..	..	..	..	15.25	4 15

Since the percentage in carcinoma of the uterus and stomach is given in the published reports, the writer considered that the allowance of 50 per cent. of operability in all other organs and 100 per cent. in head, face, and neck would give more than a fair estimate of the present operative results. Primary carcinoma of the liver is a very rare disease and as a rule carcinoma of the liver is always secondary to cancer of other organs, frequently carcinoma of the stomach. Again, in order to be statistically more than fair to surgery the writer calculated carcinoma of the liver on the basis of carcinoma of the stomach.

The fourth vertical column shows the percentage of cases cured by operation as reported by the best operators for the cancer of this particular organ. The writer considers this a high estimate, since comparatively only a small number of patients can be treated by these surgeons. The fifth vertical column shows the percentage of cases cured by operation as reported by surgeons not so skilled. The ninth horizontal column, carcinoma of the abdomen, was calculated on the supposition that all the cases were carcinoma of the intestines, since these cases give the best operative results. The sixth and seventh vertical columns show the percentage relation of the cured cases of each organ to the whole number of cancer cases. The figures were obtained by multiplying the figures in the fourth and fifth vertical columns by the fraction representing the percentage of cases of each organ.

The last two figures of the sixth and seventh vertical columns were calculated in the following manner; unspecified cases of cancer must have belonged to one or the other organ. All the other figures in each of the two columns were added and the sum represented the high and low estimate respectively of the percentage of ¾ of all the cancer cases. One-third of this sum gives the percentage of cases of cancer in which the organ was not specified in the vital statistics and which would have been cured by surgery. Those not specified represent 24.9 per cent., or roughly ¼ of all cancer

cases. The total sums under the sixth and seventh vertical column show the high and low estimate of the actual percentage relation of the cured cases of each organ to the whole number of cancer cases.

The analysis of the table shows that as a high estimate 15.25 per cent. and as a low estimate 4.15 per cent. of all cancer cases can be cured by surgical treatment. Even on the supposition of the unattainable ideal, that instead of 50 per cent. all the cancer patients should come to the surgeon in the operable state, and all the surgeons should possess the skill of Wertheim, Halsted, Meyer, or Mayo, not more than about 30 per cent. of all the cancer cases could be cured by surgery. At present rather less than 10 per cent. of all cases are cured by surgery. It is safe to assume that there can hardly be expected much further progress in surgical treatment of malignant tumors. The latter are usually situated in close proximity to the vital organs, the injury of which would endanger the life of the patient, consequently there is a limit set to the length to which a surgeon may go in removing the normal tissue adjacent to the tumor. As a result of these limitations there may remain small islands of cancer cells in or near the operating field, even after a radical operation on a favorable operable case. For the same reason, the knife may inadvertently cut into such an island of tumor tissue and throw freed cancer cells into the opened lymph and blood channels; the malignant tumor will then recur in the same region or in a distant organ.

The second reason for the failure of radical operation and the subsequent metastasis formation in some distant organ consists in the fact that even in the early operable stage of the disease there may be present minute tumor nodules in the distant organs which cannot be detected by any diagnostic means at our command, but which after the operation develop into large metastatic tumors.

The Value of Radium and Roentgen Therapy in Cancer.—Another local method of cancer therapy seeks to destroy the small islands of cancer tissue which the surgeon left either in the operative field or at a distance. This is the method of *radiotherapy* or treatment by the aid of *x*-rays or radium rays.

When a plant or animal body is exposed to the action of roentgen or radium rays, there probably takes place the same atomic disturbance in the cells of the body as in a piece of metal or other unorganized substance, and as a consequence the rays injure the protoplasm, or more frequently the nuclei of the cells. This biological action differs quantitatively in accordance with the amount and character of the rays absorbed by the cells and the specific susceptibility of the latter to the action of the rays. When slightly injured the cell may recover completely, whereas if the injury is severe the cell dies.

All the tissue of the organism may be killed by a sufficiently large quantity of rays, nevertheless the biological action of the roentgen rays must be considered selective, inasmuch as quantities of the rays sufficient to kill a certain kind of tissue may leave adjacent tissues intact or only slightly injured.

In order to obtain this selective action, the rays must be distributed as evenly as possible through the organism, so that only a comparatively small quantity of the rays will reach each individual cell. On the other hand, a sufficiently large fraction of the rays must reach as far as possible from the surface of the body. Such distribution is only possible with hard rays, of which the penetration is much greater than the absorption.

The cells of malignant tumors are more susceptible to the action of the rays than the normal tissue cells surrounding the tumor. If the rays employed are of a correct quality and in a sufficient quantity, it is possible to destroy all the cancer cells in a certain locality, and at the same time leave the normal tissue either intact or so slightly injured that they ultimately recover completely.

The action of the rays on a malignant growth consists primarily in the destruction of the tumor cells, and subsequently the formation of sclerotic connective tissue which compresses and destroys the remaining tumor cells. In order to get a better estimate of the results obtained by this method of treatment, the writer made a statistical analysis of cases treated by himself and others. Of the very extensive literature on this subject, only those reports were selected in which the whole number of cases treated in a certain clinic were given, and not only selected favorable cases.

TABLE II.

Surgeon.	Number of Patients Treated.	Organ.	Died.	Discontinued Treatment.	Became Worse.	Not Improved.	Improved.	Became Operable	Clinically Cured.	Operable Cases.
Doederlein	....	Uterus	..	....	....	..	54	....	....	35
Chevron & Duval	150	Uterus	..	....	....	2	110	12	34	2
Allman	85	Uterus	15	....	....	..	15	20	....	..
Wertheim	102	Uterus	23	....	8	21	31	19	....	21
Guisez	35	Esophagus	..	....	....	..	..	....	3	...
Werner	314	Various	..	....	....	..	64	....	....	...
Pinsch	196	Various	21	19	....	52	95	....	9	...
von Eiselsberg	48	Various	11	18	7	1	5	....	6	....
Schmitz	23	Various	..	....	....	19	2	....	2	...
Levin	41	Various	13	11	.. ..	14	1	....	2	....
Total	1002		..	..	....	.	..	51	56	..

The report of Doederlein's clinic is given, though the whole number of treated cases is not indicated, in order to show that a man of his clinical experience undertook to treat 35 operable cases with radiotherapy alone, but his cases are not included in the total calculation of the figures.

The table shows a total of 1,002 cases, which were all declared to be inoperable before the treatment with the rays began. Of those 57 were clinically cured and 51 were improved so as to become operable. There are 58 cases reported that were treated by radium alone which were in an operable stage; of these 35 belong to Doederlein and were not included in the calculation. The 21 cases of Wertheim must be deducted from the total sum of treated cases, but not from the clinically cured cases, since Wertheim does not consider a single one of his cases as clinically cured. The two operable cases of Chevron and Duval must be deducted both from the total sum and the number of clinically cured cases. There now remains a total of 979 cases, of which 54 are reported clinically cured. Of the 57 cases which became operable at least 25 per cent. or 13 cases must also have been clinically

cured, which gives a total of 67 cases or 6.7 per cent. clinically cured. These figures are similar to those reported by the writer, which are shown in the lower line of the table.

A therapeutic method which is capable of producing a clinical cure of 6.7 per cent. in a total of 979 inoperable cases of malignant tumors, is by far superior in its efficiency, as well as the number treated, to any therapeutic measure which was ever offered for this class of cases. But these numerical results do not indicate the full value of this method of treatment.

The writer reported previously on a case of carcinoma of the sigmoid treated for six months with *x*-rays which indicates the real value of radiotherapy in the treatment of malignant tumors. A brief résumé of the case follows: An exploratory laparotomy was done on the patient which revealed a carcinoma of the sigmoid and a peritoneal dissemination with minute metastatic nodules. The case was declared to be inoperable, the tumor was not removed and *x*-ray therapy was instituted. The patient died six months later from intestinal obstruction. The following points of importance may be adduced from the analysis of the case. Notwithstanding the continuous very large doses of roentgen rays, there was no injury to the skin, serous or mucous membranes, lymphathic glands, or parenchymatous organs; at the same time the islands of tumor cells in the peritoneal nodules were either completely destroyed and replaced by dense fibrous connective tissue or surrounded by the connective tissue and inhibited greatly in their growth. In over six months not a single one of the innumerable minute nodules found at the operation developed into a large metastasis. The original sigmoid tumor did not increase in size during this time; it is thus self-evident that the rays exerted a specific deleterious effect on carcinoma cells in the same quantity which left the rest of the organism intact.

On the other hand, this selective action has its distinct limitations; by analogy with recent physical studies on selective absorption of *x*-rays by various metals, it seems feasible to assume a selective action of the rays on a tumor is due to a greater absorption of the rays by tumor tissue rather than normal tissue. As a result, less of the rays penetrate into the next layer of tumor tissue than would have been the case if normal tissue were interposed between this layer of tumor and the rays. This difference in the mass of tumor offers the only explanation of the fact that the deeper part of the sigmoid tumor which was hardly more than 5 cm. from the skin, was not influenced by the rays, while at the same time the tumor islands in the peritoneal nodules, some of which were situated at many times a greater distance from the skin, were either destroyed or deeply influenced by the rays.

Two conclusions of great practical importance may be drawn from the analysis of this case: First it seems plausible to suppose that if at the operation the primary tumor had been removed and the radiation applied only to the peritoneal nodules a recurrence might have been prevented or delayed for a long time. This fact clearly indicates the importance of *combined surgical treatment and radiotherapy* of malignant tumors. A large tumor should be removed surgically even when a radical operation cannot be performed, then the small islands of cancer tissue may be destroyed by raying even when situated at a great distance from the skin. Thus even a metastasis may be influenced by the rays in its incipiency. Indeed the study of the writer on the prognostic and therapeutic significance of skeletal metastases in carcinoma of the breast cited above, indicates that even metastases in the bones may be influenced by roentgen and radium rays, and the patient may remain clinically well for a number of years.

The clinical and experimental investigations of the writer indicate that the first effect of the rays on every malignant tumor consists in the inhibition of the proliferating power, in the sterilization, as it were, of the cancer cells. The degeneration and destruction of the cancer cells and the formation of the sclerotic connective tissue take place subsequently under the influence of the rays. Moreover, this cell degeneration and cell death may not be due directly to the action of the rays, but takes place in the natural course of the life cycle of the cancer cell. This cycle consists of *youth*, or period of development; *maturity*, or period of function; and *senility*, or period of degeneration, which gradually leads to death. In parenchymatous organs, like the liver and the kidney, the first period is usually completed during embryonic life or at very early age; the second period continues through the whole life of the organism, and the third period is attained at the old age of the organism or near its death.

The life of an individual cancer cell, on the other hand, is very short; it changes rapidly from an embryonic into an adult and then immediately into an aged, degenerated cell, and this process takes place continually irrespective of any extrinsic aid. But in a malignant tumor the majority of the cancer cells are quickly rejuvenated before they reach senility through the fact that each cancer cell changes into two young daughter cells. When the rays arrest this proliferation, then the cancer cells, without any further outside aid, mature and degenerate. It is interesting to note in this connection that the life of the epithelium of the skin or testicle is nearly as short as one of the malignant tumors, and the rays act on these organs as specifically as they do on malignant tumors.

It is thus evident that the morphological appearance of radiated tumor tissue is not an absolute criterion of the therapeutic effect produced by the action of the rays on the tumor. The biological or clinical evidence of the arrest of growth or diminution of the size of the tumor is of undoubted value. A complete destruction of the tumor cells, which takes place in many cases even in large tumor masses, presents undoubtedly the most perfect result of radiotherapy. On the other hand, negative morphological findings do not preclude the possibility that the tumor was influenced by the rays. Radiated and non-radiated carcinoma tissue may have the same microscopic appearance, and still the former tissue is sterilized and may have lost to a great extent its power of proliferation and consequently its clinical malignancy.

The practical conclusion to be derived from these clinical and experimental investigations is the following: It is advisable to radiate malignant tu-

mors not only after an operation, but in a certain class of cases also before an operation so as to sterilize and inhibit the proliferation of those cancer cells which may be left behind or transplanted elsewhere in the course of an operation. Such a procedure does not prolong appreciably the time preparatory to an operation and presents no danger to the patient.

The fear expressed by some clinicians that the raying may occasionally irritate and increase the rate of growth of the tumor is unfounded. There is no clear experimental evidence of such irritating action of the rays on young proliferating cells. The result is always inhibition. The clinical evidence of the existence of an irritating action of the rays is also very vague and not convincing. One must keep clearly in mind the fact that any malignant tumor may suddenly increase its rate of growth and consequent malignancy without any relation to the instituted mode of treatment. In a series of 20 cases of carcinoma of the rectum which is being prepared for publication *in extenso* by the writer the following observation was made: In the cases in which an attempt at a radical operation was made the condition recurred with greater rapidity and malignancy than in those cases in which there was no operation done and only radium and roentgen-ray treatment given, or in which an exploratory operation was followed by radiations. Similar observations are surely made by any surgeon with a large cancer material. In this series of cases the malignant recrudescence of the disease was not caused by the operative interference, but accidentally took place after the operation. The same holds true of the recrudescences which occasionally may take place after radium or roentgen-ray treatment. Thus pre- and post-operative radiation of cancer as a method of inhibiting the proliferating power and the consequent clinical malignancy of the tumor cells is of undoubted value.

The best evidence from all the experimental and clinical research to date tends to the conclusion that cancer is neither an infectious nor a systemic constitutional disease. It begins its development as a local condition, as an abnormality, a disease of a group of cells of a certain organ. All the secondary metastatic tumors also represent accumulations of groups of diseased organ cells.

It is difficult to conceive of a *specific remedy* for a disease of this nature. Such a therapeutic measure would have to affect deeply the abnormal organ cells and at the same time remain innocuous to the normal cells of the same organ as well as all the other normal cells of the organism. It will require years of further research in medicine and biology before a better knowledge will be obtained of the functions of the cell and of the nature, structure, and functions of the endocellular enzymes. Only then will it be possible to find an antibody with such a fine adjustment that it will neutralize the abnormal proliferating power of the cancer cell and at the same time be innocuous to the other cells of the organism. The present method of crushing cancer tissue, embryonic tissue, or normal organ tissue and injecting it into a patient or into an animal preparatory to obtaining serum, the methods of autolyzing cancer or normal tissue and injecting it into a patient represent extremely coarse and crude conceptions of the fine mechanism of endocellular functions. The same is true in regard to the various attempts at establishing a chemotherapeutic method for the treatment of malignant tumors.

Thus far, at all events, every attempt at obtaining a general specific therapeutic measure against cancer has failed, and the correct combination of surgery, *x*-ray, and radium therapy represents the only method of treatment of the disease.

Further improvement in the actual results obtained must be looked for in the correct diagnosis of the disease in its early stages. Here again reliance should not be placed on the possible discovery of a specific diagnostic method.

It must be clearly borne in mind by every practitioner in medicine that, just as surgery and radiotherapy, without being specific remedies, accomplish a great deal in cancer, so can an accurate diagnosis in the very early stages of cancer be made by the aid of the various diagnostic methods in vogue at present in surgery and medicine. By the aid of methods of illumination (laryngoscopy, gastroscopy, proctoscopy, and sigmoidoscopy, and cystoscopy), by the aid of chemical and radiographic analysis of the gastrointestinal tract, the microscope, exploratory laparotomy, etc., physicians skilled in these various methods will be able in the majority of cases to recognize the disease early enough for obtaining timely treatment.

119 West Seventy-first Street.

PHYSICAL EXERCISE IN LATER LIFE.

By ROBERT E. COUGHLIN, M.D.,

BROOKLYN, NEW YORK.

THE writer once said to a gentleman well beyond fifty: "Do you still keep up your exercise?" "I surely do, and, what is more, I am going to continue to keep on exercising. Would you believe it, every one of my friends who ate, drank, and worked for the almighty dollar are dead; every one of them." This was his answer without any hesitation.

Of a heart specialist the writer asked the question very recently: "What do you think of exercise in later life?" To this question he promptly replied: "Absolutely necessary. Every one should have some particular form of exercise."

Another internist was asked: "What do you think of the after fifty heart and its ability to perform work and stand strain?" His answer was to the effect that the heart was pretty well played out after fifty and should be conserved.

Probably in the last analysis we shall find that the after fifty heart is able to perform good work and stand strain providing its structure is normal, as are other organs in the body when the individual reaches his fiftieth year.

Sir Herman Weber, who has recently died in his ninety-fifth year, attributed his longevity in great part to physical exercise. Both his parents died in their sixtieth year, his father from apoplexy and his mother of inherited heart disease. There was a predisposition in his family to life-shortening affections. He asserted that the stronger pumping of the heart improved the circulation of the blood and lymph in the abdominal organs with the help

of the stronger contractions of the diaphragm and abdominal walls, thus leading to improved oxygenation and to increased metabolism, appetite, digestion, and assimilation; therefore daily walks should be taken, if possible in the open country, and in all weathers. The amount of walking required depended upon the individual constitution, the state of health, and on the habits and occupation; also on the meteorological conditions—heat or cold, dryness or humidity, strong or light wind, or stagnation of air. The walk should not be extended to actual fatigue, but ought to lead to exhilaration and agreeable warming of the whole body. The pace, too, must vary in different persons, from less than a mile to three and four miles an hour.

To continue with Sir Herman Weber's observations: The following is his enumeration of some of the benefits accruing from walking exercise steadily kept up: (1) Increased afflux of blood to the muscles. (2) Increased nutrition combined with improved metabolism and production of body heat. (3) Increased exchange of fluid between blood and tissue. (4) Facilitation of the removal of waste products. (5) Preservation of the elasticity of the thorax and lungs. (6) Abundant supply of oxygen for the blood and the metabolism. (7) Maintenance of a healthy condition of the organs of circulation, from the heart to the smallest arteries, capillaries, and lymphatics. (8) Massage of the bones, keeping up the healthy condition of the bone substance and the functions of the bone marrow, and through this the formation of a sufficiency of blood efficient for the fight with hostile bacteria entering the blood. (9) Increased resisting power of the body against disease. (10) Stimulation of the brain centers which initiate the action of the different sets of muscles. In his own words, "Although I know that it is not alone to the exercise of the muscular system that I owe the health and strength which I retain in my ninety-fifth year, but that the attention to hygiene in general, to the digestive functions, to mental work, and the tenor of the mind, as I have explained in my little book on prolongation of life, has had a great share in it, yet I am sure that the keeping up of the muscular system has played a prominent part, and so does still. Spending daily two or three hours in the open air, walking as a rule thirty and more frequently forty or fifty miles a week, enjoying the beauties of nature, have had an exhilarating effect on the mind, and kept the whole organism and its resisting power."

Eight years ago Henry Stewart, then sixty-five and residing in San Diego, Cal., came face to face with the realization that his joints were getting stiff. He consulted a physician, who told him to swing them more. So Mr. Stewart packed a knapsack, and, with an old billiard cue as a staff, started out to take a walk. Mr. Stewart has been walking ever since. He has traveled 60,000 miles in that time, tramped over four continents, and has not heard his joints creak for so long he has forgotten what it sounds like. "I got as far as Jerusalem by a circuitous route," says Mr. Stewart, "and I started home by the back way." (From a newspaper clipping.)

From Decatur, Ind., we have the following: "Not only does John Schurger, eighty years of age, bear the distinction of having made the first abstract in Adams County, and of being the oldest abstracter and lawyer actively engaged in this profession in this city, but he is also probably the greatest walker in the country. In the fifty-two years that he has lived west of this city a distance of a mile and a half from the court house, he has walked to and from work every day, and made the round trip twice to three times on Sundays. A rough estimate makes his average walk a year 1,251 miles, or, for the fifty-two years, 63,052 miles, or nearly three times around the globe. (From a clipping.)

On September 20 of last year Mr. W. F. Duffy, Customs House Revenue clerk, in his sixty-fifth year swam from Brooklyn Bridge to Coney Island, a distance of sixteen miles, without special effort, just to demonstrate that he is practically as young as he was twenty years ago. The swim was in rough tide water, which makes the performance all the more remarkable. Mr. Duffy walks three miles before breakfast every morning. He is not a teetotaler, but would not average a high ball once a week. Tobacco he does not use in any form.

George Wiley, the oldest active cyclist, celebrated his fortieth birthday astride a wheel during the week of the six day race recently held in Madison Square Garden. In six day races alone he has traveled more more than 15,000 miles. He figures that all-told he has traveled or covered 100,000 miles during his career.

Eight years ago, when David Anderson was eighty-eight years old, he won first prize in a hundred-yard dash at the annual games of Clan MacGregor in Yonkers. He was considered an athletic marvel for his age, doing the short dashes and hurdles in near record time.

Among the annual visitors at Pinehurst, N. C., is Dwight N. Clark, of Woodbridge, Conn., dean of the golfing fraternity in the United States. Clark took up golf at the age of seventy-two, and is now in his ninety-third year. The veteran player limits his playing nowadays to nine-hole rounds, but it was only a few years ago that he beat all records for steady play at Pinehurst by disposing of one hundred rounds of holes each in exactly 101 consecutive week days. Clark's best round in recent years was forty-seven for the first nine holes of the number one course, made two years ago. His best recorded eighteenth hole round since he took up golf was an eighty-nine on number one course, made in 1897, when he was seventy-one years old.

Examinations for the Army and Navy service have shown that there are men who are physically fit at sixty and at sixty-two years of age.

On March 28, 1916, Mr. G. W. S. came to the writer because he had been repeatedly refused for life insurance. His age was forty-six, and it was reported that his blood pressure was too high. His business was and is insurance broker. He took no exercise at all except light calesthenics in his bathroom in the morning. He was a good eater and enjoyed his food and life in general, but he could not get away from the fact that he had been refused insurance and that his blood pressure was too high. An examination showed that he was perfectly normal in every way except that his blood pressure reading was S. 160, D. 115. He was told to eat a little sparingly, especially in regard to meat, to take a good dose of castor oil once a week, and to take a good brisk walk of at least five miles

one day a week, and to walk every day a mile or two. On June 30 he reported at my office and the following blood pressure reading was recorded: S. 150, D. 85. Reported October 14, 1915, S. 145, D. 90. Treatment was continued. Applied for first-class life insurance and was accepted, no liens or ratings on policy. This insurance was issued by the company which had formerly refused him insurance. One year later, on October 13, 1917, his blood pressure reading was 150-85. Kidneys normal. Kindly note that the diastolic remained normal. Body weight, 157 pounds. Was letting up on the exercise because he said he could not take the time. On December 20, 1918, his S. was 160, D. 100; no albumin; no sugar. Had given up walks practically because he had been so busy in his business. Weight 151½. Was advised to start in with the walks again, which he consented to do. Returned on January 28, 1919; S. 160, D. 96; weight 146½. Kindly note that his diastolic is lower and has kept low at all times except when he discontinues all exercise.

M. Banuelos and S. V. Pertella conclude, as a result of extensive experimental work, that moderate exercise diminishes arterial pressure, which is more marked in those who are in poor condition; violent exercise, on the other hand, raises arterial pressure. The mechanism involved in this process is probably nervous, hormonal, and chemical.

At this point the writer wishes to ask your indulgence and at the same time ask your forgiveness for injecting his own personal experiences into this subject.

For years he has been a firm believer in the opinion that most men do not exercise sufficiently to keep up the oxygenation of their tissues. He has preached this doctrine but has had few followers. He has written papers on the "Use and Abuse of Athletics," "The Medical Aspect of Athletics," "The Fatalities in Athletics," etc., and the same have received much favorable criticism and some unfavorable criticism. He has, however, consistently lived up to his opinion along these lines. Physical exercise in the young is apt to be overdone, but this is not so as age creeps on one. When the writer attained his fiftieth year he began to take inventory of his constitution. Had his years of strenuous exercise done his constitution any harm? He is able to say at this writing that he does not believe it has. To illustrate: In October, 1918, he was suddenly attacked with influenzal pneumonia, which he had probably contracted from patients during the beginning of the epidemic. He had thought himself to be in perfect condition after three months' life in a tent at the seashore. In fact he had taken an early morning bath with the temperature of the air and the water at 50 degrees, only a few mornings before. He went through the influenza pneumonia without any complications except night sweats to disturb him. He remained in bed twenty-seven days, and out of practice for six weeks. He lost in weight something like 35 pounds, twenty of which he has regained. Two weeks after recovery he resumed his walks with some feeling of anxiety, but was surprised to find that he could walk five miles in one hour and twenty minutes without any sign of tire or fatigue. He has since had his kidney secretion examined and checked up by a reliable laboratory and the reports were that the secretion was normal in every particular. His blood pressure is normal. His radials are soft and compressible. His heart is normal. He has what is known as "pep." Three evenings ago he accomplished the following without rest and with no sign of tire or distress: Danced two fox trots, two one-steps, three waltzes with different partners; immediately afterwards did shadow boxing for ten minutes, winding up with a few steps of a jig in jig time. Of course he perspired freely as any individual would under the circumstances, but the breathing was good and there was no out-of-breath feeling. He has always been a total abstainer. As the result of his observations of himself he has noticed the following: That a five-mile walk at a good pace, winding up with a Turkish bath, will abort a cold, unless it has the grip infection associated with it. That exercise will increase blood pressure both during the time of exercising and subsequent to it for a while, but after a few hours the pressure will be lower than it was before exercise, a difference as a rule of five points. Sea-bathing after light exercise on the beach will raise the blood pressure, but after a few hours the pressure will be lower than it was before the bath. The writer has taken sea baths when the water was 38° and the air 36°. He has taken a sea bath on January 7 in the water at Coney Island. He has walked to the Island, a distance of eight miles, and taken a sea bath in the month of December. Five years ago he swam in the month of October, when the water was 55°, a distance of one-half mile, beating his opponent, a fine swimmer and a trained athlete, who was fifteen years his junior. In 1897 he biked 84 miles in one day over very bad Connecticut roads. Of all forms of exercise he likes walking in the open the best. There is something very exhilarating in a long, brisk walk out of doors. The mind seems to be at ease, and for temperamental disturbances, transitory in character, there is nothing like a good long walk. Next to walking he would place a swim in the surf. It is the best cure there is for the grouch.

As an enjoyable form of exercise nothing can beat dancing in the open air. It is indeed an enjoyable form of exercise for the one who participates as well as an entertainment for the onlooker. Of course dancing indoors is not as good, but the atmosphere in the average dancing hall is as pure and probably purer than the air we inhale in the average gymnasium. For the later life period dancing is to be recommended, especially in the afternoons before crowds gather. In selecting the dancing partner it is very necessary that she be a good dancer, the better the dancer the more pleasure. To one who dances much appearances do not count for a great deal, but there should be some attractiveness and she should not be heavy in weight, or too slim in stature, though some short, heavy people are very light on their feet. From the man viewpoint any dancer much over 140 is too heavy when one dances the whole evening from 15 to 45 dances. Any dancer will tell you that there are no sexual sensations during the time of the dances, although to the onlookers this is very apt to be the idea in their minds. The writer would make the assertion that any one who confesses to sexual feeling during the dance is either a very poor dancer or abnormal sexually.

Another form of indoor exercise is handball. This

is indeed a very good form of exercise, but if one misses many times, as he is apt to do if he is playing with a younger opponent, it is apt to nettle him and irritate his temperament. Routine setting-up exercises never appealed to the writer. They become too irksome and tedious in the extreme. Calesthenics on the beach before a swim in the surf are very good. Golf is a good game, the writer has been told, but if one misses many times and makes many poor plays it is apt to get on his nerves and thus the good effects of the game may be overbalanced.

Boxing is too strenuous for the later life period. As a man becomes older, his movements become slower and more deliberate. For this reason the speed of the young man outweighs other considerations. Boxing is only for the young and the young only. The chances are too many against the older opponent and he may receive a very serious injury in consequence. Duelling appears to be a better form of exercise, as many men can testify. Wrestling should be a good form of exercise in later life. Bag punching and routine gymnasium work grow wearisome. Lawn tennis may be played by very active men in later years, and a few men beyond 50 have excelled as players, but it is a very fast game and essentially a game for the young.

Ice skating for the young and old is a healthful form of exercise, especially when the skating is done out of doors. Skating in ice palaces is not to be encouraged. They are apt to be very cold, raw, and chilly, and the atmosphere is bad as a rule. H. Toeppen (*N. Y. Medical Journal*, Feb. 2, 1907) mentions a man in Holland who was 70 when he won a well-contested skating race.

Conclusions: 1. After 50 degenerative changes are the most likely sequences of an early active life, especially if, as occurs often, the individual becomes sedentary in his habits.

2. As a rule, men over 50 do not exercise sufficiently to oxygenate their tissues. The dressing gown, the slippers, the newspapers, the easy-chair, the warm fire, the good dinner, the red wine at this time make their appeal along with the pipe, cigarette, or cigar.

3. There does not appear to be any great limitation of sports in those beyond middle life, and for this reason active exercise should be advised, especially in those who have led the athletic life.

4. Men who have done remarkable feats in later years show that the heart is not played out after 50. Added to those we have already mentioned we may name Weston, O'Leary, Hughes, O'Rourke, Blaikie, Radcliffe, Lombroso, Gaskell, Mace, Hocking, and Muldoon.

5. One is apt to compare the human heart with the carburetor of any automobile. Without a good working heart the human cannot go through life properly. There is a very big difference, however, on reflection. If your carburetor does not work properly you may have it repaired or substitute a new one but all you can do with the human heart is to repair it and build it up. An individual heart for each individual, and no substitution must be thought of. A truly wonderful organ is the human heart. It may be subjected to all kinds of strain in health with the chances, even in later life, that repair will go on if it is given half a chance.

6. Walking in the open air with free breathing and good style is as useful a form of exercise as any we know.

7. Finally, there is a close relationship between the physical exercise practised and degenerative changes in the heart, arteries, and the kidney, or the cardiovascular renal system, when the voluntary and the involuntary muscles are not kept in tone by regular systematic physical exercise, particularly in later life to old age.

428 Forty-seventh Street.

AUSCULTATORY PERCUSSION.

By A. L. BENEDICT, A.M., M.D., F.A.C.P.,
BUFFALO.

The comparatively slight use of this method may be explained as follows:

1. The sceptic explanation that those of us who use it are the victims of self deception and that we secure correct results by the law of chance of adherence to normal standards or the detection of abnormalities by evidence of other methods suggesting to us what we think we determine by auscultatory percussion.

2. Those liberal enough to concede that genuine information may be secured by this method, suppose it to require special delicacy of auditory perception or skill.

3. Many are prejudiced against it, as against various other procedures, by the extravagant claims of some of its advocates.

4. Many set it aside after brief trial because they themselves or others whom they follow as expert authorities fail to acquire the technique. It is not realized that although the general principles involved are the same as for any other diagnostic method based on hearing, it can not be acquired and judged like a mere novel detail of ordinary percussion or of auscultation, but requires considerable experience and practice, even if one be skilful or has a good medical reputation or both.

The acceptance of the first explanation would terminate the discussion as soon as begun, but the writer may say candidly that he has frequently argued with himself as to the propriety of holding any opinion against which there is good authority, has checked the method at necropsies by driving bank pins into the body wall to show the results of auscultatory percussion, at operations by outlining organs immediately before section, by comparing results by this method with those by fluoroscopy and radiography, and in various other ways. In the great majority of instances, the method has proved reliable, even when the results seemed so improbable that failure was conceded in advance. For instance, in a test on a rotten cadaver, the diaphragmatic division of thoracic and abdominal organs was made out, but the liver could not be located except as an incredibly narrow zone. On section, in spite of the obvious obstacles, it was found that the liver had actually been correctly mapped out. In another case, repeatedly examined, auscultatory percussion consistently failed to locate the lower portion of an easily palpable liver. At necropsy, it was found that the apparent failure of auscultatory percussion was really a brilliant success, as it had located accurately the hepatic tissue, while the palpable, lower portion of what was considered the liver, consisted of almost pure cancerous tissue. In other instances, failures have proved to be due to jump-

ing at plausible conclusions. For instance, what at first thought were considered a large stomach and a small liver, both of unusual shape and position, were soon analyzed, in conjunction with ordinary percussion and other signs, as transposed organs. In general, auscultatory percussion cannot designate an organ, it merely shows that there is, in a given location, something that has essentially the same vibratory conduction, and whether this is a certain organ or a part of an organ or a pathologic mass of some kind is merely a matter of induction. Two practically identical units, closely opposed, may vibrate as a unit; for example, the stomach and distended colon, two tumors, etc. Sometimes, for reasons that cannot be explained in detail, ordinary auscultatory percussion may reveal such conditions as a single unit, while auscultation of the vibrations of a tuning fork or electric buzzer, may distinguish them.

The second explanation, that peculiar delicacy of hearing and skill are requisite for the successful use of auscultatory percussion, does not seem warranted. While, of course, one may distinguish differences of pitch and quality in listening to percussion or some other source of vibrations with the stethoscope, just as he may by the ear alone, it is better to disregard these altogether and to concentrate the attention on the fact that the sounds transmitted are essentially identical so long as the stethoscope and the source of vibrations are over the same vibratory unit and that a sudden change occurs when either passes the limits of this unit. When we reflect that carpenters, even amateurs, use essentially the same method to determine the location of scantlings in walls in order to secure a proper place for nails, it is obvious that the method is not particularly difficult. But, as mentioned under the fourth explanation, considerable practice is necessary to acquire the art, say two or three months of preliminary experiment before relying on it, and expertness in other diagnostic methods and prestige, genuine or self-accredited, cannot relieve one of the necessity of study.

The third explanation, that of extravagant claims producing scepticism, is somewhat difficult of discussion. Various extravagant claims, as that one could split a dollar bill, fly in a heavier than air machine, locate internal organs by sight, eliminate typhoid fever, have proved to be true, while on the other hand very modest claims consisting of mere extensions and modifications of well-established diagnostic methods have proved to be false. So much depends upon the personal equation that the extravagance of a claim can be defined only in the light of practical results. So far as the writer is concerned, he will admit the possibility of error for every test and, on the other hand, claim that this admission conduces to greater aggregate accuracy. From the writer's standpoint, one of the most extravagant claims made for auscultatory percussion is that it can locate the spleen. There is no *a priori* reason why it should not do so and it often does, but, in general with a small spleen, not necessarily closely apposed to the body wall, one is extremely liable to map out the posterior projection of the stomach or the splenic flexure. On one occasion, a friend had me shut my eyes and apply the stethoscope to the back while he percussed over the front of the chest. For the moment he made me think that he could discriminate the different pulmonary lobes, something that I had attempted but of whose impossibility I had long ago become convinced. It transpired that he was a sceptic, and that he was simply fooling me by a skillful adaptation of the well known possibilities of bone conduction. It is obvious that one deceiving himself by such a procedure could very well make an extravagant claim that would discredit the whole method.

General Principles and Limitations.—1. As stated above, differences of pitch and quality should be disregarded and attention should be paid merely to the abrupt change in loudness or otherwise, indicating that the limits of a structure vibrating as a unit have been passed.

2. It follows, unless the method is worked out along different lines, to detect differences in pitch and quality, that auscultatory percussion gives no information of nature of an organ or mass, much less of the identity of an organ. All such conclusions must be induced from information otherwise obtained.

3. Two factors determine the vibration of a given area as a unit, make-up and solidarity. The term make-up is deliberately chosen instead of some such term as structure in order to avoid misunderstanding. For example, the collapsed stomach, while of the same structure as the distended organ, does not vibrate as a distinguishable unit. When collapsed, the splenic flexure of the colon naturally tends to fill in the space and, unless one takes pains to determine the condition by ordinary percussion, swallowing tests, etc., one is very likely to jump at the conclusion that the splenic flexure is the stomach. Gas above liquid gastric contents, of course, shows as a different area. A consolidated portion of lung, though, in a sense, not departing from its original histologic structure, is obviously very different in make-up, so far as the transmission of vibrations is concerned, and hence will be mapped out as an independent unit, by auscultatory percussion. The case of the cancerous liver mentioned above is another example of difference in make-up. Bones have practically identical structure, with certain well known qualifications, but two bones though giving nearly or quite the same note on ordinary percussion, are entirely shut off from each other by auscultatory percussion, unless, of course, they are normally or pathologically united by bony formation, as in the skull or sacrum or a firm ankylosis. Normally, vibrations will be conducted the whole length of a bone, from percussion point to stethoscope, providing, of course that these two points are chosen so as to provide fairy direct application. If the bone is fractured, such conduction will not occur, unless the fracture is only partial or the fragments are so firmly in apposition, as in impaction, that solidarity persists from the practical standpoint. As implied above, virtual solidarity may occur from the close apposition of two similar vibrating units, as the stomach and distended colon. The same qualification applies occasionally to closely apposed tumors, and it is conceivable that an intraligamentous or other cyst, with thin walls, might vibrate as a unit with an ascites, though in several cases, with the help of other signs and general hints the writer has been able to distinguish. For instance, a sur-

geon was about to inject air to treat a supposed tuberculous peritonitis, but, mainly by auscultatory percussion, it was demonstrated that the condition was an intraligamentary cyst. It frequently happens that a tumor of the gastric wall can be shown to be of different nature from the stomach as a whole, though, in case of quite general cancerous infiltration, no such discrimination is possible. A stomach with open and infiltrated pylorus, plus dilatation of the duodenum was diagnosed as hour-glass stomach. In such a case, the error is one of inference rather than of failure of auscultatory percussion. In this particular case, the same error of inference was made even after *x*-ray examination, but this was several years ago, before *x*-ray technique was well developed and the condition of the pylorus prevented the appearance of a typic duodenal cap, so that the same error might be made today.

4. In comparing auscultatory percussion with *x*-ray pictures of rapidly moving parts, as the heart and the stomach, there is an obvious difference, as the latter method gives instantaneous pictures, while the former is necessarily slow and gives only average data. The cardiac area as determined by auscultatory percussion corresponds to the actual anatomic appearance more closely than does the radiogram, probably for the reason that the latter is usually taken at an angle and that some parts of the heart do not "take" on the plate. In one instance, auscultatory percussion showed a normal stomach, whereas the Roentgenologist diagnosed hour-glass contraction and showed a most convincing picture. The writer was almost convinced of a blunder until the Roentgenologist offered confirmatory evidence consisting of more plates. Unfortunately these showed the hour-glass contraction at different sites. Fluoroscopic examination was then made and this showed where the trouble lay. We had to deal with a stomach of marked peristaltic contractility but of normal area and without hour-glass contraction. In such cases it is obvious on reflection that radiograms rather exaggerate the depth of the wave. Not only does the bismuth ride on the inner surface of the stomach, but on top of rugæ, and it is quite possible that a rapid contraction further exaggerates the indentation by throwing the contents of the stomach, including the bismuth, away from the mucosa. Similarly, diaphragmatic movements are exaggerated by the fluoroscope or contrasted inspiratory and expiratory radiograms, especially if we watch or compare the anterior and posterior rib shadows, whereas in auscultatory percussion we usually deal with shallow respirations and average the location of the supradiaphragmatic and infradiaphragmatic organs in the slower process of percussing and marking.

5. The body-wall inevitably transmits vibrations and modifies those from deeper seated organs. Thus, granted that there is no particular vibratory unit under the stethoscope, one can still imagine himself mapping out an organ, but its suspiciously regular circular outline and diameter of about 1½ inches prevent error—as in the case of transposition of the heart, when the stethoscope and percussion are applied as usual.

Auscultatory percussion also requires that the vibrations transmitted by the finger—or by any modification, as the end of a pencil, a dental plugger with rubber disk fixed on the end, a tuning fork with hard rubber base, or a similar terminal from an electric buzzer, the elastic strips advocated by Abrams for a somewhat different use, etc.—be applied where the particular organ or mass is fairly near and firmly applied to the body wall, and also that the stethoscope receive the vibrations with similar restrictions as to directness of conduction, the requirements for the latter being more definite.

The vibrations conducted from the organ to the stethoscope necessarily radiate in the superficial tissues so that a thick body wall exaggerates the actual size of the organ.

Empirically, rather than for demonstrated scientific reasons, satisfactory conduction from the organ requires a stethoscope end not much smaller than the ordinary cardiac end. The finger tips, with or without pleximeter finger interposed—and mediate percussion is usually more distinct though requiring assistance in holding the stethoscope—as well as the terminals of the various substitutes for finger percussion, also have an appreciable size. Thus, it is obvious that the results of auscultatory percussion can not be marked out as lines in the geometric sense but can only approximately be limited in bands of, say, a centimeter in minimum diameter. Such demarcation is sufficient for clinical purposes, but does not and cannot approach the requirements of those who demand statements in millimeters. Whether these demands can be complied with by other methods may also be disputed. Generally speaking, an organ or mass of less than 2 inches in diameter cannot be satisfactorily dealt with by auscultatory percussion, though one may, of course, determine the continuity or fracture of a bone of much less diameter in one direction.

It may be remarked in passing that many physicians fail to note an important fallacy of palpation, as contrasted not only with auscultatory percussion but ordinary percussion. Anything, the liver, for example, palpated through the body wall, is felt as a mass considerably larger than it really is. Pinch up the abdominal wall, divide its double thickness by two, and one gets a pretty good idea of the fallacy of palpation. Failure to note this obvious precaution accounts for the very common diagnosis of large liver, when the organ is of normal size or even moderately diminished in bulk.

While, theoretically, the vibrations transmitted to an organ are conducted throughout its entire extent, there are limits to the size of an organ or mass which can be mapped out practically by auscultatory percussion, and these limits depend somewhat on the conductivity of the organ or mass itself. Fortunately, limitations along these lines do not interfere seriously with practical needs. One cannot map out the whole of a normal lung, but there is no need of doing so. The liver probably transmits vibrations throughout its whole extent, on account of its greater density, but toward the dome there is a greater and greater intervening depth of lung, so that one can neither get vibrations to nor from it, and practically the normal boundaries by auscultatory percussion are from about the fourth rib or space to the costal arch, but its departure from the costal arch in either direction is usually significant of its actual bulk. As the stomach is practically never fully distended and would

present the same difficulties as the liver if it were, it typically appears as a more or less regular elipse, normally inclined at an angle of 45 degrees to the horizontal but tending toward the horizontal or vertical position according to well known circumstances. The spleen is usually not adapted to auscultatory percussion unless enlarged so that it can be better mapped out by papation. The heart is usually pretty satisfactorily mapped out by auscultatory percussion. The kidneys are too deeply seated and the appendix too small for this method. The colon is seldom anything like uniformly distended and usually only part of the transverse portion can be mapped out, while it is, of course, out of the question that we should attempt to outline its whole course. The same applies *a fortiori* to the small intestine, though a distended area may be mapped out and the procedure may be of practical value in distinguishing intestine from other organs or masses. Abdominal tumors and ascitic collections, on account of the conductivity of their contents, are practically never too extensive for satisfactory determination, but the inaccessibility of deeper portions leaves much to the imagination, as in other forms of physical examination, while small tumors are adapted to auscultatory percussion only when near the anterior or lateral abdominal wall. The pelvic organs are out of reach. In the case of the lungs and pleural cavities, auscultatory percussion is of value mainly to determine the boundary between supradiaphragmatic and infradiaphragmatic contents when, for various reasons, ordinary percussion and auscultation fail. But any local condition affording a contrast to surrounding parts may usually be located and its nature inferred or established by other methods. For example, a consolidated area of lung of reasonable size, a collection of fluid, a good sized cavity, a pneumothorax, with or without contrasting liquid, may usually be located as something decidedly different from juxtaposed contents, and even this information is a great help in making a diagnosis.

377 Elmwood Avenue.

NASAL CAUTERIZATION IN THE TREATMENT OF CERTAIN CHRONIC AFFECTIONS (METHOD OF PIERRE BONNIER).

By A. LEPRINCE, M.D.,

NICE, FRANCE.

SURGEON LARYNGOLOGIST, ST. ROCH HOSPITAL.

In July, 1907, Dr. Pierre Bonnier presented to the Paris Neurological Society a communication entitled "Reflex Enteritis of Nasal Origin." In this note he showed that since the roots of the trigeminus cover the whole extent of the bulb, an explanation may be found in their manifold connections, normal or individual, of the great variety of bulbar reflexes which may have their origin in even a slight irritation of the nasal mucosa.

The majority of the nervous centers situated in the region of the oblongata are the guardians of our organic integrity and functional equilibrium. Their rôle is fundamental, physiologically, pathologically, and therapeutically. We all remember Claude Bernard's experiment. It was one of the achievements of Dr. Pierre Bonnier, whose death last spring threw the whole of the French scientific world into mourning, to show that the oblongata may be reached through different points of the mucous membrane of the nose and that it is possible to penetrate to all parts of the bulb by way of the descending root of the trigeminus.

It is by acting on these nervous centers through the fibers of the trigeminus, which extend throughout the nose, that it is possible to repair their functional activity. The works of Pierre Bonnier on "Centrotherapy" have made it possible to establish plainly enough the different zones of the nasal mucosa which correspond to the various bulbar centers.

A slight cauterization of the inferior turbinal or of the septum will cure an enteritis, a nervous disorder, a cardiopathic condition, an asthma, bladder troubles, etc.

This method of cure, which at first may appear paradoxical, is in reality nothing more than an isolated case of that general centrotherapy which was practised by physicians of old, and notably in Chinese medicine (cha-chin). The method is a rational one since it acts directly on the bulbar center, which gives the nervous influx to the organ affected.

Every illness originates primarily in a nervous element and it is only logical to attack that part of the oblongata which is to some extent the center in which is organized the nervous defense of our principal functions: digestion, circulation, nutritive changes, internal secretions, etc.

The present war, said Dr. Bonnier in one of his latest communications to the Société de Biologie (March 4, 1916), has made apparent the nervous disturbances resulting from the acute, anxious, and prolonged nervous tension exacted of the thousands of men whose lives have been changed overnight. Failure of the bulbar nervous system has led to interminable cases of gastroenteritis, asthma, cardiac affections, affections of the bladder, albuminuria, phobias, neurasthenia—in short a mass of troubles which rapidly have become chronic through breakdown of the nervous system and in which treatment is directed only to the peripheral and local results instead of to the stimulation of the bulbar regulator which alone will reestablish the normal function of the organs affected.

As one of Dr. Bonnier's disciples, I will simply bring to the attention of the readers of the Medical Record a few recent observations on treatment and the results obtained in various conditions of nasal cauterization, exclusive of all other forms of treatment.

Case I.—Mme. H., æt. 58. The blood pressure was 20. There was ringing in ears. After three cauterizations the blood pressure was lowered from 20 to 18 and the tinnitus aurium was lessened.

Case II.—M. D., æt. 60. Had suffered from hemorrhoids for 30 years. Nasal cauterization was done on April 2. On May 6 the hemorrhoids were greatly diminished in size. Four further cauterizations were required before a favorable result was obtained. At the present time the hemorrhoids can easily be pushed in and they no longer bleed. Bowel motions are no longer painful.

Case III.—Mlle. D., æt. 17. Erythromelalgia of the extremities. The hands and feet were always icy cold and reddened; the nose also was red and cold. Two cauterizations cured the coldness and redness of hands and feet. Two further treatments put an end to the coldness and redness of the nose.

Case IV.—M. L., æt. 19. Erythromelalgia which commenced three years ago following chilblains. The first cauterization was done on May 18, and the second on May 24. The cure which resulted from these two treatments has persisted to this day.

Case V.—M. D., æt. 25. Albuminuria and general weakness. Since June, 1916, after several courses of treatment for Bright's disease, he was excreting regularly 2 grams of albumin to the liter. Since then he has been on a milk diet. Suffered from depression and general fatigue and was obliged to sit down constantly. This patient was cauterized for the first time on December 21, and within a day or two the sense of fatigue was lessened. Four cauterizations considerably improved the general condition. By January 25, the patient's weight had increased by 7 kilos, and for the previous fifteen days he had given up dieting and had eaten meat, partaking of the same food as his comrades. The quantity of albumin in the urine had not changed, being still about 2 grams to the liter.

Case VI.—M. L., æt 61. Localized facial neuralgia (tic douloureux). Even slight pressure on the right incisors provoked an attack of neuralgia and violent pain in the superior dental branch. It was impossible for the patient to chew his food without pain and he lived on vegetables only. Having consulted Dr. Petit, surgeon-dentist, in order to have the painful incisors taken out, the latter referred him to me and on the same day, March 23, I gave him a nasal cauterization. This immediately provoked pain. By March 25, however, there was manifest improvement in the neuralgia and pain was caused only by vigorous brushing of the teeth. The evening of the day the cauterization was done, the patient was able to eat bread and meat, which he had not done for several weeks. When seen again on April 10, this patient considered himself quite recovered, the pain having completely disappeared since March 25.

Case VII.—B., æt. 42, an army officer, had suffered from left-sided sciatica since the winter of 1916-17. He had been treated with electricity, hot air, and massage, without appreciable result. Experienced pain after walking, the pain radiating from the ileum. There was no pain along the course of the nerve, no wasting of the calf muscles, and no obliteration of the gluteal fold. Nasal cauterization was done on Jan. 21, 1919. Two hours after the cauterization, pain developed in the loins and lasted for three days. By the 24th, the lumbar pain had disappeared and at the same time the sciatica had improved. On the 25th, the patient was able to walk without difficulty and could easily lift his leg when the knee was extended.

Case VIII.—M. D., æt. 50. Had suffered from tabes for 15 years. There was tinnitus aurium, with lightning pains. After three cauterizations the noises in the ears had disappeared and the patient could easily stand upright with eyes closed and without vertigo. There was no improvement in the lightning pains or in the insomnia from which he had suffered.

Case IX.—Mme. O. D. Complained of tinnitus aurium and deafness, the former being very marked and isochronous with the pulse; the blood pressure was 21. The first cauterization lowered blood pressure to 17; a second brought it down to 16. Treatment which was commenced in March, 1918, necessitated six cauterizations. From April 27, the date of the last cauterization, the tinnitus, which had been increased during the night following application of the cautery, became progressively less until it completely disappeared. This patient, the mother of a physician, had been unable to sleep and had become neurasthenic to the last degree.

Case X.—Mme. M., æt. 39. This patient was deaf and had tinnitus; Romberg's sign was present. Bone conduction was greatly diminished. The watch could not be heard when in contact with the ear. Nasal cauterization on March 24. On the 26th, watch in contact with ear could be heard, as could also the note *la* on the tuning fork at a distance of 10 cm. A second cauterization improved the tinnitus slightly and cured the Romberg.

Case XI.—M. P., æt. 23 (military patient). Had suffered from urethritis and prostatitis for 12 months. There was pain in the loins with a sensation of weight in the lower abdomen, with fatigue and general depression. Patient had been losing weight for a year. There were signs of pulmonary tuberculosis. The first cauterization was done on Saturday, January 17, and was followed by immediate improvement which was noted the following day. On that day the patient danced all the afternoon without fatigue. The prostatitis was greatly improved and the general sense of fatigue had entirely disappeared. This case is still under treatment.

Case XII.—M. M., æt. 25. Liver affection contracted in the Congo. Could take only kephyr and yoghourt; any other food caused immediate vomiting. Patient suffered from profound neurasthenia, abulia, tic, acne, nightmares every night, and general depression. Was cauterized on January 13, and from the 15th improvement was noted by the patient himself, who commenced to eat normally without vomiting. On the 17th, a second cauterization was done; this was followed by liver disturbances and nightmare. On the 25th, the patient had gained 3 kilos, and was bright and had begun to show interest in life. His nightmares had disappeared entirely, the acne was improved, and the neurasthenia was completely cured.

Case XIII.—D. K. Suffered from habitual constipation, enteritis, gastric stasis, and palpitation of the heart. Patient was cauterized on December 24 and had a bowel movement the same evening, two motions the next day, and from that time on a stool regularly every day. Three cauterizations definitely cured the enteritis and stopped the palpitation.

Case XIV.—V., æt. 45. Suffered from general wasting, digestive trouble, vomiting, and constipation. Had lost 4 kilos in 2 months and could take only milk. Radioscopic examination revealed no lesion. Cauterization done on December 4. The same evening there was rumbling in the abdomen and regular bowel movements occurred on the four succeeding days and then arrest again on the fifth day. Two further cauterizations were done and by December 15 the patient had gained 200 grams. He was again cauterized on December 22 and 28 and on January 4, 12, and 17, and gained respectively 200 grams, 400 grams, 300 grams, and finally 600 grams. At the present time he is able to eat meat and bread, and to walk without fatigue, and considers himself almost cured.

Case XV.—Mme. B. Suffered from tinnitus aurium, paludism, and habitual constipation. The tinnitus was cured by two cauterizations, the constipation was greatly improved after the first, and from the time of the second cauterization the bowel movements became regular.

Case XVI.—Mlle. B., æt. 35. Symptoms: Tinnitus and coldness of extremities. Had suffered from enteritis for 15 years, with obstinate constipation. The coldness of the extremities and the enteritis were cured by three cauterizations, since which time the patient has had regular bowel movements each day. The tinnitus has not been improved.

I have purposely chosen these few cases from a large number of similar ones in order to show the diversity of the chronic affections in which nasal cauterization may be applied.

It will be noted that certain patients were improved and others cured by the first cauterization and that in other cases again it was necessary to apply the cautery several times before obtaining any result.

Although the nasal topography has been carefully explained by Bonnier, and although the exact zone in which the fine point of the galvanic cautery should act can usually be determined, it is none the less true that the chief difficulty is to touch the right spot, since the anatomy of the nose and the distribution of the nervous filaments vary in individuals, and, indeed, it may be said that no two noses are alike. However this may be, one may be assured, as a rule, of good results in from 72 to75 per cent. of cases treated.

A source of error to be avoided lies in cauterizing the mucous membrane too deeply. The slightly reddened cautery should be applied lightly so as just to graze the surface sufficiently to provoke a very slight burn, which should no longer be apparent at the end of forty-eight hours. Severe burns produce no result, while those which are too superficial often affect only the mucosa and do not produce the necessary reflex. This is a matter of dexterity and practice which, however, can easily be acquired.

The employment of cocaine is useless and often leads the operator to cauterize too deeply. I use it only when it is necessary to reduce the size of an enlarged turbinate, when it is a question of cauterizing its posterior extremity, an operation that must be done under control of the sight.

Certain sceptical physicians have refused to see in similar statistics or in those presented by Bonnier, anything more than fortunate cases or have attributed the cures obtained to suggestion. They are certainly happy suggestions which in eight days can cure an enteritis of fifteen years' standing, hemorrhoids which have existed for twelve years, a neurasthenia of several years' duration, lower blood pressure, etc.

"Life is an incessant struggle on the part of our organism against internal and external causes of death. We know very little about the way in which our organism carries on this struggle, but our nervous system knows, and the oblongata is the great regulator of our functional equilibrium. Let us study these, for it is not the doctor who works the miracle," said Bonnier, "but Nature herself."

Medicolegal Notes.

Insufficient Evidence of Negligence.—In an action against two physicians for negligent treatment of a fracture of the tibia of the left leg of the plaintiff, a woman 49 years of age, it appeared that the defendants, on being sent for on November 5, 1916, reduced the fracture and placed it in a fracture box in the ordinary way with Buck's extension, attaching a weight of 26 pounds thereto. On December 19 the apparatus was removed by the defendant V., a part of the weight having been taken off a week previously. At the time of the removal of the apparatus, V. attempted to ascertain whether or not union had taken place, but desisted on account of complaints made by the plaintiff. He advised the plaintiff to use her leg. He called again on December 27 and then discovered that there was no union of the ligaments. He then advised an operation for the purpose of fastening the ends of the bones together. Plaintiff was then taken to a hospital, where another doctor performed an open operation and fastened the bones together by means of a Love splint. The plaintiff remained in the hospital for 10 weeks and then went home. The bone was united perfectly but her left ankle was stiff as a result of the long disuse. Negligence was alleged in the following respects: (1) The application of the weight of 26 pounds; (2) the direction to use the injured leg; (3) failure to inspect the leg for about 8 days after removing the apparatus; (4) failure to take an *x*-ray picture of the broken leg up to the time of removal to the hospital. Judgment for the plaintiff was reversed for the following reasons:

An expert medical witness for the plaintiff testified: "If the bones had been held somewhat apart, there generally still is an attempt at union. In other words, nature would attempt to repair the broken fragments. It would send out callus, and, if that can reach across, why, it might go together." All the medical testimony, including that of this witness, showed that there are a certain percentage of cases in which nature makes no effort to unite the fragments, and there was no dispute that this was the situation in this case. The medical testimony showed further that there may be such a failure of nature in cases where absolutely correct treatment has been given and correct methods followed. There was no evidence to show that there was any greater stiffening of the ankle at the end of the seven weeks' period, when the extension was removed, than should be expected in cases of this character. Upon the trial it was stated that no claim was made of any negligence at or subsequent to the time of the removal of the plaintiff to the hospital, and that, on the contrary, the services of the doctor there were entirely proper and satisfactory.

It was held to be established by the overwhelming weight of evidence in the case that the claimed negligence had nothing to do with the failure of nature to commence the healing process. If there had been a proper amount of exudate, and it appeared that the failure of the ligaments to unite was due to the fact that the ends could not be united, a different situation would have been presented; but there was not a syllable of such testimony in the case. The failure of nature to commence a healing process is sometimes due to one cause and sometimes to another, and sometimes no cause whatever can be assigned. It seemed to the court purely and wholly speculative to say that the nonunion was due in any degree to the negligence of the defendants.

There was no evidence to show that the bones were not properly placed in apposition to each other, or that the weights were not properly attached in the usual and customary way. If an expert cannot say that the treatment was improper, upon what ground can the jury arrive at that conclusion? The fact being established that there was no union, it was apparently assumed that it must be due to some negligent treatment. The evidence did not sustain that view. The entire case rested upon the testimony of a physician that he would have treated the fracture in another way. Physicians are not compelled to choose at their peril between two accepted methods of treatment. Statements of experts that they would have treated the fracture in some other way are incompetent. —Staloch v. Holm, 100 Minn. 276, 111 N. W. 264. The whole evidence was that there was no ankylosis, properly so called, of the ankle joint, but the stiffened condition of the plaintiff's foot was due to failure to use it and to a shortening of the cords, which could be remedied by use or by a simple operation.

There was no *x*-ray apparatus available at the time of the injury; and it did not appear that, had an *x*-ray picture been taken during the treatment, it would have shown that no callus was being formed at the point of fracture. It was therefore held that the failure to procure an *x*-ray during the course of treatment did not amount to negligence or unskilful treatment.—De Bruine v. Voskuil, Wisconsin Supreme Court, 169 N. W. 288.

Basis of Expert Opinion.—In an action to recover damages for an alleged illness caused by tonsilitis claimed to have resulted from traveling in a "cold passenger car" on the defendant's railroad, a medical witness was permitted to give a detailed history of the plaintiff's case as related to him by the plaintiff. This witness was permitted to testify as follows: "Q. State to the jury, in your opinion, from what Dr. Plummer (the plaintiff) described to you, whether that condition could have been produced by exposure on that train? (Objection by defendant.) A. It is perfectly possible from the history that he gave me, and highly probable.

On appeal from a judgment for the plaintiff, it was held the objection should have been sustained. The form of the question permitted the witness to decide the very question submitted to the jury upon the statement which the witness had received from the plaintiff. It permitted the expression of an expert opinion based upon facts related by the plaintiff to the witness, although the truth of the facts had not been passed upon by the jury. The opinion of an expert cannot be based upon an assumption of the truth of facts related to him by a witness or any third person. The expert opinion must be based upon the assumption that the fact submitted to the expert has been established by the verdict of the jury.—Plummer v. Seaboard Air Line R. Co., North Carolina Supreme Court, 96 S. E. 1032.

Military Medicine.

Tetanus at the Battle of the Piave.

Tizzoni, writing in the *Giornale di Medicina Militare* for December 31, gives the statistics of the cases of tetanus in the troops and prisoners of war in connection with the Battle of the Piave. The latter, which included the period of the Austrian offensive and Italian counteroffensive, appears to have lasted from June 1 to June 30, and the number of cases of tetanus to develop in this period was 71. During the month of July there were 13 additional cases not included in the summary. Of the 71 cases 9 occurred in Austrian prisoners. Contrary to what would be expected not all of the cases resulted from war wounds, the total under this head being but 53. Other causes were injuries not received in battle, injuries probably self inflicted, and surgical operations. The latter numbered 2 while 3 malingerers gave themselves the disease through attempts to produce artifacts in the skin. The number of cases from strictly accidental wounds was 4. The incubation periods were unlike those commonly published by reason of the large percentage of late tetanus due in part perhaps to serum prophylaxis. Thus of the 53 strictly military cases the incubation period was more than 10 days in 36. In 17 cases the incubation was over 15 days. While this is longer than cases in civil practice it seems to have been normal in military practice for 12 days has been given as the average with 21 as the maximum in British figures. In the author's material the individual period has varied from 1 to 73 days with an average of 13 days. Of the 53 military cases with some kind of antitoxin prophylaxis but 15 were lost, a mortality of less than 30 per cent. If, however, we select only cases which received full immunizing doses in season the mortality becomes vanishingly small. In previous figures in which the use of preventive serum was standardized the mortality was 5.8 per cent. Standardization means the use of a single approved serum in repeated injections at a sufficiently early period after the receipt of the wound.

An Epidemic of Icterus Observed in Roumania during the Campaign of 1917.—In a paper read before the Paris Academy of Medicine last fall, Professor Cantacuzene of Bucharest gives an account of the epidemic of icterus described by other observers in Roumania in 1918, and which appears to have been similar to that which occurred in the Dardanelles campaign. It began in the army in May, 1918, and spread through it with startling rapidity. It was distinguished by its wide extension and remarkable benignity. The epidemic reached its acme in August and disappeared in October.

Cantacuzene states that the disease began with slight fever, falling after the first or second day, then appeared nausea with or without vomiting, and with tenderness over the gall-bladder; the conjunctivæ showed jaundice and then the skin generally; asthma was pronounced; other symptoms were muscular pains chiefly in the legs, pale stools in half the cases, pruritus in a third, infrequent pulse, urine rich in biliary pigments and in urobilin. The attack lasted from 8 to 15 days. Later the cases were less typical. Massive fatty degeneration of the liver was found in the rare cases of death which occurred, due to primary angiocholitis of the intralobular biliary canaliculi.

Neither by the microscope nor by inoculation into guinea-pigs were spirochetes ever discovered. Blood culture was positive in a third of the cases and yielded atypical paratyphoid bacilli. The author concludes that these atypical paratyphoid bacilli are probably the pathogenic agents of epidemic jaundice, and this view was supported by the following experiment: Eight of ten young men vaccinated against typhoid and paratyphoid more than six months previously, swallowed an agar culture 24 hours old of one of the atypical paratyphoid strains; two received each one-tenth of the culture intravenously. The latter had no symptoms whatever. Of the eight who ingested the culture one had a rise of temperature of 1.5°; six had slight fever lasting one or two days, followed by jaundice of the conjunctivæ with nausea and tenderness over the gall-bladder; one presented after four days the complete syndrome with generalized jaundice and was ill for a fortnight.

Conference on Rehabilitation of the Disabled.—The first International Conference on Rehabilitation was held in New York City from March 18-21 inclusive, under the auspices of the Red Cross Institutes for Crippled and Disabled Men and for the Blind. The French and Belgian Ministers of War, the Italian Ministry of Pensions and Labor, and various departments of the Canadian Government, were represented. The American agencies which sent men or women are the office of the Surgeon General, the Army, the Federal Board of Reeducation, and the Bureau of War Risk Insurance. Dr. Maurice Bourrillon, president of the permanent inter-allied committee on war cripples, and director of the French National Institute for Crippled Soldiers, described the beginnings of the making over of 694,000 Frenchmen incapacitated by war diseases or wounds, and stated that France had remade and reeducated 45,767 broken men. Louis Alleman, chief of the educational staff of the institute for cripples at Port-Villez, France, spoke for Belgium; Vittorio Putti, director of the Rizzoli Institute at Bologna, for Italy; Miss Ethel Wood, secretary of the War Pensions Committee, for England; and F. Gerald Robinson and W. E. Segsworth of the Department of Soldiers' Civil Reestablishment for Canada. Dr. Charles A. Prosser, director of the Federal Board of Vocational Education, in telling of the scope of America's plans for rehabilitation, said that about 200,000 men in this country would need training. Nearly 40,000 have already registered with the Federal Board asking for help. A closing mass meeting was held on Sunday afternoon, March 23, at the Hippodrome, with Charles E. Hughes presiding.

Convalescent Soldiers Sent to California.—A fully equipped hospital train left the Grand Central Terminal in New York, on March 24, for southern California. It carried about 135 sick men and a number of convalescents from the debarkation hospitals at Fox Hills, Staten Island, the Grand Central Palace, Greenhut's, and the hospital at Camp Mer-

ritt. It will make the transcontinental journey without a break. In addition to ward cars there will be a car fitted out as an operating room. The train is in charge of the Medical Department of the United States Army.

Major Amputations in United States Forces.—According to official advices from Washington, the total of major amputations to date is 3,034, of which approximately 600 are arm amputations and 1,708 leg amputations. The remaining 726 are of hands, feet, and two or more fingers. Not all of the men who suffered these mutilations require special training to enable them to make a living.

Surgeon General Honors Base Hospital No. 2.—Major General Merritt W. Ireland, Surgeon General of the Army, has addressed a letter to the trustees of the Presbyterian Hospital, New York City, in which he commends the work done by Base Hospital No. 2, the Presbyterian Hospital unit, which was among the first of the Red Cross base hospitals sent to France. The letter earnestly recommends that measures be taken to "keep the organization of the unit intact, and that every effort be made to imbue its future personnel with the fine *ésprit* to be expected in the possessors of the glorious heritage of splendid achievements handed down from the great war by the original personnel of Base Hospital No. 2." Special attention is invited to the excellent work done by Colonel George E. Brewer as director of Base Hospital No. 2.

Casualties Among American Medical Officers.—The casualties among American medical officers in France from the time of the arrival of the first units to March 13, 1919, numbered 442. Of these, 46 were killed in action, 22 died of wounds, 12 died of accident and other causes, and 101 of disease; four were lost at sea, seven were reported as missing in action, and 38 were taken prisoner. Two hundred and twelve were wounded in action.

Volunteer Medical Service Corps.—The Central Governing Board of the Voluntary Medical Service Corps held its final meeting, prior to the termination of its war-time activities, on March 14. The report submitted by Dr. Edward P. Davis, president of the corps, shows that nearly 70,000 applications have been received from physicians for membership in the corps, of which 56,540 were received and coded prior to the signing of the armistice, November 11, 1918. Qualifications of these civilian doctors, classified and coded on cards, will be placed in the library of the Surgeon General of the Army, where they will be accessible to all governmental departments for all time to come. In commenting upon the service rendered by the Voluntary Medical Corps, Dr. Davis says that when one considers the burden thrown upon the medical profession by the conditions created by the war and the influenza epidemic, he does not think any profession has met a similar crisis as nobly as did the medical profession, and that no small part of the moral value and success of the profession was due to this corps. About 13,000 doctors, whose applications for membership in the Voluntary Medical Service Corps were received before the armistice was signed, but which were not acted upon by their State committee, will receive letters from Dr. Davis giving the reasons why their membership could not be completed by furnishing them with the visible evidences of their tender of services, that is, the insignia and certificate of the corps. The offer of services and qualifications, however, have been transferred to permanent code cards, which are to be preserved.

Major Simon Strauss, recently in charge of a surgical service in General Hospital No. 1, New York, has been honorably discharged from the U. S. Army, and has resumed private practice at 440 West End Avenue.

Dr. Roy A. Douglas of Huntington, Tenn., and Dr. Alexander J. Gillis of Baltimore have been decorated with the Military Cross by the British Government for bravery and distinguished services in the war.

Dr. Mary H. Elliott of Holly Springs, Miss., has sailed with the medical mission to Servia, under the auspices of the Red Cross.

No Soldiers both Armless and Legless.—In refutation of a widely circulated report that there were many so-called "basket cases," that is, soldiers without either arms or legs, in the military hospitals, Surgeon General Ireland has issued a statement declaring that he has personally examined the hospital records, and is able to say that there is not a single "basket case" among the American soldiers, either on this side of the Atlantic or among the Expeditionary Forces.

Memorial Hospital in Rheims.—Mrs. Benjamin Lathrop, director of the American Fund for French Wounded, in France, announces plans for an American memorial hospital in Rheims. This city has been chosen as the site for the hospital because it is in the heart of the district where are buried the American men who lost their lives in the fighting. The city of Rheims is donating a site of 16,000 acres, and Americans are to build the hospital, at a cost of about $100,000. The size of the hospital will, however, depend upon the number of beds endowed. Six thousand dollars will endow a bed for all time.

Deaths in the Service.—Capt. WILLIAM CLARENCE GATES, M. C., U. S. Army, of Bucyrus, Ohio, a graduate of the University of Michigan, Ann Arbor, in 1890, died from lobar pneumonia in the base hospital at Vichy, France, on February 21, aged 50 years. He was for several years chief surgeon of the Calumet and Hecla Mining Company, Calumet, Mich., and founder of the Crawford Hospital, Bucyrus.

Lieut. WILFORD WAYNE MARTIN, M. C., U. S. Army, of Kirksville, Mo., a graduate of the Eclectic Medical University, Kansas City, in 1903, aged 41 years, was thrown from his horse and killed instantly while on duty with the American Expeditionary Forces in France on December 4.

Lieut. WINFIELD MARCH WHITE, M. C., U. S. Army, of Sioux City, Iowa, a graduate of the State University of Iowa, Iowa City, in 1912, aged 29 years, on duty with the American Expeditionary Forces in France was killed in action at Bazancourt, France, on November 4.

Lieut. CHARLES HAIGHT HOLCOMBE, M. C., U. S. Army, of Trenton, N. J., a graduate of Jefferson Medical College, in 1901, died at his home on March 5, aged 51 years.

Lieut. WILLIS BENJAMIN HARRISON, M. C., U. S. Army, a graduate of the University of Buffalo, N. Y., in 1916, aged 27 years, died from pneumonia at Silver Creek, N. Y., on February 4.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, April 5, 1919.

ETIOLOGY AND PATHOGENESIS OF LOCALIZED TETANUS OF THE EXTREMITIES.

TETANUS localized in the limbs is uncommon and if one carefully examines the recorded case-reports it at once becomes evident that many of the diagnoses are subject to suspicion. For example, in a case of Bruns' the affection was a generalized tetanus during convalescence from which paraplegic phenomena developed. The same applies to a case reported by Gilbert and Lereboullet, which began with tetanus and contracture of the neck, and at the time of recovery left sequels localized in the lower limbs. The etiological circumstances of the localized forms of tetanus are commonplace, the point of inoculation in civil life usually being the foot, though it may be elsewhere, in two reported cases being near the elbow. The main fact to be retained is that in cases of localized contractures the point of inoculation is always seated on the limb involved. In these infrequent cases how can the localization of the contractures be explained? In animals an injection of the tetanic toxin produces local spasms in the first place and the phenomenon becomes generalized only secondarily and this upon the condition that the dose injected be sufficient. The evolution is ascending.

Generally speaking, in man the evolution of the process would lead one to suppose that the centres are the first to be involved since trismus and contracture of the neck open the drama, while the trunk and limbs are involved only ulteriorly. Therefore, the evolution is descending in progress. Now, in man as in animals the nerve trunks are undoubtedly directly sensible to the action of the toxin and when patients are questioned the local onset of the disease is frequently fleeting. It is well known that shooting pains starting from the wound and localized cramps are prodromal signs of tetanus. If this first localized phase, which in animals is of some duration and therefore easily observed, is fleeting in man it is because of the hypersensitiveness of the centers in reference to the tetanic toxin; the cord reacts almost immediately and the evolution is as if it had been the first involved. When, as occasionally happens, the toxin is in too small a quantity or too attenuated to become diffused throughout the organism and impregnate the centers, the peripheral nerve impregnation may alone manifest itself and the result will be a localized tetanus.

Four reasons engage us to admit this theory of localization due to hypovirulence of the bacillus and to hypoinfection. Firstly, because in many cases the point of inoculation rapidly cicatrizes and therefore does not allow a long period of bacterial culture to ensue. The importance of this argument must not, however, be exaggerated, because it is well known that even minute excoriations of the limbs give rise to rapidly fatal generalized tetanus. Secondly, several authentic cases have been reported where an antitetanic injection had been given after the wound had been received and must have contributed not a little in attenuating the infection. Thirdly, localized tetanus is usually mild in character and offers a chronic symptomatology, and death very rarely ensues. Fourthly and lastly, the auto-observation of Nicolas, published by Chauveau, has the value of an experiment. During some experimental work Nicolas pricked the thenar eminence with a needle infected with an inappreciable dose of tetanus toxin. Following this inoculation tetanus developed, beginning in the thumb and remaining localized there for two days and then progressively invading the forearm, arm, spinal muscles, and lastly the muscles of mastication. The condition was serious, the contractures became general and recovery did not take place until the lapse of two months.

It is difficult to explain by this theory those cases which, in the first place, are localized and become generalized secondarily and may even terminate in death. Is it to be supposed that in these cases the toxin continues to be elaborated in the focus of infection and ends by attaining the centres, or that the latter, being at the beginning immunized by a prophylactic injection or otherwise, end by losing this immunization? Such is possible, but doubt remains. Perchance these cases may be explained by a tetanic reinfection at the site of the wound in a subject relatively immunized, as was not long since maintained in a discussion at the Academy of Medicine of Paris, but if it be admitted that the localized forms of tetanus are benign in nature on account of a mild virulence of the bacillus inoculated, it is not proved that this slight virulence alone can explain the localization.

AS TO ACCLIMATIZATION.

THE question of the acclimatization of the white man in the tropics has given rise to somewhat wide divergencies of opinion and to a great deal of discussion. As a rule, authorities on the subject, that is medical men who have lived for lengthy periods in tropical countries, attribute the ill health from which white men suffer after some time spent in these climates to an injudicious diet or to transgressing certain laws of health. However, even on the matter of diet, there is no universal agreement, for while most of those who have gained practical experience state that less protein and little alcohol should be taken, others and among them the late Col. Charles

Woodruff declared that a generous meat diet should be eaten and that alcohol should be by no means barred. This divergence of views is commented on by two Dutch observers, C. D. de Langen and H. Schut, who think (*Tropical Bulletin*, January 15, 1919) that the literature on acclimatization of the white man in the tropics leads nowhere, but reveals "a number of hypotheses in chaotic disorder without proof and without a leading idea being manifest in the various considerations." The authors point out that there is a real difference between the blood of Europeans in the tropics and at home. Such are the deflection to the left of Arneth's index as shown in the Philippines and Australia and the coast of Africa, and the difference in blood pressure demonstrated by Kiewiet de Jonge, who showed that the maximum blood pressure of natives in the Dutch Indies was lower than that of the Europeans and that the maximum blood pressure of Europeans does not diminish after even quite prolonged tropical residence.

As for blood sugar Dutch investigators have shown that the quantity of reducing substances increases in Europeans after residence in the tropics and have also noted the large quantity to be found in natives and animals. They disagree with the conclusions of McCay (*Indian Journal of Medical Research*, July, 1916), who found the value of blood sugar in Bengalis to be 50 per cent. higher than the figure for Europeans, but did not test Europeans in Calcutta, and therefore attributed the excess in natives to diet rather than climate. It is held by de Langen and Schut that the increase of blood sugar cannot be attributed to parasitic disease, for it occurs very soon after arrival, nor to change of food. In their opinion it must be ascribed to the climate *per se*, especially to the temperature and not to the intensity of light, for in the mountainous districts of Java one gets a lower figure, although the rays are much stronger than at the lower altitudes. They regard it as quite certain that the quality of blood sugar is largely dependent on the suprarenal glands and that their function is regulated by the sympathetic system. Schut shows that the injection of substances stimulating the sympathetic system is followed by an increase of sugar in the blood and a decrease of liver sugar. The authors show that in tertian malaria a rise of temperature is preceded by a rise in the blood sugar, a hyperglycemia which falls again before the fall of temperature. The authors hold that when the European arrives in the tropics, blood sugar at once begins to increase; the superfluous sugar will then appear in the urine, or be got rid of by combustion.

Thus may be explained the "low fever" of the tropics. The hyperglycemia disposes to neuritis and polyneuritis, beriberi, as well as to invasions of the tubercle bacillus. For these reasons the authors advise that diabetics, persons with a tendency to renal glycosuria and tuberculosis, and sympathicotonic persons should be absolutely dissuaded from settling in the tropics, at any rate in the lowlands.

THE SUTURE OF LARGE INJURED BLOOD VESSELS.

THE suture of large blood vessels, such as the brachial, femoral, and popliteal arteries and veins, after injury by projectiles of war, was carried out successfully many times and by many operators during the present war, and is a resource which will undoubtedly be employed in civil practice to a much greater extent in the future than has been customary heretofore. The usual resource, except in cases where the injury is slight and the hemorrhage may be controlled by packing, is ligation; and this is very apt to be followed by gangrene. Unfortunately, occasion for suture of such vessels sometimes arises in civil practice through accidental injury in the course of operation, as well as after gunshot or stab wounds or through other injuries. The materials needed for repair are quickly available in any first class hospital, the technique is fairly simple and easily mastered by any competent surgeon, and the results can hardly be worse and may be much better than when ligation is practised. We feel, therefore, that the simple rules laid down by Major Charles Goodman in the November number of *Surgery, Gynecology and Obstetrics* will well bear repetition.

After referring to five cases of suture of the femoral or popliteal vessels, all of which were successful, Goodman calls attention to the fact that failures in many of the reported cases may have been due to neglect of one or more of the essential points of the operation, namely: (1) A high degree of asepsis; (2) the segment of vessel to be sutured must be freed from all macroscopic blood and properly protected from all contact during the suture; (3) The sutures must not be introduced under too great tension; (4) Thrombosis is favored by bacterial infection and by the tissue juices and their ferments. The lumen of the vessel to be sutured should, therefore, be thoroughly washed with Ringer's or saline solution, followed by liquid paraffin. Sutures introduced under tension may cut out and induce hemorrhage. Goodman therefore says that the technique of a vascular suture should consist of the following steps: (1) A free exposure of the injured vessel. (2) A temporary occlusion of its lumen above and below the lesion, either by flexible clamps, serrefines, or tape. (3) A thorough perfusion of the intervening segment with Ringer's solution or saline solution followed by liquid paraffin. (4) A removal with scissors of the adventitia encroaching on the line of suture. (5) Silk sutures threaded on fine cambric needles and sterilized in liquid paraffin should be introduced through both media and intima, carefully avoiding the adventitia. (6) A deep vessel, requiring repair, may be rendered more accessible by lifting the vessel from its sheath upon two narrow ribbons. This procedure may entail a division and ligation of one or more of the branches which hold the vessel in the normal anatomical position. (7) A walling off of the remainder of the wound with pledgets of black silk

will assist materially in safeguarding the line of suture from thrombokinase, and will also serve to make the delicate white sutures more easily seen by the operator. (8) When a main artery is completely severed, a circular suture should not be attempted unless the severed ends can be approximated without tension. When this is not possible, a segment of vein can be transplanted, or, when such a procedure is not practical, a paraffined tube may bridge the gap and maintain the blood supply until an enlarged collateral circulation is established. The tube should then be removed.

If the technique outlined above is rigidly followed many limbs will undoubtedly be saved which would otherwise have to be sacrificed because of gangrene following ligation of the injured vessels.

Mobilization After Joint Injuries.

It may come to pass as a result of the experience gained by surgeons during the war that views as to the treatment of joint lesions will be very considerably revised. Mr. J. W. Dowden, writing in the *British Medical Journal* of November 23, 1918, states without reserve that owing to the practice of immobilizing joint lesions of all kinds thousands of British soldiers have been rendered cripples for life, who, had they been treated without the use of splints or with splints used for only a short time and with the aid of physical therapy in various forms, at the present time might have the use of their limbs. In a special number of the *U. S. Naval Medical Bulletin*, in a report on medical and surgical developments of the war by Dr. W. Seaman Bainbridge, the question of immobilization of injured joints is referred to. Dr. C. Willems, who was in charge of the Belgian Military Hospital and part of the Military Hospital at Bourbourg, like Mr. Dowden, did not believe in the efficacy of prolonged immobilization and was one of the first to abandon this mode of treatment. Bainbridge embraced the opportunity afforded him of visiting the hospitals over which Willems presided and of observing his methods and the results thereof at close range, and was immensely impressed with their value. Willems' system of treatment is based on the principle of immediate active mobilization of the joint. He points out, however, that in order to obtain the best results certain general rules must be adhered to. The motions must be carried out by the patient himself; they must involve those muscles ordinarily used in moving the joint; they must be begun the moment that the patient comes out of the anesthetic; they must be carried out to the point of their maximum excursions, and they must be as nearly as possible continuous. They should not be supplanted by or combined with passive motion. These motions cause practically no pain unless they produce displacement of a large fragment of bone, in which cases such movements are contraindicated. Of course, the details of the treatment vary considerably, according to the nature, extent, and location of the injury. Dowden is in agreement with Willems so far as the harmfulness of prolonged and ill-judged immobilization is concerned and states emphatically that adhesions are frequently caused by prolonged immobilization. However, he appears to differ somewhat from Willems in that he advises passive movement of the joints and muscles at first and active mobilization as soon as possible. Both these surgeons are at one with regard to the necessity for mobilization in the treatment of joint lesions and are agreed as to the perniciousness of prolonged immobilization. The experiences of the war have crystallized these views in both.

Neurasthenia as a Self Limited Affection.

That endogenous neurasthenia comes and goes as it lists is a fact well enough known to the initiated, under which term we include those who have been life long sufferers from it. That it resists all treatment including psychotherapy has not been generally conceded because at times it appears to yield to psychic factors such as good fortune and change of environment and whatever can benefit from such factors should be favorably influenced by suggestion. Bernheim, however, writing in *Le Progrès Médical* for January 18, confesses that it is in no wise amenable to this influence and always runs a predestined course. Whenever a psychic factor appears to have arrested it, this is but a coincidence, for said factor came into play only at the end of the period. Whether there is a simple form of neurasthenia which is a pure neurosis does not fully appear from the author's statements. At times he seems to imply that this is the case and that neurasthenia is divided about equally between ordinary and paradoxical forms. The type to which he refers and which has been very common since the war is largely postinfectious and due to some organic affection of the medulla which has resulted from the toxin of the disease. This form can be isolated from the simple type by objective phenomena like exaggerated tendon reflexes not seen in the latter. It follows, however, from what the author says that conditions which have heretofore been called neurasthenia are often something else, as psychasthenia or mild melancholia. Another peculiarity of the self-limited type is the participation of the gastroenteric system. The presence of an organic substratum explains why these patients recover at a definite time and without treatment. It is interesting to note that this master of suggestion toward the close of his long career has been forced to conclude that neurasthenia, or at least part of it, cannot be reached by psychotherapy save in a few superficial symptoms. He implies either that neurasthenia is two fold in its nature or that such neurasthenia as is amenable to suggestion merits some other name and is only neurasthenoid. The theory of an organic postinfectious or toxic substratum does not explain the recurrences of neurasthenia.

News of the Week.

Red Cross Conference at Cannes.—Announcement is made from the headquarters of the American Red Cross in Washington that the majority of the invitations to attend the conference of experts to be held at Cannes, France, beginning April 1, to prepare a program to relieve suffering and combat disease in the general interest of humanity have been accepted. Experts will be present from France,

England, Italy, Japan, and the United States. Among the Americans invited to be present are the following: Dr. William H. Welch, Dr. Simon Flexner, Dr. Hermann M. Biggs, Dr. E. R. Baldwin, Dr. Theobald Smith, Dr. Wycliffe Rose, Col. George Walker, Col. Homer Swift, Col. William F. Snow, Dr. L. Emmet Holt, Dr. Samuel McHamill, Dr. Fritz B. Talbot, Dr. Livingston Farrand, Major William Palmer Lucas, Col. Richard B. Strong, Assistant Surgeon General N. S. Cummins, Col. F. F. Russell, and Col. Lindsay R. Williams.

A Mosquito Museum.—The Army Medical Museum in Washington is making a collection of mosquitos representative of all species at camps or posts where United States troops are stationed. Collections are to be made at each station at least bi-weekly at three periods during the twenty-four hours; such observations will determine the time when the insects are most prevalent at each locality.

Child Welfare Conference.—The Department of Labor is planning a conference on child welfare to be held in Washington during the week of May 6, under the auspices of the Federal Children's Bureau, to which men and women qualified to speak regarding the war's lessons on the health, education, and work of children have been invited. A number of foreign guests are expected. After the conference in Washington a series of regional conferences will be held at convenient centers throughout the country during May and June.

Annual Meeting of Home for Hebrew Infants.—The twenty-third annual meeting of the Home for Hebrew Infants, New York, was held at the home on March 23. The chief speakers were Dr. Henry Larned Keith Shaw and Dr. Alfred F. Hess. It was announced that during the past year Dr. and Mrs. Alfred F. Hess had contributed a special ward to the home at a cost of $2,500.

Hospitals Want a Voice in Legislation.—The Hospital Conference of the City of New York, representing forty of the largest institutions in the city which maintain nurses' training schools, has appealed to John Finnegan, acting Commissioner of Education, for a hearing on the proposed legislation affecting the hospitals. This conference was called because several bills have been introduced into the Legislature during the past few years which, if passed, would revolutionize the training of nurses in the hospitals. At present there is an amendment to the nursing bill at Albany which provides, among other things, for the training of short-term nurses or attendants. The hospitals feel that there is a demand for this class of attendants, but since the hospitals will be given the training of these students they feel that they should be consulted in the matter. Hitherto they have been ignored.

Money Needed for Tuberculosis Work in France.—A plea is being made by the Paris Committee for Edith Wharton's War Charities, which is cooperating with the French Government, for money with which to carry on tuberculosis work. The French Government has urged this committee to carry on the work for two years until it is in a position to take it over. To support the work $400,000 is needed. Two friends of the organization have promised $100,000 if the remainder could be obtained. The Red Cross has already contributed 200,000 francs, 300 beds and their equipment, and two laboratories.

A Loop-hole in Narcotic Drug Law.—James A Hamilton, Commissioner of Correction of New Yor City, attacks the law respecting the sale of drug on physicians' orders to drug addicts. He find that there is nothing to prevent a physician fron using the unofficial prescription form authorizin the sale of small quantities of drugs to individual several times a day. A physician might write sev eral prescriptions for lawful quantities for each pa tient, who could have each prescription filled at different drug store. Against this "repeating," Commissioner Hamilton points out, there is onl the good faith of the physician, and he adds, the la does not define "good faith."

New Public Health Order in England.—Th Local Government Board of England has enacte an order which went into effect on March 1, makin notification of malaria, dysentery, trench feve acute primary pneumonia, enteric fever, relapsin fever, and typhus fever, compulsory. The report o cases of these diseases will be followed by immed ate investigation of the sources of infection. In th case of trench fever, malaria, or dysentery believe to have been contracted in the United Kingdom th health officer must notify the Local Governmer Board and arrange for the reception of the patie in a suitable hospital, unless he is satisfied tha treatment at home can be carried out with all pr cautions necessary to prevent the spread of th disease. In cases of malaria the health officer wi provide the necessary mosquito netting, quinin treatment, and proper advice on treatment to pr vent relapses. In cases of dysentery the health off cer may notify the person attacked that he or sh must discontinue any occupation connected wit the preparation or handling of food or drink fo human consumption, and that children in the charge must not attend school. In trench fever th health officer may order the segregation of all th inmates of the building until they and their clot ing have been rid of lice. The Local Governme Board will shortly issue a circular which will b distributed country wide giving details of the r sults obtained in various localities regarding ce tain recommendations for the prevention and cu of influenza. While measures for preventing a outbreak have so far proved unsuccessful, certa measures for preventing the spread of the disea have proved satisfactory in a number of district

Smith Drug Bill Defeated.—Governor Smith bill recommending that the recently created Sta Commission of Narcotic Drugs be abolished and i functions transferred to the New York State D partment of Health was refused release from co mittee by the Assembly on March 27. The Sena took similar action on the bill about a week pr viously.

Examine Medicines for Alcohol.—The Assemb Excise Committee on March 28 reported to the Ne York Legislature the bill which gives to the Sta Excise Commission authority to enforce througho the State whatever legislation Congress may ena for the enforcement of the prohibition amendme to the United States Constitution. An amendme which this bill carries creates a committee consi ing of three doctors and two druggists to pass up the 250 medicines now on the market and determi whether they are beneficial, harmless, or intoxic ing.

Mr. Horace Fletcher, known through his strenuous advocacy of prolonged mastication of food, who died in Copenhagen on January 12, left a large sum to Harvard University, the income to be used by the university for "fostering a knowledge of healthful nutrition" and to offer the Horace Fletcher prize for the best thesis on the subject, "Special Uses of Circumvallate Papillæ and the Saliva of the Mouth in Regulating the Physiological Economy of Nutrition." The gift is in recognition of the services and sympathy of Prof. Henry Bowditch Pickering and Prof. William James to the cause to which Mr. Fletcher devoted his life.

Expenditures of the Rockefeller Foundation.—The Rockefeller Foundation has announced its budget for 1919, which disposes of its income of $6,750,000 during the coming year. Of this sum, $2,367,130 will be for public health and $3,726,594 for medical education. The public health activities will consist chiefly of efforts against yellow fever, tuberculosis in France, malaria, and hookworm. The yellow fever commission, headed by General William C. Gorgas, will sail shortly for Central and South America. The commission on tuberculosis will continue its work in France on a large scale at the request of the French authorities. Demonstrations showing how to control malaria will be carried on in two of the Southern States, and a campaign against hookworm will be waged in twelve States in America and in twenty-one foreign states and countries. Appropriations have also been made for studies in mental hygiene and public health at Johns Hopkins University and for the development of public health nursing. Additional expenditures have been authorized for the Rockefeller Institute for Medical Research and toward a contribution of $1,000,000 made two years ago for the development of the medical school of the University of Chicago.

Dr. A. L. Stone has been appointed health officer of Waltham, Mass.

Dr. Jacob Goldberg of Buffalo has been appointed a member of the Public Health Council of the New York State Department of Health, to succeed Dr. Wilhelm Gaertner, whose term had expired.

Amendments to Sanitary Code.—At a meeting of the Public Health Council of the New York State Department of Health, on January 10, regulation 36 of chapter 11, in reference to the quarantine of infectious diseases, was amended by the insertion of the following paragraph: "Typhoid or paratyphoid, if the patient's occupation involves the handling of milk, dairy products, or other food, until all signs of the disease, or secondary or complicating infections incited by the agents of these diseases, have disappeared, and until two successive specimens of the intestinal discharges of the patient have been taken at an interval of not less than seven days, and have been examined in a laboratory approved by the State Commissioner of Health and found to be free from typhoid or paratyphoid bacilli." Regulation 13 of Chapter 111, relating to the delivery of milk and cream has been amended to read: "Such milk must be delivered within thirty-six hours after pasteurization between April 1 and November 1, and within forty-eight hours after pasteurization between November 1 and April 1, and such cream within forty-eight hours after pasteurization, unless a shorter time is prescribed by the local health authorities. The resolution regarding the qualifications of public health nurses which requires that these nurses shall be twenty-one years of age and registered at the time of their appointment, was repealed. Regulation 6-a, a new regulation on shaving and lather brushes, was added to the code. This reads: "No shaving or lather brush shall be manufactured or offered for sale or used unless the hair or bristles thereof shall have been so treated for the purpose of destroying anthrax germs as to conform with the regulations of the State Commissioner of Health. These regulations took effect on March 1, 1919.

Course in Public Health Administration.—The Training School for Public Service of the New York Bureau of Municipal Research, in cooperation with the Public Health Committee of the New York Academy of Medicine, announces a six weeks' course in public health administration from April 30 to May 2 inclusive. The course will include a series of conferences on public health and administration, conducted under the leadership of men and women who are recognized authorities in the public health field, and field study and observation of public health agencies and institutions in New York City. This part of the program will begin on May 26 and continue until June 7, and will be arranged to suit the convenience and interests of special groups of students. A fee of $25 will be payable on registration. Not more than fifty will be enrolled and preference will be given to public health executives. The conferences will be held at the New York Academy of Medicine. Further information may be obtained by addressing Dr. Carl E. McCombs.

Lynn, Mass., Doctors Raise Fees.—At a conference attended by fifty physicians of Lynn, Mass., on March 15, a new schedule of fees was adopted which went into effect on March 15. Under the new rates house calls are $3, office calls $2, confinements $25, and night calls, between the hours of 10 P. M. and 7 A. M., $5. In adopting these rates the statement was made that the poor of the city need have no apprehension about their individual inability to meet the new schedule. In the future as in the past the services of the profession would be at the demand of any worthy person in the community.

Bill to Aid Tuberculous Poor.—Senator Julius Miller has introduced a bill into the New York State Legislature providing State and county aid for poor persons afflicted with tuberculosis. Senator Miller points out that according to the Health Department statistics there were on January 1 of this year 32,048 tuberculous cases in New York City, with hospital or institutional accommodations for only a pproximately 5,000. The Miller bill provides that the expense of care of poor tuberculous patients be borne, one-third by the State, one-third by the county, and one-third either by the individual himself or some private source. Under the terms of this bill, local health authorities are required to make a survey of their districts and report to the State Department of Health a list of private institutions, boarding houses, or dwellings, in their districts suitable to receive and care for tuberculous persons. The State Department of Health, after investigation, is required to certify a list of such places in different parts of the State as meeting the requirements and to maintain a sys-

tem of inspection after these have begun to operate under the Health Department license. The State and county aid would continue as long as the local authorities deemed it necessary, but in no event more than a year. The plan provides only for patients who are not bedridden. The State Department of Health is authorized to fix uniform rates for board and lodging in licensed places. The bill carries an initial appropriation of $1,000,000.

Foreclosure Sale of Medical Institution.—The New York Medical College and Hospital for Women, which some time ago ceased to exist as a medical college, was sold under foreclosure proceedings on March 29. The Alumnae Association of the institution endeavored to purchase the property, but were overbid by the board of trustees, who acquired the property for $43,500. The institution is continuing to operate as a hospital.

To Increase Nurse Corps.—The number of patients to be cared for in the hospitals of the Public Health Service will be increased from about 50,000 to 75,000 a year under a recent act of Congress designed to meet the growing hospital needs of the enlarged merchant marine. This will necessitate an increase in the nursing force, to meet which the American Red Cross has entered into an agreement with the Public Health Service under which graduate enrolled nurses will be furnished to the service as Red Cross nurses are supplied to the army and navy. There are now only 90 nurses in the United States Public Health Service, but through the cooperation of the Red Cross it is planned to develop the corps in the near future to 750.

A City Hospital Wanted in Washington Heights.—At a recent meeting of the Washington Heights (New York City) Physicians' League plans were perfected for the holding of a monster mass meeting to obtain a city hospital on Washington Heights. It will be held in the auditorium of Public School No. 132, at 182d Street and Wadsworth Avenue, on Wednesday evening, April 9, at 8 P. M. Among the speakers will be Dr. Royal S. Copeland, Commissioner of Health, Mr. Bird S. Coler, Commissioner of Charities, and others.

Medical Society Elections.—The JONES COUNTY (MISS.) MEDICAL SOCIETY, at its recent annual meeting, elected the following officers for the ensuing year: *President*, Dr. R. H. Cranford; *Vice-President*, Dr. C. E. Armstrong; *Secretary-Treasurer*, Dr. J. R. Kittrell.

Obituary Notes.—Dr. LUCIUS THOMAS INGHAM, aged 64, of Lee, Mass., a graduate of Bellevue Hospital Medical College, died March 15, at the "House of Mercy Hospital," in Pittsfield, Mass. He graduated in medicine from the Bellevue Hospital Medical College, New York, in 1886, and then practised for nine months in Germantown, Pa. From there he moved to Amityville, L. I., being resident physician in the Brunswick Home Sanatorium. In March, 1891, he moved to West Stockbridge, Mass., where he resided 13½ years, moving then to Lee. He was a member of the Berkshire Medical Society.

Dr. FRANK READER RIX, of Flushing, L. I., died at the New York Skin and Cancer Hospital, on March 16, aged 65 years. He was a graduate of Harvard Medical School, in 1879, and after practising his profession for fourteen years in Lowell, Mass., he gave it up for a musical career. For eighteen years he has been the Manhattan Borough Supervisor of Musical Education in Public Schools for the New York Board of Education.

Dr. JULIUS F. SIVENY, of Providence, R. I., died from bronchopneumonia at the Peck Memorial Hospital, Brooklyn, on March 16, aged 39 years.

Dr. FREDERICK ROBINSON SMITH, a graduate of the Hahnemann Medical College, Philadelphia, in 1893, died from pneumonia at his home in Rochester, N. Y., on March 25, aged 48 years. He was coroner of Rochester and Imperial Potentate of the Mystic Shrine of North America in 1914.

Dr. JAMES THOMAS MEEHAN, a graduate of New York University Medical College, in 1882, died at his home on March 16, aged 59 years.

Dr. MAX LANDESMAN of New York City died on March 16, aged 57 years. He was a graduate of New York University Medical College in 1893, and visiting physician to the Peoples' Hospital.

Dr. NICHOLAS E. SOULE, a graduate of Harvard Medical School, in 1848, and for many years the oldest living alumnus of Harvard University, died at his home in Exeter, N. H., on March 26, aged 94 years.

Dr. MEVERELL K. ALLEN died of heart disease at his home in Louisville, Ky., on March 15, aged 73 years. He was a graduate of the University of Louisville Medical Department, in 1867, medical director of the Inter-Southern Life Insurance Company, and for fifteen years city health officer of Louisville.

Dr. SAYER HASBROUCK, formerly of Providence, R. I., died, after a lingering illness, at his home in Hamilton, Bermuda, on March 12. He was a member of the American Institute of Homeopathy, the American Homeopathic Ophthalmological, Otological and Laryngological Society, and the New York State Homeopathic Society.

Dr. CHARLES LEO EBNOTHER, a graduate of Charity Hospital Medical College, New Orleans, in 1883, died at his home in Downs, Kan., on March 10, aged 66 years.

Dr. ABNER HUGH COOK died from pneumonia at his home in Hot Springs, Ark., on March 10, aged 33 years. He was commissioned captain after his discharge from the army for work done while he was stationed at Fort Oglethorpe in 1918.

Dr. OSEE WALLACE HOFFMAN of Denver, Col., died of tuberculosis at the Mercy Hospital in that city on March 12, aged 44 years. She was a graduate of the Laura Memorial Woman's Medical College, Cincinanti, Ohio, in 1897.

Dr. BENJAMIN FIDLER, a graduate of Long Island Hospital Medical College, in 1903, died at his home in New York City on March 26, aged 48 years.

Dr. ABEL FITZWATER PRICE, Admiral Dewey's fleet surgeon at the battle of Manila Bay, died in a Springfield, Mass., hospital on March 22, aged 71 years. He was a graduate of the University of Pennsylvania Medical School in 1868, and entered the medical corps of the navy in the same year.

Dr. FRANCIS J. DUFFEY, of Brooklyn, N. Y., died of heart disease while attending a patient on March 31. He was 44 years old and was a graduate of the Long Island College Hospital, in 1896. He was a member of the New York Academy of Medicine and assisting visiting physician to the Post-Graduate Hospital and the Neurological Institute.

Correspondence.

INFLUENZA AND EPILEPSY.

To the Editor of the Medical Record—

Sir:—I note on page 492 of the Medical Record issued March 22, 1919, a reference to an observation made by some French writers, as to the interrelation of influenza and epilepsy.

During October and November, 1918, over eight hundred cases of influenza appeared among the patients at the Craig Colony, all of those affected being epileptics. As had been previously noted, during intercurrent febrile conditions many epileptics continued to have seizures, some an increase, even to the extent of a status epilepticus during the height of the severe influenzal infection. Some patients who had been free from convulsions for some weeks before the influenza manifested a return of symptoms of the epilepsy while ill with influenza, although it could not definitely be established that there was a direct causative relationship. A comparison of the total number of seizures occurring at the Colony during the existence of the epidemic of influenza with the total number of seizures occurring during any period of similar duration before or subsequent to the influenzal period, shows no material difference. Some few patients ordinarily subject to frequent seizures were observed to have no attacks during the influenzal infection, but a study of the records of these particular patients shows that at other times, independent of any other infection, they had similar remissions.

Of the patients developing influenza, the majority showed considerable lung involvement. The death rate was 17.2 per cent. of those having the disease. It was also the experience at the Colony that those patients who were most defective mentally, or physically, or both, developed the most severe type of the disease. But very few of the more intelligent, active patients succumbed to the condition.

William T. Shanahan, M.D.,
Medical Superintendent,
Craig Colony for Epileptics.

OUR LONDON LETTER.

(From Our Own Correspondent.)

London, March 6, 1919.

Union National and International.—The perpetual cry in this country is for the union of medical men. A real union of medical men, preferably through existing medical bodies, is very difficult to visualise, but, if it came into existence, its utility would be multiplied and manifolded in many unexpected as well as obvious directions if it were in close alliance with some body formed of enlightened and public spirited laymen who would be able to give to the medical arguments the backing of public policy. This is the plan of union which was projected by the Medical Parliamentary Committee. It is desired to make of that body a kind of informal parliament at which all schools of thought would be represented upon some proportional system. At its table vexed questions could be threshed out, so that information could be given to the legislators based on some sort of consensus of opinion. It would be too much to hope that the opinions of such a body would always be unanimous; and it is possible that, if they were, they would have the appearance of coming from the medical profession with a "take-it-or-leave-it" spirit which would be not acceptable to a legislature composed of reasonable, thinking, and experienced men.

On the other hand, the views of such a body would arrive before Parliament with obvious discrepancies settled, with acrimonious points removed, and with the chances of long debates turning upon unimportant matters very much diminished. For this reason, with measures like those erecting a Ministry of Health or reforming dental practice, awaiting the immediate attention of the House of Commons there is no doubt that such a body would be of great public service.

The public interest in medicine nowadays is manifested in this country in one very obvious way. Medical addresses and lectures, frankly directed to lay audiences, are multiplying in number and attracting much greater attention. Afternoon after afternoon in London addresses for the last year have been delivered before various public bodies in illustration and explanation of such matters as the following: The laws of life, the food supply, the relation of health and sanitation to labor, the right place for nursing in a social scheme, the necessity of safeguarding the younger generation by care of the pregnant woman, care of the nursing mother, care of the infant, including precautions against the rampant causes of infant mortality, and care of the child during education age. At such meetings the policy of the Government, as exemplified in the regulations of the Local Government Board and the Board of Education, and as carried out by the medical staffs of those departments, has received close attention and sometimes valuable criticism. All this means that day by day a larger number of men and women are taking an intelligent interest in the intimate relation of medicine to national life, while that interest is directed along proper channels through the support of accurate information. A public of this improved quality is ripe to take its place in questions of medical reform, and it is a little astonishing to find that many medical men still believe in the contrary policy of trying to decide medical questions without due regard to the public views.

The League of Nations will be sure early to realize that in medicine, and especially in public health and hygiene, bonds between the constituent countries can be found already made and already supported by learning and devotion, whose influence for the creation and welding together of a happier world must be of the tightest nature. It is therefore especially necessary that medicine should internationalize itself as much as possible and that all civilized countries should understand the main objectives of the medical profession in the different nations. Here postgraduate work will be of the greatest value. If the medical men of the various nations will take all the opportunities that can be provided for them to meet each other and learn from each other in an intimate manner their scientific and professional procedures, international medicine will become

the greatest national support of a League of Nations. A start in this way is shortly to be made in London which is of great promise. A scheme has been approved for postgraduate medical education by the London Medical Schools which should place the organization of postgraduate study in London as a center, and later in the country at large, upon a working basis.

The scheme is briefly as follows: It is premised that there are three great classes of practitioners who require postgraduate teaching, namely, general practitioners whose day to day life gives them little opportunity of keeping abreast with new departures, or special development; officers in the army, navy, colonial service, Indian medical service and the air-force service, whose duties may take them for long periods far away from scientific centers; and medical men of the Allied Nations who want to exchange their own national equipment with that of other Allied Nations. The scheme proposes at once to secure the cooperation of America and France. All the London medical schools will arrange to vote to hold classes and demonstrations in different subjects at different dates, covering the whole curriculum between them. The special hospitals will combine with the scheme in London, while it is hoped to bring in all the great provincial, Scottish, and Irish schools. A council is in course of formation, which will elect an executive, etc. Certain sub-committees *ad hoc*, and these latter bodies will be entrusted with the selection and payment of a salaried officiate. The expenses will be met from registration fees and instruction fees of the postgraduate students and the scheme should so far be self-supporting. A big central building is also needed, and the funds for this must emerge from private generosity. Here is where the public has its chance of keeping the medicine of the world at a high level of efficiency.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

PARIS, February 22, 1919.

Returning to Pre-war Conditions.—All those who have visited Paris will remember the Grand Palais and Petit Palais on the Avenue des Champs Elysées, where annually was held the Salon of Painting and Sculpture. The larger of these two magnificent buildings was requisitioned by the French Government and turned into a hospital with 1,500 beds, with surgical and medical services, auxiliary services of various kinds, reeducation for the crippled, physiotherapy, mechanotherapy, gymnasium, convalescent center, depot for soldiers without homes, and finally a department under the excellent direction of Mrs. Nicolas C. Eliasco devoted to the reeducation of French and American cripples.

The Department of Beaux Arts has requested the government to vacate and return to their use the great hall and gallery on the first floor and permit them to organize an exhibition for June next and this necessitates the removal of some of the departments of service to less commodious quarters in the building. This action is the cause of some public criticism, but is a healthy sign of the high morale of the public mind which desires to resume its ordinary peaceful occupations even before the actual outcome of the Peace Conference is known.

Demobilization of the Ambulance Corps.—Headquarters' plans for the early demobilization of the U. S. Army Ambulance Service with the French Army point to the probability that by the end of July every man in the corps will return to the joys of civilian life. There are about eighty-one sections serving in the French armies at the front. According to the present plan, ten sections will be sent home during the month of February and twenty sections each month thereafter, until the entire service has embarked for the United States. Which sections are going first? The evident answer to that question is that the sections which have been longest in France will be the first to leave. This is the plan that will be adhered to as far as practicable. The same rule will apply to individuals.

If Private Jones, who has served four months in France, is now with a section that has been in France more than a year, he will be transferred out—that is, if the transfer is compatible with the interests of the service—and Private Smith, now a casual or on detached service, who has been in France more than a year, will be shifted to the section in order to take his proper turn in going home. Just because one had hard luck and had to leave his section and become a casual will make no difference in his chances of going home in his turn. In fact, there will be no luck to it. It will simply be a determination of his turn from the length of time he has served with the United States Army in France. All he has to do is count his service stripes. If he has two and the other fellow has only one, he knows he will beat him home. If, on account of impaired health, one deserves to go out of his turn, that fact will be known from the medical files of the attending surgeon. All he has to do is to sit tight and wait till his turn comes.

The necessary arrangements have been effected whereby the released sections can be concentrated at the base camp, where all records can be completed, and from there the sections will go to the port of embarkation. The Ambulance Service is one of the oldest A. E. F., organizations in France, and for that reason it is thought it will be given perference in sailing orders.

Increasing Death Rate.—According to the figures published by the Paris statistical service for the sixth week of the year it would appear that the death rate was somewhat on the increase with a total of 1,213 deaths, as compared with 1,076, the average for the season. Spanish "flu" is credited with ninety-one victims. There were seventy-five deaths due to violence, and six to suicide.

146, AVENUE DES CHAMPS ELYSÉES.

Medical Streptococcus Septicæmia.—Rathery and du Castel in connection with the known rarity of this affection in war medicine relate a case remarkable for a papulo-hemorrhagic and phlyctenular eruption, generalized contractures and special type of massive bronchopneumonia, purulent and of rapid evolution.—*La Presse Médicale.*

Progress of Medical Science.

New York Medical Journal.

March 22, 1919.

1. Tuberculosis in Children. J. P. Crozer Griffith.
2. The Value and Limitations of Radium in the Treatment of Cancer. Russell H. Boggs.
3. A Clinical Study of Influenza Pneumonia. Adolphus D. Rood.
4. Etiology and Treatment of Bronchial Asthma. William C. Thro.
5. Bronchial Asthma in Children. W. H. Donnelly.
6. The Clinical Application of Quartz Ultraviolet Light in Constructive Tissue Chemistry. Donald McCaskey.
7. Abuse of Alcohol for Rubs and Other Bodily Uses, Internal and External. Nathan Rosewater.
8. The Prevention of Postoperative Thirst by the Copious Administration of Water. Bertha Van Hoosen.

2. The Value and Limitations of Radium in the Treatment of Cancer.—Russell H. Boggs points out that the value of radium therapy in malignant growths has been established and is incontestible; that it varies according to the region and nature of the lesion and its condition at the time radium treatment is instituted; and that, while we must not lose sight of other methods, since in many cases the best results are obtained by a judicious combination of the different therapeutic agencies, radium holds its own as a curative measure and as a palliative procedure. Treatment of hopeless carcinoma in the past has been with morphine; today it should be radiotherapy. The leading surgical authorities today are beginning to recognize radium as a legitimate method of treatment. It is pitiful that patients with inoperable carcinoma, after their condition is pronounced hopeless, receive so little consideration. One of the most striking results of radium therapy is that the secretions which are often offensive disappear almost in every case. Thorough knowledge of the action of radium is essential because from that knowledge only may the proper dose be applied to produce the best results. Haphazard use of radium is today discouraged. In estimating the value of radium therapy, its advocates do not claim that it supersedes surgery, but that it is a valuable adjunct to surgery, in helping to prevent recurrences after operation and in rendering inoperable cases operable, and that it has proved itself one of the best palliatives we have in cases in which operation is impracticable and in many of such cases has brought about an apparent cure. Radium should always be considered first in the treatment of epithelioma, because when properly applied, practically epitheliomatous tissue can be made to disappear and there are fewer recurrences than by any other method. Formerly radiotherapy was advised on account of its leaving practically no scar; today the principal reason for treating these cases with radium is that the end results are superior to any other method. It is a demonstrated fact that radium has the power of inhibiting the proliferation of the cancer cell. In this way it has been shown that malignant growths are retarded by radium and become less malignant although they have not been reduced in size or have disappeared. By more intense radiation the cancer cells are completely destroyed. When this has been accomplished without seriously injuring the surrounding healthy tissue, it comes nearer to a cure for carcinoma than surgery or any method which has been employed up to the present time. This can be accomplished in at least 90 per cent. of all epitheliomata and this is the reason it is the best routine treatment. In the treatment of advanced epithelioma of the mouth and throat, by giving intense radiation to a point where some of the surrounding healthy tissue is destroyed, more of the malignant cells can be destroyed by radium and more cures can be produced than by any other method. When radium is pushed to this point, it is necessary in many cases to remove some of the healthy tissues which have undergone necrosis or degeneration by fulguration or surgery. Radium in tubes arranged at a certain distance apart and at a certain distance from the skin, placed over the submental and submaxillary (which are junctions of the lymphatics) so these areas are bombed with intensive radiation, and the adjacent lymphatics treated by deep röntgenotherapy, is more effective in destroying the malignant cells in the lymphatics of the neck than the most careful dissection of the neck. Glands have been removed and examined under the microscope in a sufficient number of cases after such radiation to verify this statement. In recurrent and inoperable carcinoma of the uterus, radium might be considered the specific treatment, because it is the only method which retards the process to the same extent and gives the same amount of palliation. Radium is always more valuable in inoperable than recurrent carcinoma of the uterus, because about one-fourth to one-third of these cases are clinically cured for a time. Since so much has been accomplished in the inoperable cases of carcinoma, in every primary case, no matter how early the operation has been performed, there should be either anteoperative or postoperative radium treatment, or both.

The Journal of the American Medical Association.

March 22, 1919.

1. Thoracic Injuries: Report of Cases Treated by Surgical Team 39 at Evacuation Hospital No. 8 from September 6 to October 25, 1918. Howard Lilienthal, Walter M Brickner, and W. A Kellogg.
2. Effective Malaria Control in a Ricefield District, with Observations on Experimental Mosquito Flights. J C. Geiger, W. C. Purdy, and R. E. Tarbett.
3. Prophylactic Use of Mixed Vaccine Against Pandemic Influenza and Its Complications at the Naval Training Station, San Francisco. A. J. Minaker and Robert S. Irvine.
4. Abdominal Complications of the Influenza Epidemic at Camp Custer, Mich. Lynn S. Beals, Wyndham B Blanton, and Daniel N. Eisendrath.
5. A Yeast Medium for Prolonging the Viability of the Meningococcus. Frederick Eberson.
6. Ragweed Dermatitis: A New Treatment, with Preliminary Report of a Case. Louis Hannah.
7. Acquired Immunity to Influenza as Indicated by a Recurrent Epidemic in an Institution. John H. Hamilton and A. H. Leonard.
8. The Ultraviolet Rays in the Treatment of Chilblain. Oscar L. Levin.
9. Basal-Cell Epithelioma. A. C. Broders.
10. Tuberculous Anorectal Fistulas: Report of Two Cases Showing Secondary Lung Involvement and Late Clinical Evidence of Their True Character. S. Mortimer Hill and Arthur A. Landsman.
11. Fracture and Orthopedic Table Especially Designed to Aid in the Treatment of Fractures, by Either the Open or the Closed Method. Hugh McKenna.
12. Pneumococcus Types in Rural Districts. Russell Richardson.

4. Abdominal Complications of the Influenza Epidemic at Camp Custer, Mich.—Lynn S. Beals, Wyndham B. Blanton, and Daniel N. Eisendrath found that the variation in the clinical pictures of the abdominal complications in the influenza epidemic was so great that they have grouped the cases into nine series. (1) Abdominal rigidity and tenderness. In these cases the question arose as to whether the boardlike rigidity of one or both upper quadrants of the abdomen was due to acute abdominal affection or to muscle spasm from lesions of the chest. The authors believe that the upper abdominal pain, which has always been held to be reflex, has an actual pathologic basis in at least some of the cases. (2) Pain in the right lower quadrant. In these cases pain was usually of a dull, aching character. On examination there was only slight rigidity in a small number, and in the majority there was tenderness over the region of the appendix but not rigidity. These signs frequently disappeared in a short time. In some cases, however, they persisted and increased in severity so that operation was deemed imperative. In this group nearly all the patients later showed demonstrable signs of bronchopneumonia, but a small number of fulminant cases of appendicitis occurred, in which operation was performed under local anesthesia with good results. (3) Peritonitis. Acute peritonitis occurred in 4.2 per cent. of the authors' cases of bronchopneumonia following influenza. The fact that in two out of these six cases the process was localized to the upper quadrant, and in a third, though distributed throughout the peritoneum, was most advanced over the hepatic surface, suggests an origin by direct extension through the diaphragm. In each of these cases a hemolyzing streptococcus was recovered. In two instances, pericarditis was an accompanying finding, and in one, jaundice was present. In addition to a bronchopneumonia, which in most cases was resolving, pleurisy was present. It seems certain therefore that the peritoneal infection was hematogenous in origin and did not in all cases originate by

the transdiaphragmatic route. In no case was the appendix or gall bladder the site of any change except on the serous coat. In five out of the six cases a diagnosis of peritonitis was not made during life. The condition was not secondary to any demonstrable abdominal focus, but apparently was one manifestation of generalized infection, which frequently was evident in pleura and pericardium. Suppurative peritonitis was not found in necropsies in the early fulminating cases, but only later in the epidemic. The early occurrence of deaths did not afford time for the development of the condition. A similar group of cases was noted during the severe infections in the early part of 1918. (4) Subphrenic abscess. Two cases occurred during the latter portion of the epidemic, and in this connection the authors point out the necessity of thorough routine examinations. (5) Jaundice was present in 7 per cent. of 140 necropsies. In all except one, a bacteriemia was demonstrable; *Streptococcus hemolyticus* was present in three; *Streptococcus viridans* in three; and the pneumococcus type IV in two cases. In only one case was there swelling of the ampulla of Vater. In all cases the intestinal contents showed that bile was freely passing into the intestine, and stools examined during life gave no evidence of obstruction of the flow of bile. (6) Spleen. In the majority of cases the spleen was but little enlarged; it was moderately firm on section and red. Microscopically the predominating feature was marked congestion. (7) Kidney. Acute nephritis was extremely rare. Acute congestion of the kidneys, however, was frequent. In one case multiple abscesses of the kidney were a part of a hemolytic streptococcal septicemia which had also caused a severe infection of one of the toes. Pyelitis demonstrated by ureteral catheterization was occasionally found. The authors point out that both renal and perirenal localization may be so severe as to endanger life, either concurrently with a pulmonary condition or independently of any demonstrated focus. (8) Rupture of the rectus muscles. This occurred with such frequency as to attract special notice. The condition was seen in eight cases at necropsy, rupture occurring midway between the symphysis pubis and the umbilicus. It was never complete and always bilateral. It was accompanied by hemorrhage under the sheath of the muscles. In one case the hemorrhage was extensive, dissecting its way downward in front of the bladder; in another, a broken-down hematoma under the muscle sheath showed hemolytic streptococci. In cases studied microscopically the same condition was seen, namely, polymorphonuclear leucocytes and mononuclear wandering cells accumulated diffusely between the muscle fibers and here and there localized into definite abscesses. The presence of well preserved erythrocytes in the tissues points to the fact that rupture was usually a late occurrence in the disease, and the authors believe that the probable explanation is that a localization of the infection in the muscles with abscess formation so weakens the muscle that rupture occurs with violent coughing or terminal muscle spasms. (9) Thrombophlebitis. This occurred four times, or 2.7 per cent. In three cases it led to pulmonary embolism. In one instance the thrombus had its origin at the bifurcation of the inferior vena cava, extended into the iliacs of both sides, and could be traced in the femorals to the middle of both thighs; this patient had marked swelling of both legs to the iliac crests. In another instance the right internal iliac vein was the seat of the thrombus, and in a third case old infarcts and plugged pulmonary vessels originated in a partly healed phlebitis. Blood cultures were negative. This affection is also one of the late manifestations of the epidemic and occurred in patients who had been sick for a month or more.

The Lancet.

March 1, 1919.

1. An Analysis of Cases of Tetanus Occurring in the British Armies in France Between November 1, 1916, and December 31, 1917. Colonel S. L. Cummins, C.M.G., and Major H. Graeme Gibson.
2. Summary of Sixth, Seventh, Eighth, and Ninth Analyses of Cases of Tetanus Treated in Home Military Hospitals from March, 1917, to April, 1918. Major-General Sir David Bruce, K.C.B.
3. Chronic Intestinal Stasis: What Are the Indications for Operative Interference? Sir W. Arbuthnot Lane, Bart.
4. Wheelhouse's Operation: Some Points Which Assist in Its Performance. James B. Macalpine.
5. Gunshot Injuries of the Cervical Nerve Roots. John S. B. Stopford.

3. Chronic Intestinal Stasis: What Are the Indications for Operative Interference?—Sir W. Arbuthnot Lane points out that in the vast proportion of cases of intestinal stasis operation is unnecessary since the administration of paraffin before meals, the use of a Curtis belt, the assumption of the recumbent posture at intervals, careful dieting, and the employment of drugs to relieve hyperacidity, will usually afford complete relief. Operative interference, however, is indicated in cases in which gastroduodenal distension is due to a damming back of the ileal contents by the pressure exerted by a "controlling appendix" or by an "ileal kink." The degree of interference can be determined by the appearance of the patient, the history of the case, the pain elicited on pressure on the inflamed and hypertrophied end of the ileum, and the *x*-ray findings. The utility of a complete report on the passage of a bismuth meal by a competent and experienced radiographer cannot be exaggerated, but unless he is familiar with existing mechanical conditions the services of a radiographer are of little value to the surgeon. The removal of the anchored appendix or the freeing of the ileal kink is usually sufficient to liberate the duodeno-jejunal junction from the strain. It is well to remember that the membrane which produces the ileal kink when well developed appears to contain lymphatics which drain the most infected portion of the ileum. Therefore, after the acquired band has been carefully separated from the mesentery and the torn peritoneal edges placed in accurate apposition, a drainage tube should be left in for two or three days, a precaution which may save the patient's life. It must be remembered that the kink tends to reform if the factors which produce it remain in action. Should the symptoms of the *x*-ray report suggest obstruction elsewhere, especially at the "last kink," it should be operated on at the same time. Gastroenterostomy should be performed when a peptic ulcer is present in the stomach or duodenum, or both. If it seems advisable, a gastric ulcer should be excised or it should be otherwise dealt with to ensure its cure. When the stomach and duodenum are dilated and the latter obstructed by such a degree of kinking at the duodenal jejunal junction that no freeing of the stasis in the lower bowel is likely to be sufficient to overcome this angulation, and as these constitute antecedent changes in a sequence which ends in peptic ulceration and, finally, in cancer, a gastroenterostomy should be performed. In peptic ulcer it is not sufficient to limit the operation to establishing a communication between the stomach and jejunum. The end of the ileum should be carefully examined and any obstruction removed, and the "last kink" should be dealt with if it is exerting any abnormal control, as is usually the case in these conditions. The surgeon is too prone to do his work through a small opening, and this is largely responsible for his frequent failures to understand the conditions he is dealing with and to benefit his patient. A more extensive incision than is usually made is necessary. By carefully observing the form and functioning of the stomach and duodenum, and by gauging the effect of traction on the duodenojejunal junction, the surgeon should be able to decide between a gastroenterostomy and treatment of conditions controlling the intestine lower in the tract. The operation called gastroduodenostomy, in which in cases of pyloric obstruction, a communication is established between the stomach and the distended duodenum, shows how little the mechanical causation of peptic ulcers is understood; as it is distended, the duodenum must necessarily be obstructed at the duodenojejunal junction. In cholecystitis, with or without gallstones, the primary cause of infection in the intestinal canal must be carefully investigated. Colectomy is indicated in such conditions as extreme constipation in which an evacuation can be obtained only at intervals and with great difficulty and pain; rapid and progressive wasting; mental depression which may result in attempted suicide; total inability to lead an active life; distressing absence of sexual desire; progressive degenerative changes in the

breasts of those with marked family history of cancer; toxic changes in the heart and circulation, and all secondary conditions such as rheumatoid arthritis, Raynaud's disease, Still's disease, many forms of tubercle, Bright's disease, Addison's disease. In these and many other conditions, colectomy offers the only hope of cure. Lane points out that by colectomy, he means the *complete* removal of the large bowel with exception of a sufficient length of the pelvic colon to establish continuity. He is of opinion that removal of the cecum, ascending and part of the transverse colon, rarely serves a useful purpose. Should no complication, such as the development of adhesions, supervene, the health of the patient improves marvelously after colectomy. The delay in the small intestine as shown by *x*-rays affords a general indication as to the extent of surgical interference necessary, but the degree of autointoxication and the delay do not necessarily correspond, for the reason that a moderate amount of stasis may be associated with a very virulent infection, or vice-versa. The surgeon must be guided largely by the severity of the symptoms, and his experience and instinct. A very long pelvic colon associated with much sepsis calls for colectomy, while a large, prolapsed, and twisted cecum can practically be dealt with in no other way. The surgeon will rarely regret having performed a colectomy, though he may frequently wish he had done this instead of some lesser operation. The vast majority of colectomies are performed for autointoxication and its results and not for mechanical effects of stasis. In many cases of colitis the only effectual treatment is the removal of the large intestine; it should be remembered that in ulcerative colitis, the process may extend for a distance up the ileum, and that the ulcerated segment of the small intestine should be removed. The pelvic colon is also ulcerated in many cases. This necessitates the subsequent treatment of the residual ulceration by vaccines, etc. In cancer of the large bowel, it is safer and easier to remove the whole of the bowel above the pelvic brim than a portion of it, and the health of the patient is benefited to a much greater extent by the more extensive operation.

British Medical Journal.

March 1, 1919.

1. The Imperial College of Science, Kensington: Its History, Organization, and Achievements. Sir Alfred Keogh, G.C.B.
2. The Defence of the Respiratory Membrane Against Influenza, etc. Leonard Hill.
3. Cause, Prevention, and Treatment of Influenza. W. M. Crofton.
4. The Treatment of Influenza. Captains William D. D. Small and W. O. Blanchard.
5. A Note on the Epidemiology of Influenza Among Workers in Gas Works, in a Cordite Factory, and in a Tin Mine. Captain A. Gregor.
6. Treatment of Wounds by Paraffin. Captain E. F. Pratt.
7. Acriflavine Emulsion as a Wound Dressing. Thomas E. A. Stowell.
8. Treatment of Acute Gonorrhea: Massage Pack Method. Major J. P. Fogarty.

4. The Treatment of Influenza.—Captains William D. D. Small and W. O. Blanchard describe the method of treatment followed in a series of 937 cases admitted to a general hospital in France, in which the mortality was 26 or 27 per cent. As these figures compare very favorably with the results obtained elsewhere, particularly as many of the cases were of a most virulent type, the authors have thought well to outlne their mode of procedure. The general management was that of fever. The patients were given lots of fresh air, were kept warm with blankets and hot water bottles but were not overheated, and were permitted a light diet consisting of fluids, milk, beef-tea, which was especially valuable, clear soups, egg-nogs, jellies, and custards. In order to reduce the toxemia, the drinking of large quantities of water, barley water, or lemon water is encouraged. These authors emphasize the necessity of absolute rest during the acute stage. Examinations should be as brief as possible and the patient should be disturbed as little as possible, however desirable it may be from an academic point of view to determine the precise nature and extent of the pulmonary complications. Sleep must be ensured, especially in patients showing pronounced tremor. It is the custom of the authors never to allow a sleepless night; it always reflects on the general condition and may make the difference between recovery and death. If tepid sponging is insufficient to promote sleep, one-twelfth grain of heroin should be given hypodermically and repeated once or twice, if necessary, at intervals of an hour and a half, until sleep is obtained. As to medicinal treatment, the authors have tested various drugs. Groups of patients—fifteen in each—were put upon each of the following drugs and progress noted and compared: aconite, aspirin, sodium salicylate, belladonna, arsenic, quinine, Dover's powder, and gelsemium. Gelsemium was found to be by far the most effective of these drugs and the contrast was so great that it was possible to pick out the cases treated with it without knowing that they had been so treated. It exerted a marked beneficial action on the course of the disease, it shortened the illness, and rapidly relieved the discomfort of the patient. Beyond slight ocular disturbances in a very small number of cases, no disadvantages were observed from its use. Belladonna was also found to be of benefit and the authors therefore advise its use in combination with gelsemium. In severe toxic cases with marked pulmonary symptoms, where tremor is marked, the pulse unstable, and the patient collapsed, stimulants are indicated. Alcohol in the form of brandy, whisky, or champagne gives the best results, the usual dose required being half an ounce every four hours, or more if necessary. Should there be any suggestion of overdosage, aromatic spirits of ammonium (½ to 1 dram) may be substituted. When there are signs of cardiac failure tincture of digitalis is of value. Caffeine, strychnine, and adrenalin produced no beneficial action of any kind. The treatment of pulmonary complications was carried on along the usual lines. The authors note, however, that the compound tincture of chloroform and morphine (10 minims every four hours) was particularly efficient in soothing the cough, and that inhalations of menthol and benzoin greatly relieved the tightness in the chest. The type of influenza seen during the recent epidemic produces extreme debility frequently associated with circulatory symptoms. During convalescence, therefore, a period of comparative rest is indicated with nourishing diet and tonics.

6. Treatment of Wounds by Paraffin.—Captain E. F. Pratt reports excellent results from the treatment of lacerated wounds and burns by ambrine and No. 7 paraffin, which mediums he has found equally satisfactory. His method of procedure is as follows: The wound or burn is first thoroughly cleansed with sterilized water; the paraffin is then melted and either sprayed by a special spray or painted by a sterilized brush over the affected area. One layer of gauze is then placed over the injured part, and then another layer of melted paraffin is either sprayed or painted over the gauze. On top of this a cotton wool pad is placed and the part bandaged. The dressing is left undisturbed for twenty-four hours, when it is removed and a fresh application made. A third dressing is applied in ordinary cases the next day and, when necessary, a fourth dressing after that. This method has been used in more than thirty cases and there has been no failure to relieve pain immediately, to prevent or remove sepsis, and to produce healing, in at most five dressings. Without exception, all the cases treated in this way healed up in a week. Captain Pratt believes that in maior injuries equally good results should be obtained. He suggests that since paraffin is the most important of the three ingredients in "bipp," that the efficiency of this medium may be due to the paraffin. Should this prove to be so, the principal objections to the use of bipp, namely, the expense, the risk of toxic symptoms, and the possibility of some interference with *x*-ray examinations, would be reduced to a minimum. He is of opinion that the view that antiseptic paraffin retards the process of healing by destroying the saprophytic action of bacteria is unsound and without foundation.

American Medicine.

February, 1919.

1. So-Called Heart Block: Report of a Case Including a Brief Review of Recent Literature. Henry E. Pelle.
2. Tuberculosis: Some Remarks on Etiology and Treatment. Albert C. Geyser.

3. Myopic Spectacles for Hyperopia. George M. Gould.
4. Some Interesting Brain Cases. Charles Graef.
5. Notes About Malaria—Its Diagnosis and Treatment. Beverley Robinson.
6. Among Medical Specialties Why Not One of Health Conservation? J. Madison Taylor.
7. High Arterial Tension: Treatment of High Blood Pressure. I. Lindenberger.
8. High Blood Pressure Without Cardiac Lesion. V. E. Simpson.
9. Nitrite of Soda in Treatment of High Blood Pressure. D. S. Wilson.
10. High Blood Pressure and Arteriosclerosis. A. R. Bigot.
11. A Case of Floating Cartilages in the Knee Joint. J. G. Jisr.

1. So-called Heart Block: Report of a Case, Including a Brief Review of Recent Literature.—Henry E. Pelle is of the opinion that from a scientific or at least a technical standpoint, heart block seems totally inexpressive, inappropriate, and a misnomer, since the cardia itself does not become blocked. As at present used heart block may be defined as a circulatory phenomenon or symptom-complex in which the stimulus for contraction transmitted from auricle to ventricle by muscular fibers, bundle of His, is stopped or blocked. Defective conduction or transmission may be due to known or unknown underlying pathology. Lesions involving the auriculoventricular bundle must be exceedingly rare. A multitude of presumed exciting or contributing causative factors have been mentioned by those indulging in theoretical speculation, but so far as can be ascertained no definite or constant etiological factor has yet been established. Anatomically heart block has been classified according to the location of the inefficiency, thus: (*a*) auriculoventricular, when located at the auriculoventricular junction. (*b*) sino-auricular when at the sino-auricular junction. (*c*) dextroauriculo-septolevauricular, when at the line of union of the right auricle plus the interauricular septum. (*d*) Septodextroauriculo-levauricular, when at the line of union of the right auricle plus the interauricular septum with the left auricle. According to Blackford and Willius, complete, chronic heart block owes its origin to a functionally complete "break" in the auriculoventricular bundle, *i.e.* failure of conduction from organic severance. Pathologically, inflammation, degeneration, infitrating gummata, and neoplasms are the chief lesions described. Valvular defects and coronary sclerosis are usually present. The most frequent valvular lesion is the initial. Progressive changes in cardiac rhythm from definite prolongation of the auriculoventricular interval to the "dropped" beat, then to 2-1 and 3-1 rhythm and finally to complete dissociation of rhythm, have been recognized and described. The Stokes-Adams syndrome results from circulatory changes which produce cerebral anemia; in certain instances exercise seems to be the responsible factor, since there is no compensatory increase in the ventricular rate. Rare instances have been recorded where complete block existed for many years with little or no clinical discomfort and in which no organic lesion was evident. However, the majority of patients with chronic heart block are confirmed cardiopaths, subject to the Stokes-Adams syndrome with its attendant dangers. Pelle quotes a case of his own and several cases by other observers in which heart block was present with somewhat varying symptoms in the different cases. As for treatment Blackford and Willius are quoted as concluding: 1. Alphaiodin quickens the iodioventricular rate in complete heart block; this is followed by marked subjective relief to the patient; the drug must be pushed to tolerance and the dose then reduced to the largest quantity which may be taken without discomfort; the auricular rate increases much earlier and to a much higher figure proportionately than the ventricular rate. 2. In nine cases of complete heart block, eight patients gave evidence of definite valvular disease, initial lesions predominating; the ninth patient had advanced nephritis. 3. In none of the nine cases was there a probable venereal etiology. 4. Six patients gave a history of probable etiologic infection with the streptococcic group, *i.e.* chronic arthritis, one case, "grip" and tonsillitis, five cases; diphtheria seems to have been responsible in two instances; the ninth patient gave no history of previous infection, but at the autopsy a large mulberry calcified nodule was found involving the bundle and one cusp of the aortic valve; no other pathology was evident. 5. Digitalis should be used in all cases of chronic heart block in which there is evidence of myocardial insufficiency. 6. They do not know the effects of long continued administration of large doses of alphaiodin in patients not suffering from thyroid insufficiency; therefore they believe that for the present this medication should be used only to relieve the Stokes-Adams syndrome in chronic heart block.

Indianapolis Medical Journal.

February, 1919.

1. Work of the Selective Service Examining Boards in Indiana. Robert C. Baltzell.
2. Asthma of Nasal Origin. John E. Barnhill.
3. Personal Incidents During Service in France. William F Clevenger.
4. Clinical Report of Alcoholic Cirrhosis with Cardiac Disturbance. S. E. Earp.

2. Asthma of Nasal Origin.—John F. Barnhill points out that asthma of nasal origin is quite common and that moreover its origin in the upper air tract is not always recognized. Every case of asthma should be looked upon as of possible nasal origin and therefore every effort should be made to discover whether or not its seat is nasal or nasopharyngeal. Of the nasal inflammatory infections Barnhill regards ethmoiditis as the most frequent cause of asthma. The name does not have the same familiar ring as tonsillitis, peritonitis, or appendicitis, yet the disease is as common as any of these and gives rise to much suffering, both local and general. Undoubtedly asthma is among the latter. Nasal infections undoubtedly lead in many instances to congestion and infiltration of the tracheal lining and to hypersensitive bronchial mucosa, conditions especially conducive to the asthmatic state. The second cause is a nervous one. This is, of course, apparent from the clinical fact that many instances may be cited of patients who have ethmoiditis or other nasal disease entirely sufficient to cause asthma, together with bronchial inflammation, who never have attacks of asthma. Neurotic influence must also be taken into account to explain the fact that most all attacks of asthma are paroxysmal in character. The treatment of asthma of nasal origin is successful in perhaps a majority of cases. As in many other diseases, success depends upon reasonably early diagnosis and surgical treatment. When untreated until serious changes in the bronchioles have occurred all treatment may prove unsatisfactory. Surgery directed toward the removal of nasal obstruction including the hypersensitive nerve terminals which supply such areas, supplemented by therapeutics and followed sometimes by sojourns in a suitable climate, have cured a large percentage of cases. Often the cure of a case is a purely surgical problem, but one that is far from simple. Not infrequently the nose must be completely renovated and changed. In some cases one must deal surgically with a much deformed nasal septum, hypertrophied turbinates, and ethmoidal inflammation or perhaps with ethmoidal degeneration with polypi. When the nasal disease is so extensive one or more nasal accessory sinuses are empyemic. In all such cases the patient has constant cold, with great distress from nasal stoppage and sneezing. Nasal infections are frequent and these spread quickly to the larynx, trachea, and bronchi, with asthmatic attacks. In this type of case nasal sprays, especially those with watery base, do harm. Internal medicines and climate are but palliative, but well directed and thoroughly executed nasal surgery is imperative and curative. All necessary surgery may not be done at one operation. Sometimes several operations may be necessary. The surgical aim is to break up the over-sensitive nerve relationship between the nose and bronchial tree, and to prevent in so far as is possible any further infection of the lower air spaces through the presence of infection in the numerous foci of the nose and throat. These operations are often major. They should be performed in a hospital.

Berliner klinische Wochenschrift.

January 27, 1919.

Under the general heading of "The State, Physicians and the People," appear a series of articles the object

of which is to show the German nation and Socialist government now in power, the useful part played by the medical corps in "bourgeoise" society. These articles, which possess a greater political and sociological interest than a medical one, are intended to fortify the position of the medical profession in the struggle for power.

The Object and Service Rendered by the Board of Public Health and the Sanitary Board.—By Kirchner.

The Development of the Sanitary Board and Board of Social Hygiene Up to the November Revolution.—By E. Deitrich.

Scientific Medical Research and the People.—A. von Wassermann demonstrates the necessity for a scientific medical corps for research work. If there is a body which denies itself honors and material advantages, it is certainly this one. The writer recalls in this respect that the legislation interdicts the patenting of diagnostic and therapeutic discoveries. The writer, who has had an experience of twenty-five years, during which he has seen men of science at close range, such as Koch and Ehrlich, declares that for them the attraction of a discovery is far greater than that of pecuniary results. The disinterestedness of scientific medical workers is for that matter an universally recognized fact. Wassermann pays an exalted tribute to the Pasteur Institute of Paris and to the laboratories of the United States, and apparently is getting ready for a *peaceful invasion* of the soil of scientific medical men of the Entente after peace is signed. He then recalls the fact that scientific research is a powerful stimulant for the social machine, viz., chemical manufactures and those of electric and radiological instrumentation.

Münchener medizinische Wochenschrift.

January 24, 1919.

Studies on a Toxin of Gas Edema and Its Antitoxin.—W. Straub has experimented with a sterile filtrate derived from cultures of gas edema bacillus and obtained by Fricker's procedure. The toxicity of the filtrate is considerable. In the first place a cardiac action, similar to that produced by digitalis, is noted, consisting of a ventricular paralysis with a maximum increase of the tonus, followed by paralysis of the respiration. The toxicity is markedly influenced by the rapidity with which the injection is given, while an intraarterial injection is less marked in effect than an intravenous one, because of the fact that the filtrate passing through the capillaries already diminishes the toxicity of the toxin, it being rapidly oxygenated by the tissues. These data may throw some light on the symptomatology of gas edema as met with clinically in man. Experiments were likewise carried out with an antitoxin and it was possible to demonstrate that it neutralized an amount of toxin one hundred times greater. The period of sensibilization for the toxin resulting from the injection of the antitoxin lasts for several days. Its action is above all preventive, the curative action being rendered more difficult from the rapidity of the action of the toxin of gas edema.

Cerebral Edema from Salvarsan.—A. Stühmer reports several cases of acute accidents following the injection of salvarsan. These consisted of cerebral edema even reaching punctiform hemorrhages. These accidents, which are due to anaphylaxis, occur most frequently when the injections are given too far apart. It is better to give the injections within less than ten days of each other in order to avoid this complication. If it occurs, it should be treated by intravenous or intralumbar injections of normal serum, while free trepanation is the best means of dealing with the cerebral compression resulting from the edema.

Deutsche medizinische Wochenschrift.

January 23, 1919

New Essays and Observations on Simulation.—R. H. Hübner records some experiments that he carried out in order to ascertain to what extent psychic affections can be simulated. To attain this end the writer requests the subject (in the special instance the subject was a neurotic female, having a taste for the stage and having a sister who is a cinema actress) to observe various types of insane subjects and afterwards to reproduce as exactly as possible a given psychosis. Hübner's subject could finally so exactly simulate melancholia that he sent her to a confrère specialist who did not hesitate to take the necessary steps to place her in an asylum! Mania was more difficult to simulate, the subject in question having great difficulty to assimilate the symptom of the "flight of ideas." She was also able to simulate general paralysis, but the speech characteristic of this affection required a rather long apprenticeship. The writer refers to the interest that these experiments may have in the domain of simulation and in the differential diagnosis of hysteria and other psychoses.

Wiener medizinische Wochenschrift.

January 11, 1919.

Non-Traumatic Organic Nervous Diseases in Soldiers.—J. P. Karplus sums up, in an article without pretension to novelty, the various affections which should be regarded as belonging to warfare. He refers more particularly to the neuritides and polyneuritides (there is no polyneuritis of warfare due to factors such as "nerve fag" or neurasthenia), to sclerosis "en plaques" (two cases following shell shock), to myelitides, encephalitis, syringomyelia, various syphilitic affections (it would appear that the fatigues of war do not predispose to, or accelerate the development of tabes in luetics) to tuberculous spondylitis, neoplasms, lateral amytrophic scleroses, Thomsen's disease, etc.

Le Progrès Médical.

February 22, 1919.

Nature of Cancer.—Audrain plunges at once into the resemblance between the syncytium of the placenta and cancer. This is admitted everywhere, but which is the natural type and which the analogue? Is cancer a something which the syncytium closely resembles, or is the syncytium the norm and cancer the simulator? Bard in 1899 called attention to the anarchy of the cancer cells. Does the syncytium possess the same attribute? No. The latter is physiological and orderly when it penetrates the uterine mucosa. It does not destroy right and left but only for a definite purpose and in a circumscribed manner. Its cells are disciplined while cancer cells are without discipline. We do not know what is the source of the syncytium, for while composed of embryonal cells it does not assist in the formation of the embryo. Cancer cells represent a cellular revolt which ends in the death of both the cells themselves and the tissues in which they proliferate. Slight irritation maintained or a sudden shock is sufficient to cause this revolt only in predisposed tissues. The author here interjects the remark that the syphilis toxin causes phenomena of functional exaltation, as bulimia, excessive fecundity, exaggeration of personality, etc. It might conceivably contribute in the revolt of cancer cell as a predisposing cause. This is purely speculation and not necessarily supported by facts. Syphilis is known to persist to the fourth generation. While the connection between syphilis and cancer in the same individual is not marked it may be otherwise in strains of blood, for syphilis in remote ancestors might result in cancer in the descendants.

Correspondenz-Blatt für Schweizer Aerzte.

February 1, 1919.

Lumbago.—Pometta, who is at the head of the medical department of the Swiss Accident Insurance Institute, refers to the consensus of medical opinion that this affection is mostly of rheumatic origin and that even the traumatically conditioned form is not usually traumatic in the insurance sense. In many cases the trouble follows certain definite movements, but this does not make the cases traumatic. The author has always refused to commit himself to arbitrary generalizations, for every case requires individual study. In every case he goes through a routine. Was the subject making a habitual movement in a habitual way when the lumbago

was elicited. Was he in an unusual posture when the movement was made? Was the movement exerted in a brusque manner? Was the effort made without premeditation? In this way an accident in the insurance sense may sometimes be shown. But as a rule the effort which elicits the lumbago is a minimal one. Moreover in a true accident there should be evidence that the affected muscle has sustained some pathological process. The muscle may have sustained rupture of a few fibers or may simply have been strained; but an actual demonstration of such injury is most difficult. If such can be assumed, it is evident that a reparative process must take place and that a certain time must first elapse. The presence or absence of pain cuts no figure, for the test of recovery is renewed ability to work at one's occupation and a relapse need not be feared. The best treatment of lumbago, however, is not rest but massage. In known cases of muscular traumatism aside from lumbago we know that improvement is very rapid provided necrosis or suppuration does not occur. In a few days the condition becomes quite painless. In the Simplon Tunnel it was common for men to be hit on the back by fragments of stone while stooped over. The resulting injury would not be termed lumbago, but it gives a line as to the time required for actual muscle lesions to heal. By the second or third day in uncomplicated cases pain had subsided. Hence in the much less and usually undemonstrable lesions of lumbago any damage must be quickly repaired. In practice it is well, to be on the safe side, to allow a week and to tell the patient that he will be well in from 6 to 8 days at the outside. One should never make this interval 2 or 3 weeks for the patient would probably make it come true. It must be borne in mind that this rapid healing holds good for the purely traumatic case, but lumbago, irrespective of nature, is said to last about one week. In the traumatic case a longer interval would suggest some special kind of injury and in general delayed recovery could be set down to muscular rheumatism, for in some rheumatic individals lightning twinges may visit the lumbar muscles if the weather is favorable. A purely rheumatic case should not be difficult of recognition. Outside of accident practice rheumatic lumbago is the form commonly seen, but in general the profession are apt when they encounter lumbago to look for rheumatism and imagine its presence where it does not exist. But there is a fallacy here. A man who is free from rheumatism and without history pointing to the same may when overheated and then cooled suddenly by a draft develop any of the so-called rheumatic affections as wryneck, or refrigeration palsy of the facialis. Such lumbago is not of course traumatic, nor is it rheumatic in the strict sense, but in examination the question of exposure to drafts while heated must be agitated. When exposure of any kind in an untainted individual can be shown there is nothing to do but class it under rheumatic affections. The traumatic history in a given case may be shown to be accompanied by a history of exposure. In accident practice failure to recover in 8 days becomes of great significance, for we have to exclude malingering for revenue, and determine the reasons for delayed recovery. Experts have advised such victims to return to work and work it off, for continued inactivity would be harmful. The author now proceeds to discuss severe injuries of the loin muscles in which there are swelling and hematoma and perhaps injuries to the spine.

Nederlansch Tijdschrift voor Geneeskunde.

December 14, 1918.

Grippe in Holland.—Since the second or severe grippe wave visited this country the above periodical has contained little else than accounts of cases and generalities about the epidemic. The present number is no exception and contains six articles which deal respectively with diagnosis, grippe and pregnancy, grippe and purpura and the sublimate treatment of grippe, the latter subject claiming three articles. Under diagnosis Nicolai mentions a case with an exanthem and other atypical behavior, such as enteritis. The author made a diagnosis of influenza upon which he later cast doubts. The case ended fatally without mention of autopsy. Dyspnea was marked and evidently of the type known as *dyspnea sine materia*, first mentioned by Graves in 1830 as seen in the influenza epidemic of that year. The various phenomena of conjunctivitis, general wheal-like eruption, enteritis, dyspnea, etc., could be explained in part by an angioneurotic process, but the high fever, delirium, and cardiac failure pointed to scarlet fever. In another case the diagnosis between influenza and typhoid was very difficult. Engelkens mentions the cases of 16 pregnant women with an infantile mortality of 50 per cent. as a result of influenza. Apparently there was no maternal mortality in this series. Niemeijer relates a case of influenza which appears to cause acute hemorrhagic diathesis. A number of cases are related in which sublimate injections appeared to act favorably in severe cases of grippe.

Revue médicale de la Suisse romande.

January 20, 1919.

Observations on the Influenza.—Galli-Valerio mentions the extreme confusion which prevailed on this subject on the part of all men directly concerned in its prevention and treatment. The first cases seen by the writer in early July gave the impression of the grippe of 1889 due to Pfeiffer's bacillus with secondary pneumococcus complications. This was soon followed by strange hypotheses that something different was afloat —why should the pandemic have begun in Spain instead of in Russian Asia? Why was Pfeiffer's bacillus so little in evidence? As for a Spanish origin it has long ago been shown that masked influenza was present at the same time in other countries. As for Pfeiffer's bacillus it certainly comes more and more into evidence as the pandemic advances and recedes and the author shows at great length that with technical refinement and perseverance its presence may often be indicated after preliminary reports of a negative character. Statements of unusual vulnerability with tendency to escape observation on this account cannot be endorsed for the germ seems quite hardy, surviving undesiccation and other unfavorable influences. Next to be considered is the subject of acquired immunity. We know that influenza in the present pandemic can relapse or that reinfection is possible, but as a rule the second attack is milder than the first. In second attacks with a considerable interval between there is the doubt that the second affection may not have been epidemic influenza. We may, however, suppose that a brief immunity was obtained before the disease was again contracted. That natural immunity exists is beyond doubt; for example the author treated patients during both pandemics yet never contracted the disease. In order to visualize the operation of the pandemic let us imagine many people closely crowded together who chance to be pneumococcus carriers. The influenza virus smites them and a murderous epidemic follows. One carrier of grippe virus is enough to start the trouble and he may not be ill at the time. In some of the villages in Valais whole families were wiped out, although up to a certain date influenza had been mild. Autopsies and cultures showed that death was due to the pneumococcus. For the complete family invasion to occur doubtless there was mouth transmission and much disease and death could have been prevented by intrafamilial prophylaxis, as has been abundantly shown in different countries. Among measures for treatment the author has found excellent results from small doses of brandy added to the milk of the diet.

Epidemic of Rabies in Paris.—Martel calls the attention of the Academy of Medicine to the epidemic incidence of rabies in Paris and vicinity. Since its recrudescence in 1915 the number of animals known to have been affected is 411. A number of human cases have occurred after an immunity in the city of 12 years. The proportion of dogs who are at large without leash or muzzle and without the regulation collar is nearly as large as that in which the legal forms are obeyed. The indications are to enforce the laws and destroy the surplus of animals. If the collar ordinance is enforced the homeless animals can readily be identified.—*La Presse Médicale.*

Book Reviews.

A Hand Book of Colloid Chemistry. The Recognition of Colloids, the Theory of Colloids, and Their General Physico-Chemical Properties. By Wolfgang Ostwald, Privatdozent in the University of Leipzig. Second English Edition Translated from the Third German Edition by Martin H. Fischer, Professor of Physiology in the University of Cincinnati. With numerous notes added by Emil Hatschek, Cass Institute, London. With 63 illustrations. Price $3.50. Philadelphia: P. Blakiston's Son and Co., 1919.

As the translators and revisers of Ostwald's Colloid Chemistry say in their preface to the present edition, it is a difficult and a delicate task to make a revision of a book when the author thereof is alive in another country. However, Dr. Martin H. Fischer and Emil Hatschek have met the difficulty in the best manner possible by leaving entirely untouched those large portions of the volume which contain the author's individual views. Moreover, the work has been brought up to date by the addition by Hatschek of numerous paragraphs dealing especially with the mechanical properties of colloids, with their viscosity in particular. It is superfluous to emphasize the importance of colloid chemistry—this is self-evident. Ostwald's work presents the subject fully and clearly, while the translation by Dr. Fischer is excellent.

Oxford Loose-Leaf Medicine. In Five Volumes. Edited by Henry A. Christian and Sir James Mackenzie. Volume I, Part I. New York: Oxford University Press, American Branch.

The object of the publication of this series of papers is mainly to bring treatment into line with recent advances in pharmacological knowledge. That is to describe what is deemed to be proper treatment in more exact terms, to advise methods which seem likely to give results, and to discard many drugs formerly recommended, not necessarily because they have no value, but because at present we do not know their real value or their method of action. In short, to advise as far as is possible the administration of drugs concerning which we possess definite and accurate knowledge as to their therapeutic value based upon their mode of action. Of course, there are drugs the usefulness of which has been demonstrated by long clinical experience, and these will be recommended. But in the main, the aim of Oxford Medicine, as stated in the introduction, will be to aid in the inauguration of a really specific drug therapy.

In Vol. I, the general story of modern medicine will be told and explanations will be given of exactly why change is taking place in our views as to disease. In Part I, Vol. I, Present Day Medicine is sketched by Dr. Henry A. Christian of Boston, who together with Sir James Mackenzie of London is editor of the new work. The Future of Medicine is dealt with by Sir James Mackenzie. The Heritage of Modern Medicine is discussed by Dr. William B. Johnston. Chapter I, The Part Played in Diet by Foods of Unknown Chemical Nature is contributed by Dr. Elmer V. McCollum, and Chapter II, Climate in Relation to Health and Disease by Dr. Henry Sewall.

If the term Anglo-Saxon is applicable to the two great English speaking races, and even if it be not strictly appropriate or correct ethnologically, it is at least easily comprehensible, Oxford Medicine is essentially an Anglo-Saxon undertaking. The editors are respectively a well-known American physician and a distinguished British physician, while the contributors to the volumes are eminent American and British medical men. The scheme of this new departure in medical literature is excellent. The contents of Part I, Vol. I, augur well for its future. It is an outcome of the war in that it advocates and assists in the reconstruction of medicine, and its publication is significant of the amity and good feeling existing between the Anglo-Saxon medical professions on either side of the Atlantic.

It should be said that the Oxford Loose-Leaf Medicine marks an epoch in the publication of medical works. By adding new leaves which will be furnished at regular intervals, the work may be kept up to date. The binding ingeniously lends itself to the incorporation of the loose leaf in a simple and convenient manner. The trouble in all works published after this system is that the owners often neglect to insert the loose leaves when they are received and, even if they do, they neglect to read the article again, and so fail to profit by the revision.

Studies in Electro-Physiology (Animal and Vegetable). By Arthur E. Baines, Consulting Electrician, Author of "Electro-Pathology and Therapeutics," etc. With thirty-one original drawings in color, illustrating the electrical structure of fruits and vegetables. By Gladys T. Baines, and numerous other illustrations. Price $5. New York: E. P. Dutton & Co.; London: George Routledge & Sons.

In the pages of this book Mr. Baines sets forth in clear language his belief or theory that the human body is designed for electrical functions, or rather he endeavors to show, judging from its structure, that electrical action in the body is precedent to chemical change. The author is a distinguished electrician. He was associated with Prof. Andrew Jamieson in cable repair work in the Red Sea and Indian Ocean, and became editor of the *Electrical Engineer*. The book is a most interesting presentation of views which are novel and almost revolutionary. The illustrations are original and excellent.

A Doctor's Discovery, or The Elixir of Life. With Appendices on Fasting and Cooking. By John Haddon, M.A., M.D. (Edinburgh). Price 3/6. Edinburgh: Published by the Author, 1918.

Dr. Haddon for many years has written on vegetarianism and the benefit to health of eating sparingly. Moreover, the author has practised what he preached and declares that personally he has proved that such a mode of diet is the true elixir of life. The book is well and interestingly written and a good deal of the advice given might undoubtedly be put into practice with advantage by perhaps the majority of people.

The Surgical Clinics of Chicago. Vol. II, No. 5, October, 1918. Octavo of 194 pages with 87 illustrations. Published bi-monthly. Price per year, $10.00. Philadelphia and London: W. B. Saunders Company, 1918.

This issue of the Clinics, while a little short on pages, is long on value per page; in fact, is one of the best numbers that has appeared. There are eleven contributors and nearly all have presented material that is well worth reading. It is hard to pick out sections for special commendation without doing an injustice to others perhaps equally good but of more interest to those specializing in other lines than the reviewer. Bevan presents clinical lectures on five cases all of which are very instructive. Eisendrath concludes the clinical lecture on "The Acute Abdomen," which was begun in the previous number, here taking up lower abdominal conditions and ending with a description of the findings in the case which suggested the topic. Eisendrath's complete article on the acute abdomen, covering conditions of both upper and lower abdominal organs and filled with comment based upon his long experience in abdominal surgery, is very instructive and, with some further elaboration and illustration, deserves reprinting in book form so that it may be available to a larger circle of readers. Mix gives an interesting talk on gastric carcinoma. Printy describes what he calls "A Perfected Technique for Posterior Gastroenterostomy and for Cholecystotomy." The reviewer disagrees regarding the "perfection" of the technique. The author describes what is undoubtedly a good technique, but it seems no better than that described by various other writers and in common use, while it is much more complicated and time-consuming than most of them. In the reviewer's opinion the time to announce a "perfected" technique has not yet arrived. Bernstein presents an improved technique for tendon transplantation, which seems to us to follow rather closely that of Leo Mayer. The other contributors are Moorhead, who presents three cases of exstrophy of the bladder; McKenna, Watkins, Reed, Parker, and Ochsner, each of whom presents one or more interesting clinical cases with appropriate discussion. Most of these latter contributions deserve special comment.

Society Reports.

INTERNATIONAL CONFERENCE ON REHABILITATION OF THE DISABLED.

An International Conference, on a wide scale, dealing with the treatment of the disabled from wounds and disease was held at the Waldorf-Astoria Hotel, New York, March 18 to 21, inclusive. The conference was truly international and the discussions thereat were chiefly concerned with the rehabilitation of those disabled by war, but the matter of disablement in civil life was also dealt with. The governmental authorities of the principal allied countries sent official delegates and there were thus represented the French Ministry of War, the Belgian Ministry of War, the Italian Ministry of Pensions, the British Ministry of Pensions, the British Ministry of Labor, the Canadian Department of Soldiers' Civil Reestablishment, and the Canadian Department of Militia and Defense. France was represented by Dr. Maurice Bourillon, president of the Comité Permanent Interallié, director Institut National Professionel des Invalides de la Guerre; Belgium by Louis Alleman, Chief of the Educational Staff, Institut Militaire Belge des Invalides et Orphelins de la Guerre; Great Britain by Mrs. Ethel Wood, secretary of the Local War Pensions Committee, London, Capt. Percy G. Sharp, in charge of the curative work at Shepherd's Bush Military Orthopedic Hospital, London, and Major Francis Meynell of the Ministry of Labor; Italy by Professor Vittorio Putti, director of the Rizzoli Institute, Bologna; and Canada by F. Gerald Robinson, Department of Soldiers' Civil Reestablishment, and W. E. Segsworth, director of Vocational Training, Department of Soldiers' Civil Reestablishment, Ottawa. Among the American official establishments represented were the office of the Surgeon-General, U. S. Army, the Federal Board for Vocational Education, and the American Red Cross.

The conference was arranged under the auspices of the Red Cross Institute for Crippled and Disabled Men and the Red Cross Institute for the Blind.

To Mr. Douglas C. McMurtrie, the director of the Institute, was largely due the credit for the initiation and development of the conference.

The program presented was so full that it would be impossible in a limited space to discuss even briefly the principal addresses. Some 300 papers were read. Therefore only the papers which bore most directly on medicine or surgery will be commented upon.

The opening address was given by Dr. Maurice Bourrillon, the subject of which was "National Organization of Rehabilitation for the Disabled in France." The speaker briefly reviewed the work in the direction which has been undertaken in France since the beginning of the war, paying especial attention to the measures taken to rehabilitate the disabled after their wounds have begun to heal and they are preparing to take their places in civil life. He told of the methods employed at Saint Maurice to render disabled men self-supporting as far as possible and described the efforts of medical men and surgeons to make such men physically and mentally fit. As for measures of education and vocational training he pointed out that it was not enough to determine what trade is most suitable for a man's general state of health and particular disability. One must consider also whether this trade corresponds to the mental powers and capabilities, and to his own preference and manner of living, for it is often unwise to place a man outside his class. Before deciding definitely in favor of any occupation, it is always safe to ask oneself these two questions: *First*, does the proposed occupation guarantee the disabled man a sufficient wage, with the minimum of fatigue and danger, to enable him to live honorably and steadily for the rest of his life? *Second*, is there not some other occupation which would offer even superior advantages under analagous conditions. Dr. Bourrillon drew attention to the fact that according to official figures French casualties up to November 4, 1918, were 34,300 officers and 1,351 soldiers and sailors killed or missing and 694,000 incapacitated by disease or wounds.

L. Alleman gave a graphic account of the manner in which Belgium is grappling with the problem of caring for and at the same time reeducating and training her disabled soldiers. All the speakers from Europe laid particular stress on the point that as many men as possible should be trained to work on the land. Mr. Alleman described in some detail the work that is being done at Port Villez, the Belgian military institution at which he is the chief of the educational staff.

Mrs. Ethel Wood of London told of what England is doing in the way of national organization of rehabilitation. Mr. F. Gerald Robinson and Mr. W. E. Segsworth performed a similar service for Canada.

On the afternoon of March 18 the work of the Division of Physical Reconstruction of the office of the Surgeon-General, U. S. Army, was related by Dr. Frank Billings. Among other facts brought out by the speaker was that up to the time of the signing of the armistice 85½ per cent of wounded American soldiers were returned to the battle front while another five per cent were treated with sufficient success to allow of them being assigned to limited service groups. In the neighborhood of 10,000 men were transported to this country for further treatment, signifying that less than 10 per cent. were regarded as injured seriously. Dr. Billings largely attributed these remarkable results to the directions given by the Surgeon-General's office in regard to vocational training and curative work in hospitals abroad. He pointed out that when hostilities ceased there were 92,000 Americans in French and British hospitals. Since then 80,000 had been brought home for treatment. He said that physical therapy on curative work at the present time is being carried on in forty-eight hospitals under the direction of the Division of Physical Reconstruction and that 17,000 disabled soldiers are being treated by such methods. The speaker emphasized the great importance that the public must play in the rehabilitation of the disabled. Public opinion must be exerted to its fullest extent upon relatives of wounded soldiers to convince them that unless their loved ones remain in the army hospitals long enough to ensure complete mental and physical cure, the work of the entire treatment would simply be time wasted. In the view of the speaker, play was a most important part of curative treatment.

During the evening of March 18 the American program of vocational rehabilitation was discussed.

Dr. Charles A. Prosser, director of the Federal Board for Vocational Education, sketched the U. S. Government program for vocational education. In June, 1918, by the Vocational Rehabilitation Act, Congress turned over to the Federal Board of Vocational Education, which had been in existence for some time, the entire task of reeducating and placing in employment the discharged soldiers, sailors and marines who have been so disabled that they are entitled to compensation from the War Risk Insurance Bureau and need the help of reeducation and placement in order to "carry on" successfully in the pursuits of civilized life. There was no necessity in this country as there was elsewhere for public-spirited citizens to interest themselves in the matter, to build workshops and schools and care for the men. The Federal Board took the problem in hand without the least disorganization of existing machinery. According to Dr. Prosser about 200,000 men will require retraining. Of this number about half have been crippled by wounds and half disabled through sickness. Three thousand six hundred are still in France and the remainder have been transported back to this country. Nearly 40,000 have registered already with the Federal Board asking for help. An analysis of the first 1,200 cases showed that 245 men out of that number selected agriculture, 274 commercial pursuits, 372 industry and trade, 275 professional, 45 courses in Americanization and 22 unclassified.

On the afternoon of March 19 the vast subject of vocational education was discussed. The first paper read was by Dr. André Treves. Dr. Treves said that from the very beginning of the war the French Army Medical Service had concerned itself with the question of the functional reeducation of the wounded. A ministerial circular, dated December 31, 1914, ordered simultaneously the organization of "centers," or hospitals, of orthopedic surgery, and centers of functional reeducation, which in France are termed centers of physiotherapy. The physicians-in-chief of these centers were independ-

ent of each other, but often worked together. They often made tours of inspection in the same automobile through the districts dependent on their centres and together looked up the wounded who should be directed to their respective hospitals. Each week they met at the centre of physiotherapy, examined together their wounded, decided whether the treatment should be surgical or functional restoration, and in this manner conducted a constant exchange of patients. The French Government has made liberal appropriations to its departments of physiotherapy and has installed all the necessary methods of treatment. Also, thanks to her wealth in mineral waters, France has been able to give her wounded the benefit of those valuable therapeutic measures. In the course of the year 1915 numerous subcentres of functional reeducation and radiology were created in order to avoid too much transferring of the wounded. These subcentres remain under the control of the physician-in-chief of the main centre. Dr. Treves laid much insistence on the point that the early use of the temporary appliance for amputation stumps hastens the time when the man can be furnished with his permanent appliance, the so-called American leg. The speaker declared that French medical men are of the almost unanimous opinion that physical work constitutes the best kind of mechanotherapy, the best functional reeducation. Like all the French medical men, Dr. Treves is greatly in favor of readapting disabled men to farm work, and he deals with this question in another paper which will be discussed later on.

The next paper read was by Capt. P. G. Sharp of Shepherd's Bush Military Orthopedic Hospital, London. The speaker emphasized the value of occupational work for the men while they are still in hospitals, arguing that when the disabled man is given some interesting occupation while he is in the hospital undergoing treatment, it not only serves to restore his functions, but also gives him confidence that he can do useful work again, and thus encourages him to make a fresh start. Captain Sharp is a strong advocate of curative workshops, that is, the system of treating a man's disability by physical therapy provided in the form of various kinds of handicraft. It is contended that in addition to exercising the disabled members, it is of very considerable psychological value, because it is interesting and useful. The system is in vogue at Shepherd's Bush and in the majority of the British Military orthopedic hospitals.

Dr. R. Tait McKenzie read the next paper, which had for its theme medical gymnastics and occupation. Professor McKenzie, while admitting freely that curative workshop work was beneficial and highly to be commended, deprecated the view that mechanotherapy was comparatively useless, because it was monotonous and uninteresting. He pointed out that curative work did not always exercise the parts affected properly. It exercised them sometimes in a harmful manner. He said that mechanotherapy was not opposed to curative workshop methods, but that one should be regarded as an adjunct of the other, or rather, that they should be coordinated. All forms of physical therapy were of value when employed intelligently, but in McKenzie's opinion curative work should not be relied on solely, but used in cooperation with mechanotherapy and other forms of physical therapy.

Capt. A. E. Bott of the Military School, Hart House, Toronto, Canada, read a paper on training lay workers for functional restoration. Captain Bott is a follower of Dr. McKenzie, and believes in mechanotherapy. He pointed out that the lessons learned in the war would be useful in civil life, and that this statement applied, of course, to physical therapy. He suggested that lay workers should be trained in physical therapy and said that judging from his experience women were, on the whole, better than men. They were more patient, and more careful as to details. He was of the opinion that intensive training in physical therapy was of little use nor did lectures impart the necessary knowledge and skill. Two hours a day for a time was sufficient, and it was better to teach in classes of not more than eight. He pointed out that while physical therapy was as important in peace as in war, it must be borne in mind that conditions were very different. In order to apply the lessons learned in war concerning the value of physical therapy there must be a supply of competent teachers. At present there were not nearly enough of skilled teachers, and therefore it was essential that the careful teaching of those who offered themselves and possessed the requisite qualifications should be made the matter of consideration.

Dr. W. Gilman Thompson of New York discussed mechanotherapy and occupation. He said that in this country they had received their inspiration, so far as physical therapy was concerned, from McKenzie and Bott. He agreed that exercise to be therapeutically most valuable should not be monotonous, but argued that mechanotherapy need not necessarily be monotonous. As an example of mechanotherapy being rendered interesting he pointed to the apparatus designed and devised by McKenzie and Bott, which fulfills the dual conditions of being both interesting and therapeutically of great service. By this apparatus energy can be measured in reaching an object, and also skill must be exercised in bringing the movements of the machine back to rest. It supplies a means of competition which makes it interesting and at the same time exercises those parts which require physical therapy in a more certain and exact manner than can be attained by curative work. In short, according to Thompson, in curative workshops the necessary exercise cannot be accurately gauged or regulated, whereas with Bott's apparatus this can be done. One is empirical and the other scientific. In another section of the meeting in the afternoon of March 19, the encouragement of men to undertake training was discussed.

M. Edmond Drousart, Director of the Ecole Professionelle des Blessés Montpellier, France, dealt with the problem of how to encourage disabled men to take training in those countries where such reeducation is not compulsory. He pointed out that the number of disabled men in France who enter the vocational schools is at the present time insufficient. To attain this end two important means are employed: (1) Bring the organization of the schools to the highest possible degree of perfection, so as to secure the full confidence of the disabled and to make the residence at the schools as attractive as possible. The speaker said that this program had been fully carried out in France, and that the American Red Cross and, in particular, Miss Grace Harper, who has been directing the Bureau of Crippled Soldiers in Paris, had been of greatest assistance in the accomplishment of the task. M. Drousart suggested that the conference recommend that propaganda in favor of reeducation shall be intensified in all allied countries. In the opinion of the French medical profession this was the most important problem of the present moment.

(To be continued.)

BRONX COUNTY MEDICAL SOCIETY.

Stated Meeting, Held February 19, 1919.

The President, Dr. Isaac M. Heller, in the Chair.

A Case History from Willard Parker Hospital.—Dr. I. H. Goldberger reported this case, which presented a problem in diagnosis. The patient was a boy sent to the hospital as a case of influenza, with the history that he had been running a high temperature for four days before admission. At this time he was running an up and down temperature between 102.5° and 99° F.; his pulse was 100, and respiration 24. The temperature continued to rise and fall for the next three days, when it was decided that this was not a clear case of influenza, especially as there were no pulmonary signs demonstrable. On the seventh day after admission a petechial rash appeared more prominent on the abdomen and somewhat resembling the roseola seen in typhoid fever. The temperature continued to rise and fall, and on the ninth day there was a sudden chill. The differential blood count was 12,200, the Widal test was negative, and several examinations of the blood for plasmodia were also negative. The up and down temperature continued for five or six days longer without any physical signs appearing to account for it. The Wassermann was negative. On the fourteenth day the patient complained of rigidity of the neck, but it was not the rigidity of meningitis. There was a slight Kernig sign. A lumbar

puncture was done and the spinal fluid was found to be under extreme pressure. After withdrawing 30 or 35 c.c. of spinal fluid a red tinge was noted and the flow stopped. Dr. Neal examined the fluid and found it negative. Blood cultures were also negative. At the end of 24 hours 15 or 20 c.c. of spinal fluid was again withdrawn and was negative. Several subsequent punctures also proved negative. After the lumbar puncture the headaches from which the patient had been suffering disappeared, the temperature remained normal, and recovery ensued. This case was undiagnosed, though they took into consideration the possibility that they were dealing with influenza of an atypical type. The very slight turbidity of the spinal fluid was considered to be due to the prolonged high temperature.

Dr. J. LEWIS AMSTER asked for further details in reference to the spinal fluid.

Dr. GOLDBERGER replied that the fluid showed an increase in cells, the bacteriological examination was negative, albumen 3, and Fehling's 2 plus. The rigidity of the neck disappeared immediately after the spinal puncture.

Hospitals in the Bronx.—Hon. JOSEPH CALLAHAN made a brief address on the urgent need of hospital facilities in the Bronx, in which he said that he had at one time thought that State legislation might be an aid in getting the new institutions that they needed, but after due consideration he had come to the decision that such action was not necessary. He was in favor of borough autonomy and felt that it would be better to have their hospitals under the State Board of Charities rather than as a part of the Bellevue and Allied Hospitals. The speaker discussed the prospects for getting city money and declared that while there were difficulties in the way this was not altogether a forlorn hope.

Report of Committee on Hospitals.—Dr. J. LEWIS AMSTER read a report showing the exact hospital situation in the Borough of the Bronx, in which emphasis was placed on the fact that undernourishment was recognized as leading to tuberculosis, influenza and pneumonia, and that the high price of food had resulted in much undernourishment among the poor, in consequence of which there was a greater demand for hospital beds at the present time than ever before. In addition, the lack of hospital facilities was felt more keenly, because of the returning soldiers requiring hospital care, which made it necessary to turn over for their use many hospital beds that under ordinary conditions would be for the use of the civilian population. The report gave detailed statistics in reference to the hospitals of Manhattan and the Bronx, and showed that in Manhattan there was one hospital bed for every 250 persons, while in the Bronx there was only one for every 600 persons. This lack of hospital accommodations, evident at the time of the poliomyelitis epidemic, was much more keenly felt during the recent epidemic of influenza. The most pressing needs were for a contagious hospital, as patients suffering from a contagious disease had to be transported to Willard Parker Hospital, which was much too long a trip, a municipal hospital in the lower West Bronx, and one in the upper western section. At the present time the staffs of their hospitals were composed almost exclusively of Manhattan physicians, whereas they should consist largely of Bronx doctors. The report also called attention to the need of districting the ambulance service.

The Cancer Problem.—A Chapter in Medicine.—Dr. ISAAC LEVIN read this paper. (See p. 551.)

Dr. ROBERT T. MORRIS stated that if some of the points made by Dr. Levin were aligned for purposes of a logical sequence leading toward a deduction, several questions might be introduced with propriety. Let us take these three points: Smith had shown that cancer in plants appeared to depend upon the presence of a microbe. Dr. Levin had shown that cancer in chickens might be induced by the injection of a filtrate made from cancer material. Other investigators had shown that in white rats cancer developed only under certain conditions relating to nutrition. Might we not find some common divisor for these three factors in the problem? Let us postulate that the microbe in plant cancer furnished an enzyme, that the filtrate described by Dr. Levin furnished an enzyme, and that defective metabolism furnished an enzyme. Let us assume that three different kinds of enzymes had one common action in exciting a cell into abnormal activity. What was this cell which was excited into activity? Was it a cell representing arrested development? We had arrested development of structures; why not arrested development of a cell? According to the Cohnheim theory, latent embryonic cells remained inactive until excited into activity by some agent. Perhaps arrested development of a cell later in the life of an individual might result again in the production of a cell of embryonic type. Let us stop for a moment to consider the point that a perfect ovum and a perfect spermatozoon as two gametes made a zygote which went on to the formation of a perfect being. A cell with arrested development on the other hand, might start off individually to make its own kind of structure by haploid division, the latter mass of tissue constituting cancer. If a number of different enzymes acted as stimuli forcing our hypothetical haploid cell into activity, we might then ask under what circumstances such cells occurred in individuals in the animal world or in the plant world. Let us ask another question. Did the cancer in plants occur in cultivated plants only or in wild plants? Cancer experiments with animals had related chiefly to cultivated animals. Under conditions of cultivation, where the element of struggle was removed in greater or lesser degree, individual cultural limitations were reached, and when cultural limitations were approached we had the appearance of arrested development of various structures. This influence finally resulted in the disappearance of that group of cultivated varieties of plants or animals. Cultural limitations were being approached among various civilized peoples at the present time, and in these groups one might anticipate an increase in cancer as a result of arrested development of certain cells very much as we found arrested development of structures made up of cells. Under such circumstances we were not to look for the exciting cause for cancer so much as we were to look for the kind of cell development which permitted various influences to set cells of embryonic type into active proliferation. The successful treatment of malignant disease with radium or the *x*-ray perhaps included the idea that normal cells in the vicinity of the malignant growth were whipped up into an activity which gave them increased protective power against invasion by our hypothetical haploid cell. The selection of the expert who was to use radium or *x*-ray became a very important responsibility, and the work that Dr. Levin had done for some of the speaker's patients had been very satisfactory.

Dr. MAX EINHORN said that while he hardly felt able to discuss the etiology of cancer he might speak in regard to the treatment. The first point was that the earlier cancer was recognized the better was the prospect that something might be done. Another point was that the more superficial the growth the greater the degree of success one could expect. This was evidenced by the good results obtained in cancer of the breast, which the surgeon attacked very early, the reason being that it was discovered early because it was accessible. Again the more radical the operation the more cures were accomplished. In deep-seated cancer there was less hope for big accomplishments. Years ago malignant growths of the gastrointestinal tract were rarely attacked by the surgeon, and at first they were very chary of operation in this locality but later they had been more successful, and now there were some cures reported after operations for cancer of the pylorus in which the diagnosis was made after careful microscopical examination. Dr. Einhorn cited two cases of true cancer of the pylorus in which the growths were small and the entire tumor could be cut out, and these patients lived, one for a period of twelve years, when he died from heart disease. He did not think the percentage of cures in these cases could be taken as 20 per cent., for the reason that many tumors of the pylorus which appeared to be malignant were not really malignant. For example, in one patient, six years ago, operated on for a tumor of the stomach, upon opening the stomach it was found that the case was inoperable and nothing was done except to close the wound, and that patient lived. Two or three years later this patient returned suffering from hemorrhage and the tumor was no longer present. It was thought that the hemorrhage was an indication for operation and that the patient

was suffering from a severe ulcerative lesion which required surgical interference. At the operation no trace of the tumor was found. A gastroenterostomy was performed after which the patient recovered and was still alive. He evidently had no cancer at all. He could recall several similar cases in which there was no syphilis, and yet the tumor disappeared, showing that there were some growths which looked like cancer but were not. But to speak of the paper and real cancer, cancer of the colon was very favorable for treatment. Resection frequently accomplished a cure and in many cases he had seen patients live six, seven, and eight years after a partial resection of the colon. It seemed that the disease did not spread out so quickly in this location and if one got the cases early while the cancer was still localized there was a good prospect of eradicating the disease. This might be because there were not so many lymphatics in this region. In regard to the radium and *x*-ray, it might be said that the outlook for cure by these agents was more favorable when the cancer was situated in an accessible location, as in epithelioma of the skin, which had shown a number of cures by radium. Dr. Einhorn cited an instance of epithelioma of the eyelid cured by applications of radium, in which the man had remained cured for six or seven years and there was no return. He had sent this man to eye specialists and nose specialists and all said that nothing could be done for him, that they would not operate, so he thought he should be given the benefit of the radium applications, as a result of which he had recovered and his nose was perfect and the eyelid all right. Radium could be applied to many kinds of cancer situated in other organs if the disease was discovered early, was still localized and the influence of the radium could be brought to bear on the whole field of the affection. It was not so easy to apply radium to deeply situated organs. A few years ago he had tried to treat cancer of the esophagus with radium in a case in which it seemed that the radium could be placed exactly at the site of the growth, but it did not result in a cure and he had not thus far seen a cure in a case of that kind, though great relief might be afforded the patient, and that was a matter of great importance to the physician. One could not tell these patients that they were going to die so the physician should do what he could to make the life of such patients bearable, and radium did much to alleviate the suffering in these cases. He had found that one-half of the cases of malignant stricture of the esophagus were improved by radium treatment. In as far as these cases were inoperable, one was entitled to try a remedy even if a radical cure could not be promised. He had found that in about 50 per cent. of these cases the condition of the patient was greatly alleviated, so that he could eat better and the esophageal canal was widened, and life prolonged. In cancer of the stomach in which operation could not be performed because the patient could not stand it, he had found that the introduction of radium had caused a cessation of the hemorrhages, and the patients were more comfortable and lived longer. In a patient with stricture of the pylorus he had succeeded in applying the radium to the spot and he did not doubt that it had prolonged life, and that was a great deal. For these reasons he congratulated Dr. Levin for his efforts in showing what radium and the *x*-ray could do in malignant disease, and he hoped more would take advantage of these means for the alleviation it afforded in this most severe disease of the human race.

Dr. Henry Roth said that he felt that the cancer problem was a very serious one, even if it was not hopeless. In spite of the fact that many patients lived over five or ten years after the removal of a malignant growth it was nevertheless a fact that in a large percentage of cases little can be done to save the patient from early death owing to the advanced stage of the disease. Complete eradication of the disease was only possible while it was still a localized condition. He wished to enter a protest against some of the articles which had appeared in medical journals stating that cancer was a systemic disease amenable to certain forms of diet and required no operation. Such teaching was pernicious, dangerous, and almost criminal, and how it could ever get into medical literature was hard to understand, and yet he had only recently seen such an article in one of the leading journals in this country. Another recent article stated that cancer was a general disease and that the tumor was only a local manifestation of it, and that the condition should be treated by diathermy and not by operation. He wished merely to repeat what Dr. William J. Mayo said some years ago, namely, that there was no authentic case of carcinoma of the stomach on record which had been cured by any therapeutic measure other than surgery. When one heard of cancers cured by measures other than the surgeon's knife or radium, careful investigation would usually prove them to be cures of conditions called cancer but not true cancers. To-day there were only two measures which could be relied upon to effectively remove cancer, and these were the surgeon's knife and radium. Basal cell epitheliomas, for instance, were known to disappear promptly under radium or roentgen ray treatment. He believed that to bring about an improvement in the cancer situation we must avail ourselves of all known means to recognize the disease at the earliest possible moment. He was furthermore of the opinion that considerable benefit could be gained by educating the public to seek proper advice soon after the appearance of certain symptoms and signs. People should be taught the importance of the early recognition of cancer and they should be impressed with the fact that neglect to get proper treatment at the proper time meant a fatal outcome. People should be educated to consult a physician at the earliest possible opportunity after the discovery of a new growth in any part of the body and not to go about hiding it, as many of them had done in the past. He was deeply impressed with the fact that cancer in a young person was extremely serious. For instance, cancer of the breast in a woman under thirty-five years of age was so serious that he felt safe in prognosticating that few such patients would live over a year even after a radical operation. Such cases usually developed metastases in the bones, especially in the spine, femur, and humerus. The results in cancer of the colon were rather gratifying; he had known of a number of patients living five years and longer after operation. Dr. Einhorn had spoken of the improvement brought about by radium in cancer of the esophagus. The same could be accomplished by a gastrostomy with the additional advantage of being able to give the patient the necessary amount of food, and thus prevent death from starvation.

Dr. Seymour Basch said it seemed to him that the meeting had been a symposium on unsolved problems; first the case for diagnosis, next the need for hospital facilities in the Bronx, and finally the cancer problem, which would probably remain an unsolved problem for some time. Dr. Levin had discussed the theoretical phases of the problem and as most of the men present were practitioners and did not have the technical training necessary to discuss these theoretical problems he felt that this was not the place to go into detail in regard to the underlying problems. As Dr. Levin had referred to the bacteriological problems it might be interesting to mention that D'Arcy Powers had published an article showing that environment had something to do with the development of cancer. The fact brought out that some persons seemed to have a natural resistance to cancer seemed to favor the bacteriological theory. As to the illustration of the secondary cancer in the brain produced from the cancer in the rectum, he would like to know if what Dr. Levin had said of that was true of all metastases; he did not think so. The question of diagnosis and therapy was the most important to all practitioners, particularly the early diagnosis of cancer. The surgeon usually dealt with cancer in its more advanced form, and if he frequently made an incorrect diagnosis, how was it to be expected that the practitioner who saw these cases at even an earlier stage was going to make the diagnosis. Cases of erroneous diagnosis, such as those cited by Dr. Einhorn, were multiple, and if it was so difficult for the practitioner to make the diagnosis how much more difficult must it be for the layman? When the layman was really in danger he frequently would not consult the physician. On the other hand there were many patients who did not hide their fears and who came to the physician oftener than was necessary when there was no ground for fear. With the ex-

ception perhaps of the breast and certainly of the uterus, he did not think with Dr. Roth that many hid their fears because they were prudish until after it was too late to operate. Another point that should be emphasized was that the only proper diagnosis was the microscopical diagnosis. The miraculous cures were those that occurred in the cases of clinical cancer, for when those growths were submitted for laboratory examination they turned out to be innocuous. Again, there was nothing more misleading than statistics. Frequently cancer was omitted from the death certificate to spare the family the anxiety that might follow the knowledge that the disease was in the family, and at other times when the physician did not know the diagnosis he would call the case cancer. That class of cancers of the pyloric region in which Dr. Lilienthal did the operation in two stages brought out interesting phenomena. He first did an exploratory operation and a gastroenterostomy, and later when it came to the second or radical operation it had frequently been found that the so-called "cancer" had disappeared. Only very recently, too, he had seen a case that was operated on by Dr. Roth, and thought to be an indurated ulcer turned out to be a sarcoma. As to radium, it acted through two kinds of rays, the destructive soft rays and the stimulative or hard rays which penetrated deeply and possibly led to cell proliferation. That was the reason he had spoken against the use of these rays in deep-seated growths, for, while the rays might destroy the superficial cancer cells, they might also stimulate the deep cells to more active growth. Febiger had demonstrated that a cancer like tumor in rats could be transmitted by the ordinary roach, which carried the virus, and that this virus was shown to be present in primary growths but not in secondary growths. Did not that speak for the parasitic origin of cancer? He would like to ask whether Dr. Levin had made any experiments with thorium and whether he considered it of definite value in the treatment of carcinoma. In this city two men, Klein and Walker, claimed that carcinoma was of chemical origin, and believed that it could be combated by chemical means. They also believed that a diagnosis of carcinoma could be made by urinary examination. This brought up still another question in the carcinoma problem.

Dr. Abraham Lightstone said that, speaking from the standpoint of the surgeon, he wished to emphasize a few points. First, no matter how forcibly it was impressed upon the physician that an early diagnosis was a necessity it was surprising how many cases continued to walk about in which there was no question but that a cancer was present, and this class of patients were very much neglected. As an example he had a case a few months ago in the Fordham Surgical Clinic, a woman 30 years of age, who had a baby fourteen months old, and who had a lump in her breast which was noticed during her pregnancy. She was examined by several doctors, who told her that the lump would disappear after the child was born. Dr. Lightstone had performed a radical amputation of the breast, and said that Dr. Schwartz, who made the pathological examination, pronounced the growth carcinoma. This was a clear case yet it was not diagnosed. Another form of cancer frequently not diagnosed was carcinoma of the rectum, patients with this condition frequently being treated for stomach trouble, piles, etc., when an examination of the rectum would reveal the presence of a malignant condition. The speaker cited another case in which a diagnosis of ectopic pregnancy was made and at operation he found a tumor of the ovary which Dr. Jeffroes had pronounced a sarcoma of the ovary. In a case that looked like carcinoma of the cervix uteri he did not even wait for the pathologist's report but removed the uterus at once, and he was convinced that that was the proper procedure, as the possibility of recurrence was thus greatly diminished. So far as mistaken diagnoses of cancer were concerned he thought the greatest mistakes were made in gumma of the viscera, and in cases of this kind the tumor had been known to disappear. Such a case was cited by the speaker, who called attention to the fact that polyps of the rectum were frequently mistaken for carcinoma and that even pathologists sometimes failed to differentiate these conditions, as it was exceedingly difficult at times to make the distinction between benign and malignant neoplasms by the microscopical examination of small pieces taken from the growths.

Dr. Joshua Leiner suggested that all disease was simply a manifestation of abnormal physiology, and further, that a biochemical reason might therefore be the basis for the cancer problem. Was it not a fact that the endocrine system controlled the biochemistry of the human body, which in turn led to the "general reaction make-up" of the individual, namely, either vagotonic or sympathicotonic, or to a cancer reaction due to a disturbed endocrine system? As for example, as Dr. Levin said, the testes had to be irritated (chemical change) before the cancer cell could find the proper media for proliferation. This hypothesis would explain why 90 per cent. of the human race was immune from cancer and 10 per cent. were attacked. For instance, the thyroid had an enormous influence on the metabolism and growth of the human body, purely through the media of biochemistry. W. W. Swingle, of the Department of Biological Chemistry of Princeton University, experimenting with the larvae of the common leopard frog, fed cultures with an iodine paste. The results of the experiments appeared to indicate very strongly that iodine was the activating principle of the thyroid gland, and that this substance functioned within the organism as a hormone without the intermediation of the gland itself. Iodine feeding brought about a metamorphosis in those thyroidectomized frogs in an abnormally short time. If this process went wrong then we would have a perverted physiology. (*Endocrinology*, Vol. 2, Serial 7.) The works of Senator, Iscovescu, Leopold-Levi, De Rothschild, Hertoghe, and others had shown that the thyroid had a multiple function and was not single in this respect. The iodine took care of the general metabolism. Phosphorus took care of the thermogenesis of the body, vasomotor, cardiac rhythm, etc. The sulphur component took care of the nutrition of the skin and hair. This showed the manifold function of the organ and it was under the influence of the "endocrine confederacy." T. Brailsford Robertson, of the University of California, working on the cancer problem from the standpoint of endocrinology, started from the premise that the anterior lobe of the pituitary was associated with gigantism or acromegaly, according to the age of the individual. He studied the influence of this extract on the growth of carcinoma in the rat. He isolated an extract which he called tethelin, which acted similarly to the anterior lobe itself. This substance was a lipoid just as the lipoids in the thyroid. It stimulated the epidermis and the hair function as shown in the hypertrichosis seen in hyperpituitarism. Taken in connection with the stimulating action of tethelin on carcinomas, it would seem that it had a specific action in stimulating epithelial growth. (*Jour. Biol. Chem.*, 24, 397, 1916.) He believed this kind of work would bring us in a great measure toward a solution of this problem which was one of the most difficult and mysterious in medicine.

Dr. Levin, in closing, said that the gentlemen that discussed his paper evinced a great interest in the physics of radioactivity, but that it would be foreign to the subject of his paper to present this phase of the matter. The problem mentioned by Dr. Morris was also somewhat too theoretical to discuss before an audience of medical practitioners. Dr. Einhorn was himself apparently an active worker in radiotherapy and no exception could be taken to any of his remarks. It might be correct, as Dr. Roth stated, that it would be beneficial if the lay public were better educated in the early recognition of the subjective symptoms of cancer; but it was of by far greater importance for the profession to be impressed with the necessity of an early diagnosis of the disease. In the experience of Dr. Levin fully 75 per cent. of the cases of carcinoma of the rectum for instance had been either operated upon for hemorrhoids or treated with salves, while the tumor was present and not recognized. It would lead entirely too far to discuss at length the theoretical or therapeutic notions of Dr. Basch. It did sound strange though, the speaker said, when a clinician considered seriously a so-called chemical specific method of cancer therapy.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 95, No. 15.
Whole No. 2527.

NEW YORK, APRIL 12, 1919.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

HEALTH WORK FOR COMMUNITY COUNCILS.*

BY HENRY DWIGHT CHAPIN, M.D.,

NEW YORK.

THE subject and work of Community Councils open up a very wide vista of service. The end of the war and the beginning of reconstruction emphasize all the problems and burdens of community organizations. How can the various health forces so coordinate and present their work as to make it possible and attractive for the masses of the people, organized in local Community Councils, to become real partners in the health enterprise?

Success in life in virtually all its pursuits, and happiness in any station, are conditioned on good health. Efficiency and strength go hand in hand. All local conditions should thus be made as favorable as possible to conserve individual vigor. No subject is of greater interest and importance to the people at large than public health.

How can Community Councils be made to function best in health work? Our understanding of the uses of Community Councils is to act as local centers that know and utilize all agencies for the common welfare. Thus the settlement may stand as the center for political and social activities; the public school as the educational center; the church or synagogue as the philanthropic center, and the hospital as the health center. The Community Council may act as a clearing house to coordinate these branches of social activity and see that in each individual case they function promptly and efficiently.

In this division of labor, subject, of course, to some overlapping, the Community Council should first strive to place a larger and broader work on the hospital. In calling for a wider activity, however, the hospital must have more effectual moral and financial support as a recasting of the machinery of operation necessarily calls for such help.

In possibilities of service the hospital represents one of the broadest human institutions. The treatment of disease, teaching, and research should all be combined in its operation. With reference to the latter, not only the investigation of the causes and treatment of individual diseases, but social disorders and maladjustments should likewise be considered. To attain its broadest usefulness, the hospital must serve as a sort of social laboratory in which disease and distress should be traced to their ultimate sources. Only thus can relief be made permanent and recurrence of disease prevented. In a last analysis many diseases present more of a social than a medical problem. It is only necessary to mention tuberculosis in this connection.

Our charities and relief agencies are frequently too segmental in their operation. As a result, there is too often delay and uncertainty in completing the circle of relief. In handling human distress, delay may be dangerous or even fatal. There is no institution that opens up so many questions and whose problems radiate in so many directions as the hospital. It should hence be made the source of very wide remedial efforts. There is too much specializing in charitable relief—seen in both individuals and institutions. As far as the hospital is concerned, social service and prevention are closely allied.

Let us trace some of the methods by which the hospital can more efficiently serve the community in which it is located. In a general way, the hospital may act as a center from which all the health work of the locality can radiate. It should thus aim to render a general communal service in all health matters. Not only should the sick be treated, but all the influences, social as well as medical, that tend toward illness must be investigated with an eye to prevention. This means a broad study of social conditions that make for sickness and disability in the community. This becomes necessary in order that a general knowledge in reference to future prevention may be acquired and constantly kept in mind. The problems of poverty and unemployment are closely connected with sickness, and thus the Community Council should collaborate with the hospital in their investigation and attempted relief.

Several surveys in different localities made by the Children's Bureau of the United States Government show that the curve of sickness and death among infants and little children follows very closely the curve of the earnings of the wage workers. Many years ago the writer started to investigate the relation between social conditions and sickness in connection with the children's service at the New York Post Graduate Hospital. From 1900 to 1902, 1,000 cases were studied to try and find the effect of living conditions as causes of the child's illness; 442 of the families lived in old, unhygienic tenements in which 764 dark rooms were noted, and 552 of the families did not have a living wage. In 1904, 700 families with sick children showed 304 with insufficient earnings, and in 1915-16 1,000 additional cases were investigated, and the earning capacity of the families did not show any essential improvement. The real underlying causes of the

*Read at a Conference on Community Forces and Reconstruction, held at New York, Dec. 13 and 14, 1918.

illness of these 2,700 children were bad housing, insufficient earnings, and ignorance on the part of the parents. This shows how the hospital may be utilized in a study of life conditions in a given locality, and points the way for Community Council efforts toward amelioration.

Poverty and sickness too often go hand in hand. There is a shifting and alternating relationship of cause and effect between them. It is interesting to note how this vicious circle works at different ages. Thus in adult years sickness is one of the principal causes of poverty. In a recent report of the New York Association for Improving the Condition of the Poor, the extent to which poverty in this locality is caused by sickness is shown in a startling way. Out of many thousands of dollars spent in material relief for destitute families in their homes, 96 per cent. was given to families who had to seek aid on account of the sickness or death of the wage earners. The Charity Organization Society has found that fully two-thirds of the cases of poverty it is called upon to investigate depend, directly or indirectly, upon sickness. These and other similar studies show both that health is necessary to secure a living wage, and conversely a living wage is one of the first requirements of health for the individual and the family. All these questions are of vital interest to the hospital social service worker and investigator.

Let us try and make every hospital a great *people's health university,* in which prevention, cure, and permanent reconstruction shall have a part. Public health lectures could easily be given by the staff to the surrounding population. Such topics as infant feeding and hygiene, the proper care and nutrition of growing children, the phenomena of adolescence, and similar subjects, would greatly help the parents in developing a healthy family life. The character and avoidance of various kinds of infection could be placed before people in such a way as to preserve their health. A corps of doctors and visiting nurses should be available for "follow-up" work after the patient is discharged from the hospital. This could readily be accomplished by an enlargement and reorganization of the social service departments already in existence. Many a patient relapses or falls into chronic invalidism for lack of proper aftercare. The good work of the hospital may thus be lost, because the ultimate condition of the patient does not bear out the promises of the case at discharge. A proper system of convalescent care for the poor on discharge from the hospital is urgently needed. A satisfactory district service would help local health conditions in many ways. It could first act to stimulate health consciousness in the neighborhood and then attack any specific problems that might arise. Active recreation as a health measure might be considered—the carrying over of that development of recreation that has grown so beneficial in army camps.

The wider extension of industrial hygiene, under the guidance of the Working Conditions Bureau of the U. S. Department of Labor and of the New York City Department of Health, will be important because it will interest and enlist employers and laborers alike; because the general social implications are large and obvious; because adult health education grows distinctly out of such attention to industrial hygiene.

Occupational diseases in the locality that feed the hospital can be investigated to advantage. Ther is also a large field in a study of the best method of dealing with the handicapped. Proper and saf employment for cardiac cases and other crippling conditions form a very necessary part of this work Clinics for undernourished children have alread been inaugurated in some of the hospitals. Larg dental infirmaries, such as have been started a Boston and Rochester, N. Y., do valuable work b correcting oral defects in poor children at a nomina cost.

As a background to the whole situation, referenc can be made to the high cost of food; to the im portance of trying to carry over to our civilia population the control of venereal disease bot through the study of prostitution and the admin istration of prophylactic treatment, which has bee so successful in the American Army. It would als be worth while to point out that vigorous play i the growing years has an influence on the prolonga tion of life and the prevention of degenerative dis eases; also to raise the question as to whether ou unsatisfactory organization of leisure life, throug which people get no real self-expression, may n have something to do with the wide extent of fun tional nervous disorders. A high percentage rejections for physical reasons among the youn men of the country, averaging one in four, draw by draft or volunteering in the army, gives foo for thought.

In many ways it is evident that our medic output is not what it could be with better organiz tion. Here is a rich field for the Community Cou cil to bring in the hospital and the social servi department as the natural point of contact wi the community in all health matters.

It has recently been proposed to arrange zon around hospitals according to the Community Cou cils of National Defense for the operation of these health activities. This movement was call forth by the emergencies created by the recent i fluenza epidemic. The municipalities were utter unable to properly cope with this visitation. It w often impossible to get doctors, nurses, and ev nourishment, with the most elementary care, many stricken households. This should not be lowed to happen again. A proper organization health forces is needed to prevent the repetition such a calamity.

One important health problem in every locality the difficulty of getting good home nursing in ca of illness on the part of the poor and those in mo erate circumstances. While some localities ha good district nursing, on a charitable or semi-cha itable basis, something more is required by mul tudes of self-respecting people who are not in class for charity. Some development of the nursi profession that will train a large number of wom as practical nurses, or nurse's aids, is urgently quired. The hospitals should take up this importa question. It has been estimated that only abo one family in ten has a yearly income of over $1,2(and the average wage earner gets much less. T high cost of sickness is an urgent problem to m titudes of the best people in every community. The are not the ones who are proper subjects for t free wards of private hospitals or the cold char of municipal institutions. It sometimes seems as

modern medical attention can only function best with the millionaire or the pauper. We need a different organization of medical attention and nursing, even at the risk of socialization, to meet the actual needs of the day. This is a question for the people, organized in a Community Council, to approach at once.

In Russia, the people, through their cooperative societies and the Zemstvos, employ physicians and conduct hospitals and clinics as cooperative enterprises. The great sickness societies and "Krankenkassen" of Middle Europe are such cooperative institutions. In Continental Europe and Great Britain the cooperative societies are promoting health agencies with noteworthy success. Here we discover the lines of convergence of the scientific and economic aspects of health conservation. Before the war, when the cooperative societies of Belgium, through their economic administration, secured pure milk for babies, sent children on vacations from the city to the country, provided six weeks' rest for parturient women, secured sick benefits and unemployment pensions for workers, and were doing things for the protection and promotion of health, they rivaled the best that the competitive practice of medicine is able to accomplish.

A fundamental principle of cooperation in agencies to conserve health is shown by the sickness insurance societies. In Europe, this movement now embraces fully one-third of the population. We have a few expressions of the distinctly medical side in this country, in the sickness insurance societies and in the cooperative dispensaries conducted now in some of our colleges by the student body. The development of agencies for promoting the health of the people, if carried out on the cooperative principle, will represent the application of the Socialist ideal, stripped of its bureaucratic complications and made creative and free.

There should also be a close touch maintained with all the municipal departments, especially the Board of Health. This would prove of mutual advantage both to officials and people. It would tend to prevent, on the one hand, the dry, bureaucratic methods that sometimes prevail, and, on the other, undue criticism due to a misunderstanding of the problems and difficulties that frequently concern the public official. An effort must be made to secure unified action by the Health Department, hospitals, nurses, and practitioners—such action as would increase the medical output and provide the framework within which the popular health work can be organized. Questions here raised are of universal interest, and could immediately be turned into a sustaining motive for cooperative action in every neighborhood. While people may disagree on all possible questions, social and religious, there is unanimous harmony as to the desirability of good health, both individual and public.

In this connection it will be of interest to call attention to a most interesting social experiment in Cincinnati, Ohio. A city block was here taken as a unit of social effort on the part of the people themselves. Among other accomplishments, a complete and successful program of public health administration has been worked out, with a resulting decrease in local morbidity and mortality.

The great war of saving the world for democracy has been won. What will be the meaning and fruits of this victory? After democracy has been saved for the world at such bloody cost we must see to it that it is conserved and practised. Many years ago Carlyle said that the world's being saved will not save us nor the world's being lost destroy us. A new world condition will not be of benefit unless we mean to profit by it. Each citizen must partly take upon himself the duty of regulating individual and public life according to the best methods. Every community or State usually gets as good government as it is fit for and deserves. In a democracy we must work out our own salvation or lose our civic souls.

There is one great influence which war brings as its principal and only beneficial by-product. It is the enthusiasm, loyalty, unselfishness, and bravery invoked by the soldier's active life. Among the people, also, there is a sort of exaltation and forgetfulness of personal interests that go with the will to win in a righteous cause. How can this splendid enthusiasm be conserved and deflected into civic life, with all its difficulties and problems? Here is an opportunity for Community Councils to try and find some solution of this problem. Perhaps it will lie in trying to adapt some of the forms and spirit of military organization to civil life. The Salvation Army is an example of what may be accomplished by following this method. We have had a home army of defense. Why not try and organize a sort of civilian army for civic service at home? An army stands for discipline and service, and these are just the elements needed in the civil life of a democracy. We might be able to let the health requirements of the community lead the way in this regard, as the question is so fundamental. Each Community Council might institute a local army to fight disease in its district. Doctors and nurses could first be enrolled and then types of service found for volunteers. While this army will be an organization of the people themselves, it could have ranking officers, as titles of some sort seem to help in collective work. Many physicians have no hospital or dispensary positions, and they could first be utilized in the building up of the army. Besides the honor, such home service would be a proper means of bringing the physician to the notice of the community. Regular campaigns could be inaugurated against many common preventable diseases and the interest thus conserved. It would add one more, and perhaps the most useful form of a drive, to the many that have preceded it. The word "drive" seems to have touched the popular imagination, and hence would have a place in the work. The children could be collected into a junior health army, and thus do their share, at the same time becoming educated in the process.

One day last fall I happened to pass an armory, and looking through the open door saw a large company of young women marching and countermarching and being drilled in military maneuvers. They wore smart uniforms, and showed the effect of constant discipline. The thought occurred to me that while many women had shown splendid service and heroism in the war, none of them had been sent to the battle line as actual combatants, where quick command must be instantly understood and obeyed. At that very time, within a short distance of the place, there were hospitals and neighborhoods with an epidemic of influenza and pneumonia, where the

lack of nurses and helpers was meaning needless suffering, and even death, to not a few. I felt like taking over the command of that little army and marching it out of the armory down to the tenements and into some hospitals where suffering and death were as rampant as on the real battlefield.

Let us try and inaugurate what William James, with prophetic note, wrote in that memorable essay, "The Moral Equivalent of War." He recognized that the popular imagination is touched by the courage, audacity, and heroism of war. "We must make new energies and hardihoods continue the manliness to which the military mind so faithfully clings. Martial virtues must be the enduring cement; intrepidity, contempt of softness, surrender of private interest, obedience to command, must still remain the rock on which States are built." He recommends instead of military conscription a conscription of the whole youthful population to form for a certain number of years a part of the army enlisted against dangers inherent in nature and work. The military ideals of hardihood and discipline could thus be wrought into the growing fiber of the people. "To coal and iron mines, to freight trains, to fishing fleets in December, to dish washing, clothes washing, and window washing, to road building and tunnel making, to foundries and stokeholes, and to the frames of skyscrapers, would our gilded youths be drafted off, according to their choice, to get the childishness knocked out of them, and to come back into society with healthier sympathies and soberer ideas." While thus far war has been the only force that can discipline a whole community, an equivalent discipline must be organized, and this great thinker believes it can be done.

Certainly the future conditions facing democracy call for both courage and vision. Social and physiological inequality, the labor overturn, the slums of city and country, needless disease and death, and many other problems, require heroic qualities of mind and heart if success is to be obtained.

In the great world movements of the day democracy is rapidly coming to its own, at least as far as outward form is concerned. Let us see to it that the inward substance as well as the outward form is there. Otherwise, disappointment and disillusion await the tired toilers of the world. A government of the people, by the people, and for the people must function by the real and actual operation of the people themselves. Autocracy has failed—let true democracy now be tried. Mistakes will be made and false directions sometimes taken, but in the end will be corrected. The best educators are trial and experience. We cannot correct our mistakes, but we can let our mistakes correct us. The inauguration of Community Councils opens up a new and promising vista for the operation of real democracy.

51 West 51st Street.

Professor Sahli on the Causes of Influenza.—Sahli denies that the organisms commonly found in grippe are the causes only of secondary lesions. He would see a symbiosis more or less accidental between the pneumococcus, streptococcus, *Micrococcus catarrhalis*, Pfeiffer's bacillus, etc. All have been recovered from the nasopharynx and the depths of the lungs. The last named organism is known to give the best cultures when it is associated with the others quoted.—*La Presse Médicale.*

INFLUENZA IN A TUBERCULOSIS SANATORIUM.*

By ALFRED MEYER, M.D.,

NEW YORK.

On October 6, 1918, soon after the outbreak of the epidemic of influenza in New York City, and 3 days after the probable outbreak of the disease in the village of Bedford Hills, it was decided to establish a quarantine at the Bedford Hills Sanatorium of the Montefiore Home.

As many of you know, this institution is situated in Westchester County about forty miles from this city on a hill overlooking the village of Bedford Hills, distant about one-quarter of a mile. The institution is exclusively for the care of cases of pulmonary tuberculosis from the Greater City of New York. The quarantine consisted in rescinding all the usual permits to the patients to visit the city and forbidding all visiting from the city on the part of relatives and friends. None of the nurses and housestaff absented themselves from the institution, and the only outsiders so far as known who made periodic visits were three physicians, a dentist, and the tradesmen who brought supplies. The mail-boy, who was an inmate of the institution, made two trips to the village each day, but did not have influenza. The average daily population of the institution was 274, of whom 213 were patients. Seven weeks went by full of their awful toll of illness and deaths through Westchester County and the nearby villages of Bedford Hills, Mt. Kisco and Katonah, and we constantly congratulated ourselves upon our freedom from infection. The question of raising the quarantine was repeatedly broached, but vetoed by me, for it was quite evident that, considering the size of our population, our safety had lain rather in the quarantine than in any natural immunity, but it was confidently predicted that if any case of influenza should accidentally arise we would have many cases and some deaths, and unfortunately this prediction proved only too true.

The first case appeared on November 26 in a male ambulatory patient with far advanced tuberculosis, in a ward containing thirty-four beds, and I have not been able to establish the source of his infection. Although this case was promptly isolated, three more cases appeared in the same ward in the next forty-eight hours. By December 9, fourteen days after the outbreak, there were a total of forty-three cases, and the last case appeared on December 22. The total then was fifty-four, which represented almost 20 per cent. of the entire population of the institution. Two of the cases were non-tuberculous employees, a member of the house staff and the bookkeeper. There were six deaths, three male and three female—a mortality of a little over 11 per cent. Let me give you a few details of the fatal cases:

The first was that of a male drug clerk, twenty years old, who was suffering from a combination of exophthalmic goitre, a moderately advanced tuberculosis, though not bacteriologically proven, and with negative Wassermann and tubercle complement fixation tests, who died of a double pneumonia on the sixth day. There had been 19 nega-

*Read at a meeting of the Section on Medicine of the New York Academy of Medicine, February 18, 1919.

tive sputa, of which three had been antiformin.

The second death was a male cloak-maker, aged forty years, with positive sputum and extensive bilateral lesions. He had been febrile from his admission in June until early in November, which confined him to bed with temperatures between 100° and 101°. He had lost thirteen pounds in weight before his influenza. The temperature suddenly rose to 104° with marked prostation, a rapidly developing dyspnea and cyanosis, and death on the third day. This case was the one with the most rapidly fatal issue.

The third death was that of a young woman of twenty-one, a clerk, who had only been in the institution four weeks with a bilateral lesion, including a cavity in the left upper lobe. In spite of the extent of her disease, she had been afebrile and gained five pounds in this short period. She suddenly became acutely ill with temperatures ranging between 103° and 104° and died in six days with scattered areas of bronchopneumonia.

The fourth death was of special interest because it occurred in a young girl of twenty-four, in whom I had established a fairly complete left artificial pneumothorax at Mt. Sinai Hospital some months before, subsequent refills having been done in three weekly periods at Bedford. She had been there all told five and one-half months, had lost her fever, and gained fifteen pounds in weight, and was an ambulant patient. Soon after the onset of her influenza symptoms her temperature rose to 105°, and she developed a pneumonia of the right upper and lower lobes and died in nine days. She menstruated during her illness, and I am mentioning this fact because I am wondering whether it was in part responsible for her hyperpyrexia. I wish to leave this an open question, but from observations made in many other women in the city I am inclined to believe that menstruation tends to make the fever run higher; in fact a large proportion of the cases that I saw elsewhere with temperatures of 105°, 106°, and over were in menstruating women. Another question of interest arises in this case. Would it have been advisable to let the nitrogen out of her left chest even if siphonage had been necessary to withdraw it, and would the left lung have expanded, and would the pregnosis of her right pneumonia been improved? The left lung had been collapsed for a period of about seven months with a final pressure that was usually around zero, and the last inflation with 700 c.c. of nitrogen had been made three days before her influenza began.

The fifth death was that of a young woman of twenty-one years with a bilateral apical tuberculosis. She had been in the institution seven weeks, had been afebrile, and had put on ten pounds. The right lower lobe pneumonia never resolved up to the time of the patient's death two months later, which was the longest duration of any of the six fatal cases.

The last death was of a young clerk of seventeen years, with a cavity in his right upper lobe, who had been in the institution over seven months, had become afebrile, and had gained four pounds. At the end of the first week of his influenza his temperature dropped to normal, remained there three days, just as it does sometimes in the non-tuberculous, portending convalescence, then rose again to 103° and 104°, continuing thus with slight variations until his death on the fifty-sixth day of his acute illness. There were no autopsies on any of these six cases.

It is of interest to note that over 98 per cent. of the cases were under forty years of age, although only 84 per cent. of the population was comprised within this age limit, or, to put it differently, there were less than 2 per cent. of cases over forty years of age, although that age period was entitled to 16 per cent. of the morbidity, showing that there was a greater age predisposition in patients under forty years.

The clinical picture did not differ essentially from the disease as we see it in the non-tuberculous, and it is too early now to say what effect the inter-current illness has had on the tuberculosis, but in at least seven of the cases there are indications of renewed activity of the tuberculosis and an extension of the original process. The average duration of illness in 46 of the cases that recovered was about six days.

It is to be regretted that many other sanatoria of the country have had a similar experience, with an effective quarantine for varying periods of time, only to be disappointed in the end by an outbreak of the epidemic. This happened at three State sanatoria in Massachusetts—Rutland, Westfield, and Lakeville. At Westfield 75 children out of 150 became ill and 4 died. Later there were 8 deaths out of 16 adults who became ill.

Dr. Wilson, Director of Hospitals of the New York City Health Department, reports in a personal communication to me that they were free of the disease at Otisville until they permitted 45 or 50 of their men to go to New York during the Christmas holidays, 2 of whom returned in the active febrile stage. Subsequently 50 cases came down. Of these 50 cases, 5 died. Not a single case developed in the women's unit.

At the Trudeau Sanatorium quarantine was effective until February 8, when they had their first case. I cannot say how many secondary cases developed.

Dr. Palmer also, in a personal communication to me, reports that at the Springfield Open Air Colony in Illinois for thirty-five adults the quarantine was effective for two months, when a new patient brought in the disease, from which 15 cases developed with 3 deaths.

At the Naperville Sanatorium, also in Illinois, quarantine was primarily effective, but ultimately there was an outbreak with 2 deaths out of a population of about 150 patients and employees.

The only medical institution of which I have knowledge which up to date has been perfectly successful in keeping out the disease is the hospital in San Francisco in charge of the Public Health and Marine Hospital Service, but this instituition is situated on an island. Dr. Heise reports that a space on the wharf was roped off, within which the supplies were dumped from the boats, and not until the boats with their crews had departed were the shore employees allowed to collect the supplies. Thus all personal contact with San Francisco and the rest of the world was eliminated and with it the introduction of the disease.

28 East Seventy-fifth Street.

NOTES ON A MONTH OF INFLUENZA AT A BASE HOSPITAL IN FRANCE.

By S. BRADBURY and E. B. KRUMBHAAR, Capts., M. C., U. S. A.,

16 (Phila. U. S. A.) Genl. Hosp. B. E. F.

Statistical.—Between October 12 and November 12 there were admitted to No. 16 (Philadelphia, U. S. A.) General Hospital 533 cases of influenza, representing the height of the epidemic in this locality. Of this number, 444, or 83.3 per cent., ran an uncomplicated course and recovered in from four to eight days (though their stay in hospital was naturally longer). Ninety, or 16.7 per cent., developed pneumonia, and of these, 45, or exactly 50 per cent., died (8.3 per cent. of the total number). Death occurred from 5 to 17 days after the onset (average duration of 10 days). While these figures include some convoys of convalescent patients, they also include many cases in which pneumonia had developed before admission to this hospital. It is of interest that although the influenza epidemic last spring was much milder in character in this region, 3 deaths (confirmed by autopsy) occurred in this hospital during June and July.

Clinical.—The disease has been of sudden onset, the usual complaints being extreme prostration, severe frontal headache (often described as being in or behind the eyeballs), general aches and pains, and often chilly sensations. Constipation is the rule, though vomiting and diarrhea are occasional complaints. In physical examinations of these early cases often the only evidence of illness is fever and a coated tongue. This is usually accompanied by a noticeably slow pulse and normal respiration rate. Most patients have a severe non-productive cough and frequently epistaxis. Many cases have cyanosis from the onset, even those in which no pneumonia appears. Others complain of pain in the upper abdomen, which may be muscular or pleural.

Complications of minor degree have been frontal sinusitis, otitis media, inflammation of the antrum, and severe laryngitis, rendering the patient voiceless and in a few instances making deglutition painful. In simple cases the fever subsides in 4 to 7 days. Relapse, or recurrence of the fever and all symptoms, has occurred frequently, and is usually milder than the original infection.

The most serious complication, pneumonia, may begin during the fever or in the 2 or 3 days after its cessation. In the severe type, its onset is indicated by increased temperature, cyanosis, rapid pulse and respiration, and a more severe cough, productive of purulent sputum. It is usually nummular, sometimes extremely tenacious, like that of lobar pneumonia, and in some instances very abundant, amounting to 300 to 400 c.c. in 24 hours. Rarely it is blood tinged, and a few men with pneumonia have had small, frothy hemorrhages shortly before death. Examination of the chest at the onset shows no definite dullness, but suppression of breath sounds at one or both bases, with a few very fine crepitant râles. Later, signs of consolidation (dullness and bronchial breathing) are found, but they appear and disappear from day to day in different parts of each lung. In early fatal cases the cyanosis rapidly increases, delirium supervenes, and in 36 to 60 hours death occurs. In late fatal cases the cyanosis continues, signs may become definite in one area, with changeable signs throughout the remainder of the lungs, the patient wastes rapidly, cough is severe, with abundant sputum, delirium is nearly constant, and after 7 to 14 days the patient collapses, breaking into a drenching sweat, with a weak, rapid pulse, which fails to respond to any stimulation. Several men have appeared to be progressing favorably when they complained of sudden pain over one or the other lung, and shortly after collapsed, and died in 5 or 6 hours.

Complications of the pneumonia have been frequent and universally fatal. Three men developed jaundice. In 2 of these 3 there was an urticarial rash of about 24 hours' duration, occurring several days before death, and one of these patients had septic emboli in fingers of the right hand, on the outer side of the thigh, and either an iritis or panophthalmia of the left eye, with *Streptococcus hemolyticus* in the blood. There was 1 case of pneumococcic meningitis, and in one man who had severe aortic regurgitation fresh vegetations were found on the aortic leaflets post mortem.

In the non-fatal cases the temperature falls slowly to normal, but often the patient is very ill, with rapid, weak pulse, rapid respiration and cyanosis for 2 to 5 days after all fever has disappeared. Convalescence is extremely tedious, the men being weak, emaciated, and with cough, expectoration and rales in the lungs continuing for 2 to 3 weeks. In one case there still persist râles and rough breathing at one base, and it is now 4 weeks since the severest point of the disease was passed.

Pathological.—Autopsies were performed on 28 cases. All of these showed pneumonia and acute fibrinous pleurisy to a greater or less extent, and 11 showed in addition extensive multiple streptococcic abscesses of one or more lobes. Two of these had further progressed to pyemia with abscesses in liver, spleen, and kidneys, and streptococci isolated from the blood stream ante mortem. In 8 cases the lung abscesses were associated with a shaggy streptococcic pleurisy, usually with a turbid effusion (empyema). In the other 3 the subpleural abscesses apparently ready to burst indicated the intrapulmonary origin of the pleurisy.

Of the pneumonic lungs not complicated by abscesses, a few showed a typical focal peribronchial bronchopneumonia, usually with pus in the central bronchiole, and 2 ordinary lobar pneumonia (red and gray hepatization). The majority, however, were of an intermediate type that has not hitherto been encountered by the writers. In these cases were found large portions of a lobe, of a homogeneous, firm, heavy, wet, red character, with a peculiar boggy, meaty appearance. It was only after scraping off considerable blood and serum that widespread consolidation became apparent, and the color was seen to vary from dark red to grayish pink. Some of these tissues floated low in water, others sank. In 4 of these cases the scraped fluid had a semipurulent tinge and gave somewhat the impression of a resolving lobar pneumonia. In some cases of this type (apparently those of longer duration) the homogeneity of the lung tissue was less marked. The translucent, semisolid, edematous tissue was then seen to be divided apparently regardless of

the lung structure by well defined moist, raised, gray, granular belts. These occasionally appeared as septa penetrating vertically from the pleural surface. Histologically, leucocytes are not very prominent in the alveoli of such lungs. Many alveoli are packed with red blood cells, almost obliterating the lung structure; others contain a mixture of red blood cells, fibrin, serous fluid, and nucleated cells in various proportions. Of the latter, small round cells and plasma cells usually predominate over the polymorphonuclears and the pigment-bearing, wandering cells. Sections from the paler and granular areas show polymorphonuclears predominating, with a picture resembling confluent bronchopneumonia. The incidence of the various types of pneumonia bore very little relation to the duration of the disease, abscesses being found in those dying as early as the 5th or as late as the 17th day and the intermediate form occurring as early as the 5th or as late as the 20th day. The spleen in 6 cases was but little changed from normal; in all the others it was slightly enlarged (up to 250 gms.), but with very prominent, enlarged Malpighian follicles and dark purple pulp. The other organs showed more or less cloudy swelling, with occasionally dark congested kidneys. In one case death was attributed to kidney insufficiency and dilatation of the heart, though bronchopneumonia was also present. The bone marrow was found hyperplastic, as in most acute infections. The trachea and bronchi of the earlier cases were congested, covered with a glairy, often bloody, fluid. Those of the later cases were but little changed from normal.

Bacteriology.—Post-mortem smears and blood agar cultures from the lungs were carried out in 18 cases. In only 3 were organisms resembling the Pfeiffer bacillus encountered and 2 of these died early. In all cases *Streptococcus hemolyticus*, pneumococcus, and a sprinkling of other cocci were found, depending on the part of the lung examined and the duration of the case. In the earlier cases pneumococci predominated and large clumps of these organisms could be identified histologically in the alveoli. In the consolidated areas and the pleural exudate pneumococci and hemolytic streptococci were often associated, the former usually predominating, with other cocci occasionally present. The abscesses and septic pleural fluid, however, invariably contained a majority of hemolytic streptococci, though pneumococci were also present. It, therefore, seems as if the Pfeiffer bacillus, if ever present, had usually disappeared before death supervened, and that pneumococci were chiefly responsible for the consolidation, and streptococci for the suppuration, though it is not apparent whether or not the lung must pass through the stage of consolidation before suppurating. Time did not permit the isolation of the types of pneumococci, or further subdivision of streptococci; the diagnosis of these and other organisms was made by their morphology and growth on blood agar only.

Vaccine Therapy.—A tardy attempt was made to protect those who had already developed influenza from pulmonary complications by giving a polyvalent vaccine. This was prepared from cultures from the lungs of three fatal cases, and contained approximately 40 per cent. each of streptococcus hemolyticus and pneumococcus, and the remaining 20 per cent. of staphylococci and an unidentified Gram negative bacillus. It was given in doses of 200 to 300 million, to febrile cases only (*i.e.* still possible contractors of pulmonary complications). Of 33 thus treated, none developed bronchopneumonia and the medical officers in charge gained the impression that (possibly due to the non-specific effect of foreign protein) a favorable influence was exerted on the course of the influenza. In 6 cases in which pneumonia was already present the vaccine was given at the request of the medical officers without any great expectation of doing good. The fact that 4 out of the 6 died indicates (as would be expected) that such vaccines are too late when given after pneumonia has already begun. Convoys of convalescent cases only, after the cessation of hostilities, prevented this vaccine from being employed on larger numbers.

Clinical Pathology.—Leucocyte counts were made on 20 patients, 10 of whom had pneumonia at the time. Leucocytosis was present in 6, all of whom had pneumonia or other complications. A leucopenia (2,600 to 5,400) occurred in 7 cases, 5 of which had bronchopneumonia at the time. Differential counts in 13 of the 20 gave inconstant results, but apparently the chief changes were due to variations in the polymorphonuclears. In one septicemic case with a leucopenia of 4,400 per cubic millimeter, premyelocytes and Turck irritation cells were common. Three of the 7 leucopenia cases and 4 of those with leucocytosis died, but the writers feel that a larger series would confirm the view that leucocytosis is a good omen in the presence of influenza complications. The urine of severe cases usually showed a cloud of albumin and many hyaline and granular casts. In all the mild and many of the severe cases routine urine examinations were normal.

Summary.—1. During one month, of 533 cases of influenza admitted to a base hospital, 83.3 per cent. ran an uncomplicated course, and 16.7 per cent. developed pneumonia. Of the latter one-half died, two with pyemia, one with acute endocarditis and one with meningitis, in addition to the pneumonia.

2. The uncomplicated cases ran a fairly typical course. The frequency and high mortality of pulmonary complications was striking, also the tendency to hemorrhages, from lungs and nose and probably in 2 cases beneath the skin.

3. In 28 autopsies all showed a more or less extensive acute pleurisy and pneumonia (rarely a typical lobar or focal bronchopneumonia). Eleven, in addition, exhibited multiple streptococcic abscesses of one or more lobes, and 8 of these a septic pleurisy (empyema).

4. Pneumococci predominated in the earlier consolidations, and *Bacillus Pfeiffer* was found only 3 times in the lungs post mortem. Hemolytic streptococci predominated in the abscesses, but both forms, as well as staphylococci and other occasional organisms, were found in most cases of the consolidated lungs.

5. Leucopenia was present in 7 of 20 cases, though 5 had pneumonia at the time. Leucocytosis occurred in 6 others, all of whom had complications at the time.

6. Polyvalent vaccines (intended to protect against pulmonary complications) were given to 33 febrile cases. None of these developed pneumonia. Vac-

cines given to a few cases in which pneumonia had developed were of no benefit.

Note.—For a comprehensive review of the work on the present pandemic, the reader is referred to the October number of the "Medical Supplement" (compiled by the Medical Research Committee of Great Britain), page 354.

DISORDERS OF THE SEXUAL FUNCTION, MASTURBATION, WITHDRAWAL, IMPOTENCE, ETC., IN RELATION TO CONDITIONS IN THE POSTERIOR URETHRA.*

By MAX HUHNER, M.D.,

NEW YORK.

CHIEF OF CLINIC, GENITOURINARY DEPARTMENT, MOUNT SINAI HOSPITAL DISPENSARY; FELLOW OF THE NEW YORK ACADEMY OF MEDICINE; MEMBER, AMERICAN UROLOGICAL ASSOCIATION, ETC.

THE posterior urethra is that portion between the anterior layer of the triangular ligament and the bladder. It is about two inches in length and includes both the membranous and prostatic urethra. The prostatic portion is its widest and most dilatable portion. The canal is somewhat spindle-shaped, being wider in the middle than at either extremity. It extends from the bladder to the membranous urethra, and runs vertically through the prostate gland.

Upon the posterior wall of the prostatic urethra is situated that very important structure, the verumontanum. This is about 12 mm. in length and about 3 mm. in height, although these measurements vary greatly in different individuals.

I wish right here to call attention to a fallacy which has been copied from one textbook into another even to quite recent times. It has been asserted that the function of the verumontanum is to close the pathway toward the bladder during coitus, so that semen shall be prevented from going into the bladder. This theory is absolutely false for many reasons which time does not permit me to enumerate.

The most modern theory as to the function of the verumontanum is that it affords a crest upon which the ejaculatory ducts may open. The prostatic ducts open on the floor of the urethra, and converge toward the verumontanum. During ejaculation, therefore, this arrangement brings about a complete intermingling of the thick gelatinous semen and the thin prostatic fluid from the ducts, thus causing a homogeneous fluid, which enhances and preserves the vitality of the spermatozoa.

This then, in brief, is the prostatic portion of the urethra. Although only a little over an inch in length, it is one of the most interesting and important parts of the male anatomy considered from the point of view of sexologist, urologist, neurologist, and general practitioner. In this comparatively small portion of the male anatomy are found structures, the disease or infection of which may cause more annoyance, more misery, and more serious consequences than any other portion of equal size, with the possible exception of certain vital areas in the brain.

*Paper read at a meeting of The Yorkville Medical Society, April, 1918.

It is out of the province of this paper to discuss the consequences of gonorrheal infection of this portion of the urethra. The urologic importance of the posterior urethra has sufficiently often been emphasized, but its sexual importance is not so well known.

It may be hard to realize, for one not experienced in posterior urethroscopy, especially in the urethroscopic picture of the so-called sexual neurasthenic, what tremendous symptomatic effects may result from apparently slight pathological changes. Those who expect to find *gross* pathological lesions in the posterior urethra in such markedly perverted conditions as impotence, masturbation, and the like, will often be doomed to great disappointment. After much experience they will finally realize that a slight congestion in the region of the verumontanum, a congestion which is often overlooked or considered trivial by the inexperienced, may be, and in fact very often is, the cause of the gravest symptomatic consequences. As a matter of fact, often the most gross pathological lesions in the posterior urethra, which are sometimes discovered during a routine examination, may not cause any disturbance whatsoever, either psychic or functional.

I wish also to correct another fallacy which seems to dominate the minds of many clinicians, and notably many genitourinary specialists. There seems to be a widespread opinion that many of the lesions found in the posterior urethra are the result of previous gonorrheal infection, and that the majority of cases of impotence are likewise the result of such infection. This is far from the true state of affairs. The reason for this mistaken notion by many genitourinary men is easy to understand. Almost all of those who have written upon the subject have gathered their material and experience from their *genitourinary* classes. They look into the posterior urethra, find certain pathological conditions therein, and, because in almost every case they obtain a history of one or more gonorrheal infections, conclude therefore that the gonorrhea must be the cause of the pathological conditions present and of the symptoms complained or by the patient.

It has been my particular good fortune, however, to have been associated for a period of several years with the neurological clinic of Dr. Abrahamson at the Mount Sinai Hospital Dispensary, where I examined the posterior urethra in every case of sexual disorder, as well as in many cases of nervous conditions, believed by Dr. Abrahamson to have a sexual basis.

The vast majority of these patients had never been infected with gonorrhea. Most of them were the old-time Jews of Russia and Austria, who, according to the customs of those countries, had married very early, and thus escaped the temptations of illicit coitus and its consequences. I was at first surprised to find in so many of these cases many of the pathological conditions which were generally attributed to gonorrheal infection. But more experience, after very many examinations, has convinced me that such lesions are not necessarily or generally due to gonorrhea at all, but to other conditions to be later described. The same fact is true of impotence. The vast majority of

my cases of impotence, both in dispensary and private practice, did not have a gonorrheal etiology. I do not of course mean to infer that gonorrhea does not leave its mark in the posterior urethra, or that impotence may not be caused by gonorrhea. I only mean to emphasize that it is only the smallest percentage of cases of gonorrhea that are followed by impotence. I almost wish it were otherwise. If every gonorrhea were followed, for a while at least by impotence, it would not only greatly limit the spread of the infection, but would be one of the mightiest deterrents to the performance of illicit coitus.

Let us now consider the relationship of the posterior urethra to some of the more common disorders of the sexual function. Let me call your attention to perhaps the most widespread disorder, namely masturbation.

The pathology of this condition is in brief as follows: Through some accident, due perhaps to a tight prepuce, to smegma or other local condition, the child manipulates its penis. This first manipulation may be done purely accidentally without any thought of sexual pleasure, or it may have been taught to the child by older boys. Whatever the cause, this manipulation of the penis sends an impulse to its brain, which, as in ordinary coitus, sends an impulse to the muscles of erection, and also determines an increased blood supply to the prostatic urethra as well as to other portions of the genital tract. So far the condition is like ordinary coitus. But this act frequently repeated leads to a permanent hyperemia of the prostatic urethra, so that impulses from here are being constantly sent to the brain, which again in response sends continuous sexual impulses to the prostatic urethra and adjacent sexual organs, thus still further increasing their congestion. A vicious circle is thus formed. Later on there is formed such an intense hyperemia and hyperesthesia of all these parts, that the patient *must* masturbate, just as one afflicted with scabies must scratch. The difference between masturbation and normal coitus is, in the first place, that it is initiated at, or even before puberty, when the sexual apparatus is still in an imperfect or developmental state, when the sexual centers appertaining to this function are also being developed, are immature and more irritable, and in short when the whole body is undergoing profound chemical, physical, and psychological changes; and, in the second place, that the act is repeated much more frequently than normal coitus could be. Even if a normal adult, with fully developed sexual organs, were to attempt coitus as often as some of these patients masturbate, the result would also be disastrous. But when we consider that in the masturbator, the act is so often accomplished with immature and undeveloped organs, with an overirritable brain, and at a time when all the energy is needed for bodily development, not only in this particular field, but in every function of the body, we can easily understand why the results are so profound.

Such then, very briefly, is the pathology of the confirmed masturbator. I say "confirmed" on purpose, because I do not wish to give the impression that every masturbator goes on to the formation of this pathology. Far from it. Many stop the habit very early before the vicious circle has been formed and before there has been produced much congestion and much hyperesthesia in the deep urethra.

It would take me too far afield to go more deeply into the pathology of this condition in its various forms, but I would like to refer briefly to one very interesting feature of it.

There has been for a long time much discussion about the influence of mind over matter, and more particularly, if it is possible to cause *organic* changes in the body, purely by the unaided influence of the brain. I believe that the discussion has been definitely settled, but the subject of psychic masturbation affords a strikingly affirmative proof of the fact that the unaided brain can produce definite pathological organic changes. In psychic masturbation there is no manipulation of the penis or other sexual organs, but the mind calls up lewd and sexual images, and through these alone erection and orgasm are produced just as in manual masturbation. Now, if this process is continued for a long time, there is produced the same organic pathological condition in the prostatic urethra, as in manual masturbation. The pathological condition can be easily seen through the urethroscope, and the picture is absolutely the same, whether produced by manual or psychic masturbation.

I cannot stop here to give a detailed account of the symptoms and treatment of masturbation.* Briefly, however, the confirmed masturbator presents a symptom complex that deserves our greatest sympathy. While the general nervous symptoms have at times been grossly exaggerated by quacks, still they do exist, and are at times very severe. The entire psyche of the patient is often affected, so that he loses all ambition, and what work or study he is compelled to do, he does under a tremendous nervous strain, and at the expense of an enormous amount of nerve energy.

The treatment, in brief, is to get rid of the hyperemia of the prostatic urethra, by silver nitrate instillations, and to reduce the prostatic congestion by massage. The results are truly gratifying, and it is one of the most pleasant experiences of the physician to see a new psychic and physical being actually produced out of a pitiable nervous wreck; and all this is accomplished by merely getting the prostate and posterior urethra into a normal condition. As before said, it is hard for those without experience to realize how a simple congestion in the posterior urethra and prostate can be the cause of such marked physical and psychic symptoms, and how the relief of such congestion can have such happy results.

Let us take another sexual disorder, namely coitus interruptus or withdrawal. I am sorry that, in order to make this paper comply with the time limit, I have had to cut out the detailed description of the pathology of withdrawal. I can only say, instead, that as a result of the continued indulgence in this habit, there results an intense congestion of the posterior urethra accompanied as a rule by swelling of the verumontanum. There is also at

*A complete description of the pathology, symptoms and treatment of masturbation will be found in my book, "A Practical Treatise on Disorders of the Sexual Function in the Male and Female," F. A. Davis Co., Philadelphia.

first a hyperirritability of the erection and ejaculatory centers in the spinal cord, so that, at this stage, ejaculation takes place at the very commencement of coitus, often before the penis has entered the vagina. Later there occurs a complete exhaustion of these centers, so that they refuse to transmit impulses to the genitals, and thus we get the clinical picture of complete impotence.

As regards the symptoms following withdrawal, they are so various and so numerous that they embrace almost every medical specialty from neurology to orthopedics. Under the title "Some Unusual Forms of Sexual Neuroses," I reported several years ago some interesting and unusual cases, such as symptomatic sciatica, various anesthesias, neuralgic pains in different organs of the body, all due to the pathological conditions induced by this pernicious practice. Here again, it is hard to realize, were we not confronted with the most scientific clinical proof, how a slight or severe congestion in the posterior urethra, in combination with congestions in the adjacent sexual organs, can call forth such a variety of symptoms. The sexual results of this practice are very often rapid and premature ejaculation and finally complete impotence.

It would take me far beyond my time limit even to touch on the misery to both husband and wife from these latter sexual symptoms alone. Even without complete impotence, the nervous strain on the wife is exceedingly great. At the commencement of coitus, she is just about sexually aroused, but, on account of the rapid or premature ejaculation of the husband, she is left in an unsatisfied nervous state. Frigidity, unfaithfulness, and divorce are not infrequently some of the dire results, and all due to simple pathological and, in most cases, curable conditions.

As regards the treatment of this condition and the resulting impotence, it will be impossible to go into much detail and only the essential points will be given. It is not my intention to-night to give a description of my present method of treating impotence, as it would take up too much time, and I would refer you to my book previously mentioned. But whatever is done, the first thing necessary is to get the urethra into a normal condition, that is, to get rid of the congestion and inflammation. There are very many physicians who, when a patient presents himself suffering from impotence, will at once resort to stimulants, electricity, etc., etc., with the idea of improving the erections. There are some also who consider the entire subject of impotence and its treatment as something mysterious. Nothing could be farther from the truth than both these latter statements in the ordinary cases of impotence. There is nothing mysterious or out of the ordinary about the treatment of impotence, but it is exactly what would be done for any other organ of the body if similarly affected. The first principle is to restore the hyperemic mucous membrane to its normal condition, and also to give the tired and exhausted sexual centers a chance to recuperate. Absolute sexual rest is essential. Not only abstaining from coitus, but also abstaining from "spooning," kissing, or anything that might excite these centers. At all events coitus must not be indulged in. Surely if a patient had a swollen elbow, with its limitation of motion, the surgeon would at once put the elbow at rest by various appliances till the inflammation was gone, and then only would he employ passive motion, massage etc. But during the height of the inflammation, if the patient were to jerk his elbow in the same manner as one of these impotents tries to manipulate his penis in his attempt at coitus, the elbow would not get well either.

Nature tries in her own way to help the patient to accomplish these results. She often takes away the desire for coitus, she makes the man more or less impotent, so that he cannot have erection and ejaculation, so as to give the parts a chance to become normal. The impotence is the best thing for the patient under these circumstances. But it is the height of folly to thwart nature, and give so-called sexual stimulants, and try to make the exhausted centers, and the inflamed mucous membrane, and the tired muscles work, just when rest is so greatly needed. After the inflammation has subsided, and the centers have been rested, then stimulants and moderate coitus may be indulged in.

There are other sexual neuroses which are in part dependent upon pathological conditions in the posterior urethra, but time will not permit me to go into them. It is very important to remember in this connection that the posterior urethra is but one of several organs which are affected in these conditions, and it is generally the disease of all of them together, which causes the symptom-complex, and, as in the case of other portions of the anatomy, we cannot take one organ out to the exclusion of the others in citing the blame for the symptoms.

There is but one point more in the pathology of the posterior urethra which I desire to emphasize. I have given a mere outline of the important part played by the posterior urethra in the causation of some of the sexual neuroses. I have shown the great amount of misery and unhappiness which may be caused by this small portion of the human anatomy if diseased. I will now briefly show how conditions therein may also be the determining of criminality in the individual. There has been much discussion whether crime in general should not be considered a disease rather than a defect in morals and ethics. In many cases, however, this has merely been a theory, and not susceptible of actual scientific proof, but in the class of cases briefly to be described, such proof has been demonstrated.

Take the case of an elderly gentleman of about 70, who has always led an exemplary life, and in whom the sexual appetite has long been extinguished. Suddenly the sexual libido is reawakened, but in a most perverted form. He takes sexual liberties with young children, and narrowly escapes landing in the criminal courts. His actions, in fact, make him legally a criminal. He consults a sexologist, and on examination, a very enlarged congested verumontanum is discovered surrounded by granulation tissue. A very simple procedure removes most of the verumontanum as well as the granulation tissue. He is at once restored to his normal equilibrium, and his pervert tendencies never return. He is thus restored from a criminal of the vilest type to a respectable citizen. Such cases have been reported. I have also had a young patient suffering from satyriasis who spent all the money he earned on prostitutes, and who told me

that he would have indulged in coitus several times a day, if he had the price. Every time he saw a female, he had an almost uncontrollable desire to have connection with her. He had all he could do to resist the inclination to commit rape on several occasions. In this patient also, an examination revealed an enormous swollen verumontanum filling up the entire prostatic urethra. Treatment brought the organ to a normal condition, and also cured his satyriasis, which would undoubtedly sooner or later have made a criminal of him, and a criminal of a class upon whom no sympathy is wasted, and who, even if he escapes death by lynching, receives certainly the most severe punishment for his crime. In a paper I recently published in *The Medical Times* under the title, "Is Rape Always a Crime?" I have gone more particularly into this subject from both a medical and medicolegal point of view. I do not wish to be understood as saying that all men with satyriasis or sexual perversion have a diseased prostatic urethra as an underlying cause. Far from it. It is most probable that in the case of the old gentleman with the perverted sexual feeling, as well as that of the young man with the satyriasis, there was present some cerebral or psychic underlying tendency; but as long as his sexual apparatus was in a normal condition, these criminal psychic perversions could be kept so far in the background and so under control as to lead to no serious consequences, but if, added to the pervert tendency, there is present a terrible irritation and sexual stimulation from the diseased prostatic urethra, this added irritation is enough to turn the tide, and make a criminal out of a normal person.

In conclusion I wish to state that this paper was not to be a paper on impotence, masturbation, or other sexual neuroses, but primarily a paper on the posterior urethra, and its relationship to the various neuroses and sexual perversions. It was therefore out of its province to discuss the importance of the other sexual parts, the prostate and seminal vesicles, as well as the importance of the brain and spinal cord upon the etiology of such neuroses. The paper, as just stated, was to be on the posterior urethra, and I believe I have shown that this little inch of human anatomy contains structures which if pathologically affected may be the cause of extreme misery, and produce the most far-reaching results and consequences.

320 Central Park West.

PNEUMONIA AT BASE HOSPITAL NO. 53, A. E. F.

BY MAJOR MAURICE L. GOODKIND, M.C., U.S.A.,
CHIEF OF THE MEDICAL SERVICE.

The intense concentration of large bodies of men provides suitable conditions for the development of infectious diseases, of which notably three types are to be considered: (1) Typhoid group: Typhoid, paratyphoid, colon. (2) Dysentery, amebic and bacillary. (3) The pneumonias.

Under the system at present in vogue, of general inoculation of all troops, the typhoid group, which in previous campaigns played so important a rôle in the augmentation of both the morbidity and mortality rate, is today practically a negligible factor, as, while occasionally met with, it is of comparatively infrequent occurrence.

Unfortunately, the same statement does not hold good in reference to dysenteric disorders, of which a very large number are encountered, despite the frequent and vigorous protests issued by the Chief Surgeon of the American Expeditionary Forces in regard to the precautions to be maintained concerning food and drink. The bacillary is the ordinary type occurring in the A. E. F., though recent epidemics of enteric disorders have appeared, associated with frequent stools, in which blood and mucus occur, with tenesmus, some febrile movement thew eakness, and in whose dejecta no organisms of the amebic or bacillary type could be found. It was therefore concluded that the exciting organism of this group was probably a filtrable parasite, which has not yet been identified.

The third member of this group is the one which has proved the most serious problem with which the medical personnel of the A. E. F. has been confronted. As in civil life, the pneumonias are a great menace and extract a high toll from the young and robust elements of our population, so in army life this has proven our most serious concern. In discussing pneumonia in civil life, as it refers to the ages with which we are concerned in the army, the mind reverts to the usual type met with, the croupous or lobar type; associating with the extremes of life, the very young and the very old, the lobular or bronchopneumonias, but this relationship of type to age is not maintained in our military experience, as there is a preponderance of the lobular type, which was very considerably in excess of the lobar form in our series of cases, and, from the perusal of the literature, I judge that this is a rather universal experience among the base hospitals of the A. E. F.

The important factor accounting for this fact is the general prevalence of measles and influenza. Another contributing cause, which we have not had to take into consideration previously, is the inhalation of deleterious gases. Contrary to the experience which we had in the camps in the United States during the season of 1917-1918, when measles prevailed so extensively and was a very frequent antecedent of bronchopneumonia, in our large series of patients at Base Hospital No. 53 this disease could not be regarded as responsible in a single instance. On the other hand, we had to contend with a new factor, which was accountable for many of the cases occurring here and which were generally of a fatal type, associated with a most marked dyspnea and cyanosis, a great tendency to the development of pulmonary edema, especially in the lethal forms, and due to the inhalation of deleterious gases, of which the mustard, chlorine, and phosgene were the ones commonly responsible.

After eliminating all other causes, influenza still remained as the most potent cause of our pneumonias. It was probably responsible for 90 per cent. of all our cases, and while occasionally associated with the lobar form, it was most frequently followed by the lobar or bronchopneumonic type, in the proportion of approximately one to ten.

A résumé of our lobar pneumonias demonstrates no radical departure from the disease as it occurs in civil life, its frank onset with chill and rusty

viscid sputum, increased leucocyte count, and definite physical signs rarely afforded difficulty in diagnosis. It was also, as a rule, of shorter duration and better prognostic outlook than the lobular form, which will now be taken up in greater detail.

Bronchopneumonia, which is occasionally designated as lobular or catarrhal (capillary bronchitis of the early writers), constituted fully 85 per cent. of the total number treated. The most frequent factor predisposing to its occurrence was influenza. Its onset was usually insidious, and it was frequently overlooked during the course of an influenzal attack because of the vagueness of the physical signs, which at the inception of the disease, consisted largely of the presence of subcrepitant rales, which were most profusely distributed over the bases, especially the right. Frequently some days elapsed before areas of dullness and bronchovesiculare breath sounds could be determined.

These physical signs occurred most often over the right lung and involved the lower lobe with especial frequency. Occasionally there was an agglutination of many adjacent lobules, which afforded definite physical signs of consolidation (marked dullness, pure bronchial breath sounds, bronchophony, pectoriloquy, and increased tactile and vocal fremitus), simulating the lobar form.

While the right lower lobe was the seat of predilection it was not infrequently associated with changes in the left base. At times all three lobes of the right lung were involved with no physical signs present in the left lung, thus presenting the picture of a unilateral bronchopneumonia, which observation was further confirmed by radioscopic examinations and occasionally at the autopsy.

In those patients suffering from influenza, when the physical signs were not sufficiently developed to justify the diagnosis of pneumonia, the probability of the disease existing was nevertheless entertained, when marked dyspnea and cyanosis were present out of all proportion to the physical signs, a persistence of the temperature over several days, the absence of marked throat, sinus, or ear pathology, a persistent spasmodic cough not unlike that occurring in pertussis, and with marked prostration. The last vestige of doubt regarding these potential pneumonias was removed on the appearance of a sanguineous-mucoid sputum, differing from the sputum of the lobar form in being more liquid, probably by reason of the smaller content of fibrin. The sputum was also richer in blood, which was usually of a light hue.

The examination of the blood was fairly uniform in regard to the absence of a leucocytosis, in fact the reverse was rather the rule, leucopenias occurring, with as low white counts as 2800, with some disturbance of the usual relationship, the neutrophiles suffering the greatest diminution, with a relative increase of the lymphocytic elements. Blood cultures were made in many of these patients, but were not productive of results, as in no single instance were we able to isolate an organism from the blood, nor did we find the Pfeiffer organism in the sputum in any of our examinations. The determination of the type of pneumococcus in sixty consecutive cases is a fairly accurate index of our series. In these sixty cases there were thirteen Type I, twelve Type II, three Type III, and thirty-two Type IV.

Urinary examination of these patients revealed no abnormalities, other than the usual febrile albuminuria and an occasional hyaline and granular cast. Bile pigment was found in several patients in whom there was present accompanying icterus, presumably of the hemolytic type.

At the beginning of the epidemic of influenza appearing in September, the mortality of bronchopneumonia was very high, approximately 35 per cent. There were no empyemas, as determined by physical examination, *x*-ray, and fifteen consecutive autopsies, nor did we note any involvement of the pericardium. From the middle of October to the present time (November 25), empyemas have been frequent, and pericardial involvement, especially of the fibrinous form, was found in a few instances.

This incidence of empyema in our more recent cases, associated with a more benign type of pneumonia and its absence in the more virulent and fatal form, seems paradoxical, but may find a possible explanation in the fact that the first group did not survive sufficiently long to permit of the development of complications. That empyema was absent, was proven by careful physical examination, the *x*-ray, negative results on aspiration, and finally by necropsy reports of lethal cases.

In the latter series of cases running a more favorable course, empyema was a fairly frequent complication, occurring in approximately 15 per cent. of the total number. The physical signs were often misleading, as on several occasions more than 1500 c.c. of pus was removed from patients in whom there still persisted definite bronchial breath sounds over a large area, with retention of tactile and vocal fremitus. In these the suspicion of an exudate was entertained from evidences presented of pressure on adjacent organs, augmentation of dyspnea, a septic type of temperature, presence of a Groccosign, fluoroscopy, and aspiration. It must be admitted that the *x*-ray and aspiration were not always infallible, as in several instances operation was performed with positive results, when the application of these tests yielded negative returns, despite the use of the most approved technique. Again, the enumeration of white blood corpuscles was often disappointing, showing no increase in proven pus formation in many instances.

In the majority of our cases pure cultures of pneumococci were obtained from the pus. In the more severely ill, the *Streptococcus hemolyticus* was often found in association. In one patient, with a very foul smelling pus, the *Bacillus proteus* was identified, and in another pus case of a greenish color the *Bacillus pyocyaneus* was present. In conjunction with the empyemas there were a few cases of pneumothorax. In one of these patients there was also a very extensive subcutaneous emphysema, involving the subcutaneous tissue of the face, neck, arms, and hands and extending over the entire trunk as low down as Poupart's ligament. Several other examples of the same character were observed, in which no intrathoracic collection of air could be demonstrated, nor presence of gas bacilli proven, nor evidences of rupture of the air passages determined.

In our series there were several with very marked cerebral disturbances, such as varying degrees of neck rigidity, maniacal manifestations, tendency to Kernig and Brudzinsky signs (and in

one individual the presence of a Babinsky and an Oppenheim) were suggestive of a possible involvement of the cerebral meninges, but as a lumbar puncture demonstrated no increased pressure, pleocytosis, globulin reaction, or presence of parasites in the evacuated spinal fluid, and the subsequent rapid evolution of these suspects to recovery forced us to conclude that they were rather a meningismus due to toxic irritation than an actual inflammatory process. The gastrointestinal tract presented phenomena in a large number of our series; an intractable emesis often ushered in the disease and was occasionally associated with a diarrhea in which blood was often present, although persistent examinations failed to reveal the usual organisms of dysentery. In some of these patients a very marked symptom was a severe and persistent pain in the abdomen, with rigidity, sometimes localized over the gall bladder, duodenum, or ileocecal region, simulating disease of these organs. One patient suffered from a complete obstipation for several days together with a marked distention and inability to pass flatus. These various phenomena often cause apprehension of some serious intraabdominal lesion and their pleuropulmonary origin may be overlooked, unless a thorough examination of the thoracic organs be conducted, suggesting the pleural reflex nature of these symptoms.

In the intestinal ileus patient the inference was that it was caused by the toxemia producing a paresis of the intestinal wall. In many some degree of circulatory disturbance was present, the most commonly observed being a tachycardia often associated with lowered blood pressure and diminished intensity of the cardiac sounds; extra systoles were not infrequent, and auricular fibrillation, when occurring, was of bad omen. Pericardial involvement was noted in several patients, but no clear evidence existed of recent endocardial participation, nor did a previously existing implication of the endocardium seem to render more grave the situation during the periods in which the individuals were under observation.

Convalescence was less protracted in our patients suffering from the lobar or croupous type. The tendency here was for the temperature to terminate by crisis, as contrasted with the lytic termination of the lobular pneumonias, which indeed were often so protracted together with persistency of rales at the apices, especially the right, and a continuance of a nocturnal febrile movement, that concern was occasionally experienced that the process might be of a tuberculous nature, especially when the bronchopneumonia was of an unilateral character. Again, the leucocytosis and herpes of the lobar forms were absent in the lobular type, and finally the mortality rate was greatly in excess of that existing in the lobar pneumonia.

Treatment consisted primarily in the institution of rigid prophylactic measures, patients were isolated in individual cubicles, the nasopharyngeal secretions were received in disinfectants, all individuals coming in contact with the sick were masked, wore gowns, on leaving patients carefully washed their hands, and as routine used an antiseptic mouth wash. During convalescence such patients as left their cubicles for any purpose were also compelled to wear the gauze face masks. Sweeping in the wards was done with sawdust or scraps of paper soaked in 0.5 per cent. lysol solution.

Living conditions of the detachment personnel received especial consideration, in regard to appropriate food, rest, hygiene, and prompt segregation of all persons exhibiting signs of acute respiratory derangements. Eating and drinking utensils were carefully washed. One of our most difficult problems was the enforcement of the antispitting instructions, as indiscriminate and promiscuous expectoration seems to be rather generally indulged in by our troops.

Direct treatment consisted in the early administration of a selected preparation of digitalis, given until physiological effects became manifest, then an interval of rest with a subsequent resumption of the drug. This routine requiring about thirty grams of a standardized tincture. Other measures consisted in instituting an appropriate dietetic regimen and the drinking of sufficient fluids the correction of gastrointestinal disturbances and the free administration of nature's oxygen, fresh air.

In a certain number of Type I patients, antipneumococcus serum was employed, but we were not convinced that such a procedure had a distinct value, although these patients progressed more favorably than those not treated with serum.

In view of the experience gained in the epidemic of 1917-18 we treated our empyema patients conservatively draining the pus by simple aspiration at intervals of several days until we felt assured that the resistance of the patient has been sufficiently raised and the danger of lung collapse was not to be greatly apprehended because of the establishment of adhesions before proceeding to the more radical operation of rib resection.

When signs of cardiac incompetency became apparent venesection frequently afforded relief and in certain instances was a life-saving device especially when pulmonary edema was imminent. Sterile camphor oil and intravenous injection of adrenalin were occasionally found of value when we were confronted with evidence of a failing circulation.

Under the existence of conditions which prevailed throughout the A. E. F. it was not possible to carry on effectively a study of blood acidosis but this subject affords many interesting phases for solution, especially in regard to the therapeutic value of intravenous administration of glucose and alkaline solutions.

THE USE OF HYPNOTISM IN THE TREATMENT OF PSYCHONEUROSES.*

By JOHN McD. McKINNEY, M.D.,
ANN ARBOR, MICHIGAN.

It might be well at the outset of this paper to establish a precedent for the use of this agent of therapy as there are undoubtedly some to whom such a method of argument has its appeal. Probably the earliest account of hypnotism, as a therapeutic agent dates back to the Egyptian medicine of 1552 B.C., as revealed by the Eber's Papyrus which describes physicians of that period as healing patients by the laying on of hands. We are indebted to the ethnologist, Stoll, for consid-

*From the Neurologic Clinic, Hospital of the University of Michigan, Ann Arbor, Mich.

erable evidence of the use of this method among the early Oriental races. In considering the history of hypnotism it is well to bear in mind that the early employment of this method was surrounded with much mystery and superstition, and it has been a struggle from the earliest times for hypnotism to gain credence among the more conservative members of the medical profession. Such men as Paracelsus, 1530, Van Helmont, 1560, Maxwell, 1600, Stantanelli, 18th century, and Mesmer, 1734-1815, who were most influential in the development of this subject were looked upon as charlatans by the contemporary scientists of their periods. No doubt their methods did savor of quackery but nevertheless they employed a scientific principle which, though sought for from time to time by many learned commissions, especially in France, was never recognized. Only occasionally, and then quite lukewarmly, did the medical profession take hypnotism seriously. Du Poete, 1820, was the first to employ hypnotism in hospital practice. Subsequently Mesmerism, as such, was employed for quite awhile in the hospitals in Germany. In 1841 Braid and others labored to introduce hypnotism as a means to painless surgery. In America, Grimes, Darling, Durand deGros, and Beard used hypnotism therapeutically in the last century. Finally Liébault and Richet put this method on a scientific basis in Paris in 1875. Charcot and his pupils, among whom were Binet, Féré, and Babinski, took up this work at the Salpêtrière in 1878. Then came the establishment of a professorship of Hypnotic Therapeutics at the Medical School at Nancy, in 1884. Professor Bernheim held the chair. There then arose in France two schools of thought as to the nature of hynotism. The one at the Salpêtrière and the other at Nancy. The one at Nancy eventually won out, and is now universally accepted. In recent times the establishment of hypnotism in a position of respect among the practitioners of medicine has been greatly furthered by a special committee appointed by the British Medical Association to investigate this question. Such psychologists as Preyer, Münsterburg, Krafft-Ebing, and James have done much to stabilize thought in regard to this phenomenon.

Bringing the subject of hypnotism up to more or less recent times, I find that the following men have used it to advantage in the treatment of the psychoneurotic conditions incident to the late European war: Feiling,[1] Hurst and Ormond,[2] C. S. Meyers,[3] Hertz,[4] Tombleson,[5] Brown,[6] Smyly,[7] Ballard,[8] Eder,[9] Russell,[10] Podiapolsky,[11] Rorschbach,[12] Nonne,[13] Oppenheim,[14] Smirnoff,[15] Howland,[16] Craig,[17] Fearnsides,[18] Wakefield,[19] Wagner,[20] Prümers,[21] Rivers,[22] and Read[23] used this method successfully. Elliot and Pear,[24] Southard,[25] Ames,[26] Salmon,[27] and an editorial writer in the *British Medical Journal*,[28] advocate its use.

More particularly in this regard are to be mentioned Myers, Brown, Eder and Nonne. Myers, in summing up his results under hypnotic treatment, reports: Apparently complete cures 26 per cent., distinct improvement 26 per cent., failure to hypnotise 35 per cent., no improvement after hypnosis 13 per cent. Eder in a series of seventy-nine cases reports 70 cured, 7 improved, 2 unchanged. Nonne gives the following advantages of hypnotic suggestion, as the result of his employment of this method in connection with war hysteria: (1) Cures were frequent and rapid. (2) Hypnosis may be regarded as a means of differentiation between organic and functional cases. (3) Cases of stubborn tremor and tics of long duration, as well as severe vasomotor disturbances were promptly healed by suggestion. (4) Hypnotism would be of great value in determining the disability of the individual, the degree as well as the duration, so that he could be returned to duty if he is fit for duty. Brown, more recently, in his article in *The Lancet* of August 17, 1918, recounts the successful treatment of two hundred and ninety-four cases by his modified hypnotic method.

Turning to the practicability of this method of treatment, we find, in the first place, that cases for treatment must be selected; but this is in no sense an objection to its use. Selection implies merely a careful diagnosis, which is or should be, essential to any mode of therapy. The psychoneuroses are divided into three great subdivisions. Pithiatism,[1] the first of these subdivisions, is, by definition, produced and curable by suggestion and is most amenable to cure by hypnosis, Pithiatism is a definite clinical entity. It has definite signs, requires a definite diagnosis, and should not be diagnosed by exclusion as the average medical man is wont to do. We are all too familiar with those cases in which the diagnosis is obscure and the presence of an organic basis for the disease is not apparent, that for want of a better diagnosis are labeled hysteria. The other two subdivisions, psychasthenia and neurasthenia, are likewise clinical entities and are in no way synonymous with each other or with pithiatism though used as such even in neurological literature. In the treatment of cases of neurasthenia and psychasthenia, hypnotism plays a minor part although it may be of use when necessary to allay night-mares and dreams which are terrorizing and exhausting the patient.

As to the technique it is simple and not at all difficult to acquire. The details of technique may be found in any good book on hypnotism. There are, however, a few details which I have, in my experience, found important enough to bear emphasis. Avoid fixation of the eyes, whenever possible, as it leads to disagreeable after-symptoms of fatigue. The main thing that is essential to the successful employment of this method is confidence on the part of both the patient and the doctor, and this is only to be gained through correct diagnosis and the ability of the doctor to convince the patient that he knows what he is doing. I have found it best not to use the word hypnotism, but to explain to the patient that the treatment consists in securing in him a condition of complete rest and relaxation followed by sleep. I then proceed to get at the heart of the patient's trouble by using hypnosis as a short cut in psychoanalysis. A light hypnosis is all that is necessary, and in fact, the patients are sometimes in touch with their environment. I then repeat over and over again to the patient that his symptoms will disappear and that when he awakens

he will remember what is being said to him. I assure him that his symptoms will disappear on awakening and that they cannot possibly return. The attention to detail during this stage cannot be over emphasized. The choice of words and the tone of voice are especially important. To illustrate, in one of our cases in experimental psychology we presented a bottle of ammonia to the patient to smell, telling the subject that it was a violet perfume. We then asked, "Is it not sweet," the patient recoiled from the bottle in response to the nasal irritation and replied "No." However, when we presented the bottle again saying, "Here is a bottle of violet perfume which I want you to smell, its odor is delightful." The patient apparently took great satisfaction in smelling of the contents. Similarly in the suggestions given to the patient for therapeutic reasons the choice of words and the tone of voice must be such as to permit not the shadow of a doubt that the symptoms can return.

The awakening of the patient is of utmost importance. I tell them that they will wake up gradually while I am talking to them, bringing in reassurances, incidences in their past experiences, and objects of their present environment to reestablish their associations.

Cases in civil life differ from the war hysteria cases, in that they are usually of longer standing and the patient's resistances and rationalizations are more strongly and more complexly developed. For this reason several sittings are usually necessary to get the desired results.

In a series of cases in this clinic 15 per cent. of the cases of pithiatism on which we have tried this mode of therapy proved refractory. It was noted in these cases that there was a great distractability of the attention and the failure in these cases I think may be safely attributed to erroneous technique. An interesting discussion in point, bearing upon the susceptability to hypnosis, is to be found in a series of communications to *The Lancet*[29] by Doctors Core, O'Brien, and Brown. They practically agree with Bernheim[30] that 80 per cent of all people are hypnotisable, that is that 80 per cent of all people are sufficiently suggestable to be hypnotised. Necessarily all of the class of people suggestable enough to be called pithiatic must be subject to hypnotism. All that remains is to develop the proper means of fixing their attention. As it stands, the large majority of pithiatical patients submit readily to hypnotism and I believe that with further refinement of technique the small percentage of refractory cases may be still further reduced.

If this method is a valuable one, undoubtedly the question arises as to why it is not more universally accepted. Many writers refer vaguely to the objections to hypnotism, but few stipulate them. Arnstein,[32] Mott,[33] Adrian and Yealland,[34] Hunt,[35] Holbrook,[36] Trotter,[37] and Liébault,[38] advise against its use. Chavigny[39] writes that it is prohibited in French military hospitals, and Bochi,[40] in his review of the French work, remarks upon the failure of the French to utilize this method. Nowhere, however, do I believe are these objections better summed up than by the distinguished French neurologist, Dejérine.[41] I shall take these objections up one by one and endeavor to refute them at the same time. (1) Hypnotism requires a limitation of consciousness. This we cannot deny, but I must ask, is there any method of suggestive therapeutics that does not require the same thing? (2) There is a liability to dangerous suggestion. This is also undoubtedly true, but nevertheless dangerous suggestions are not so subtle but that they might be avoided by the employment of moderate precaution on the part of the operator. (3) Other means of therapy work as well. This is true only to a limited extent. I do not claim for hypnotism that it is a panacea, nor is it my object to belittle other means of psychotherapy. I further believe that the use of such methods as galvanism and reeducation should be in some cases used along with hypnotism, as I believe that in this way I get a synergistic action where the employment of one means alone is liable to failure. As I have already intimated, psychoanalysis should always be used along with hypnotism wherever possible. It is interesting to observe that the so-called waking suggestion, as suggested by Dejérine,[41] is not very widely different from a modified method of hypnotism. (4) Hypnotism is objectionable on ethical grounds inasmuch as the operator may be a man and the subject a woman. This objection, however, may be easily obviated by the presence of a third person. (5) Dejérine suggests that even worse symptoms may be brought on by the depression of the patient caused by the knowledge that he is hypnotisable. This is a point made much of by the adverse critics of this method of treatment, in that they say it is dangerous to the morale of the troops. I believe that I avoid this objection by not using the term hypnotism at all in connection with the treatment, as I have suggested above. (6) Cases must be carefully selected. This objection, I believe, I have met in the foregoing part of the paper. (7) Hypnotic suggestion is unassociated. Dejérine very truthfully remarks that the value of a mental acquisition is measured by the number and variety of ideas with which it is associated. He further goes on to state that frequent repetition may assume the same proportions. Now since this is the case, in giving our hypnotic suggestion, we particularly emphasize the frequent repetition and further, by means of psychoanalysis and our method of awakening the patient we are enabled to associate the suggestion with all the ideas that may be necessary for it to become of therapeutic value. (8) The patient tends to become an automaton, and the faculty of autosuggestion is increased. I believe that Dejérine, in holding forth this objection, had mainly in mind the patients of Charcot at the Salpêtrière. These subjects were undoubtedly automatons, for they were victims of psychological experiments in which it was the object of the operator to obtain greater dissociation and even dissociated personalities rather than to preserve the associations of the patient. These patients were repeatedly hypnotised and all the evils laid to the door of hypnotism obtained in these cases. But with my method of awakening the patient and of hypnotising them only a sufficient number of times to achieve the desired results, I do not believe that such an objection would prove to be

valid. (9) The action of hypnotic suggestion on regaining consciousness is illusory. The permanence of the effect of hypnotic suggestion is measured by the number of ideas with which the suggestion is associated, also with the number of repetitions of the suggestion as I have pointed out above. The so-called defense theory of Freud is a possible explanation of the lack of permanence of the hypnotic cure; however, if a psychoanalysis is obtained by the use of hypnosis, as we have suggested, there will be no necessity for other defense symptoms developing.

The fact that the French have used it very little if at all during the recent war may or may not be an objection, depending upon what their reasons might be for so doing. In a careful search of the literature I have been unable to find any further objections than those which I have just given above. There is a more subtle reason which I believe has had a great deal to do with the lack of general acceptance of this mode of therapy, and this has to do with the origin of hypnotism, and the ill repute in which this method has always been held by the medical profession, as I have endeavored to point out in the opening paragraph of this paper.

To conclude, I believe that hypnotism is a valuable asset to the physician who has to deal with cases of pithiatism. Like all instruments it requires some discretion and judgment on the part of its user. But these elements as applied to hypnotism are no more elusive or difficult to acquire than is demanded by any other specialized mode of therapy, nor does it require the elaborate system and preparation that characterize the large plants in which the more popular methods of re-education and waking suggestion are employed. Hypnotism is a valuable and scientific means of psychotherapy and should have its place in the medicine chest, so to speak, of every psychotherapeutist.

REFERENCES.

1. *Lancet*, Lond., July 10, 1915, 63-66.
2. *Ibid.*, Jan. 1, 1916, 15-17.
3. *Ibid.*, Jan. 8, 1916, 65-69.
4. *Jour. of Royal Army Med. Corps*, 26: 43-49, Jan., 1916.
5. *Lancet*, Lond., Oct. 21, 1916, 707-09.
6. *Ibid.*, Aug. 17, 1918, 193-200.
7. *Dublin Jour. Med. Science*, 143: 247-57, April, 1917.
8. *Jour. Med. Science*, Lond., 63: 400-05, July, 1917.
9. War Shock, Lond., Heineman, 1917.
10. *Canada Med. Assoc. Jour.*, 7:704-20, Aug., 1917.
11. *Paris Méd.*, 7:165-70, Aug. 25, 1917.
12. *Corr.-Blatt für Schweiz. Aerzte*, 47:898-905, July 14, 1917.
13. *Jour. of Amer. Med. Assoc.*, 66:440-41, Feb. 5, 1916. Berlin Letter.
14. Zeehandelaar. Berlin Letter. *Nederlandsch Tijdschrift voor Genceskunde*, Aug. 19, 1916.
15. *Jour. nevropat. i psikhiat. Korsakova*, Mosk., 312-24.
16. *Amer. Med.*, new series, 12:313-19, May, 1917.
17. Psychological Medicine, Phil., Blakiston, 1917, 300-11.
18. Proc. of Royal Soc. of Med., Vol. XI: sec. Neurol., p. 48.
19. MEDICAL RECORD, 94:234.
20. *Zeitschrift f. d. Neurol. u. Psychiatrie*, XXXVII, 1917.
21. *Medizinische Klinik*, 1917, 44.
22. Mental Hygiene, II, 1918, 532.
23. *Ibid.*, 361.
24. Shell Shock, The University Press, Manchester, 1917.
25. *Bost. Med. and Surg. Jour.*, CLXXIX: 90.
26. *Jour. of Nerv. and Ment. Dis.*, 47:45.
27. Military Surg., 41, 1917, 691.
28. *British Med. Jour.*, 1918, II: 634.
29. *Lancet*, Lond., Sept. 21 and 28, Oct. 5, 1918.
30. Suggestive Therapeutics. Bernheim. G. P. Putnam's Sons, New York., 1889.
31. Histerie-Pithiatisme et Troubles Nerveux d'Ordre Reflexe en Neurologie de Guerre. Paris, Masson, 1917.
32. *Psikiat. gaz.*, Petrograd, 2:85-88, 1915.
33. *Lancet*, Lond., Mar. 11, 1916, 545-53.
34. *Ibid.*, June 9, 1917, 867-72.
35. MEDICAL RECORD, 94:97.
36. *New Orleans Med. and Surg. Jour.*, 71:198.
37. *Lancet*, Lond., II, 1918, p. 704.
38. Rev. de path. de guerre, 263
39. *Paris méd.*, 6:8-13, Jan. 1, 1916.
40. *Gionale di med. mil., Rome*, 11:942-47, Nov. 30, 1917.
41. Les Manifestions Fonctionelles des Psychonévroses, Paris, Masson, 1911, p. 400-08.

THE TREATMENT OF GASTRIC ULCER BY RECTAL INJECTION OF SUGAR.

BY GEORGE W. GREENE, M.D.,

AUBURN, N. Y.

MOST physicians give beef tea as a rectal enema, notwithstanding the fact that Dr. Dalton showed a good many years ago that a puppy would die, if fed on it, a day sooner than if fed on water. Some physicians give peptonized milk. I have given this treatment a number of times and I found that, if the rectum was washed out an hour later, the milk would come away as a curd, not being absorbed at all.

If a physician is consulted for ulcer of the stomach, he will give a long list of articles to be eaten. I can not see how an ulcer of the stomach can be cured while you are feeding the patient, for the digestion fluids will digest the ulcer. I know from experience, however, that they frequently are cured in that way. If you consult a surgeon he will invariably recommend an operation. I know one instance in which a gastroenterostomy apparently resulted in the cure of a bad case of ulcer.

For a long time I have treated ulcer of the stomach by sugar enemata. I starve the patient for two weeks and feed him by giving rectal injections of sugar. Three teaspoonfuls of sugar are dissolved in one glass of water; of this solution I give a syringeful which holds 1 oz., every 10 or 15 minutes.

I will relate one case. Mr. B., a bookkeeper, had had stomach trouble for some time. He would eat a hearty meal, and in about three hours he would have severe pains which could be stopped by eating. There was also tenderness below the ensiform cartilage. I starved him for two weeks, feeding him with sugar by the rectum. It was remarkable how well he bore the treatment. He did not suffer for food at all. I first gave him one-half glass of milk three times a day and the following day gave him a whole glass of milk; on the third day I gave him a glass of milk with one egg beaten in it. The next day I gave him a full meal. The treatment was perfectly successful, resulting in a permanent cure.

Military Medicine.

New Estimate of Casualties in American Expeditionary Forces.—A casualty list of the American Expeditionary Forces in France, which is practically complete, was issued by the War Department on April 3. According to this estimate, the number of Americans killed in action, including 381 lost at sea, is 32,178. Other casualties were as follows: died of wounds, 13,412; died of disease, 22,326; died of accident and other causes, 3,980; missing in action, 5,019. The total number of deaths from all causes is 71,896. The number wounded in action is 194,362, while the total number of casualties to date is 271,277.

Army Doctors Accused of Negligence.—A circular recently published by the Chief Surgeon of the American Expeditionary Forces charges that some medical officers have been "grossly careless and neglectful of their duties" in the matter of the prevention of typhoid and paratyphoid fevers in the overseas army. The chief surgeon cites many instances where epidemics prevailed among troops, especially during the last offensive on the western front, and points out that the occurrence and distribution of diseases was constantly brought to the attention of medical officers through weekly bulletins. The circular states that many officers failed to grasp the significance of these reports and warnings, owing to a false sense of security due to the belief that vaccination against typhoid and paratyphoid gave complete immunity even in the midst of grossly unsanitary conditions. Both dysentery and typhoid fever are said to have prevailed to some extent after the St. Mihiel offensive but their significance was overshadowed by the epidemic of pneumonia and influenza prevailing at that time. This circular reports that one replacement unit of 248 men from Camp Cody, N. M., reached England with typhoid fever prevailing extensively; 39.5 per cent. of the unit had the disease and the case death rate was 8.42 per cent. The unit had been vaccinated a few months prior to the epidemic.

Health of Troops Continues to Improve.—Official health reports issued by the War Department on April 2 show that the health of the troops both in the United States and abroad has continued to improve. The rate for pneumonia in the report for the week ending March 13 was about one-half that of the previous week. The number of non-effectives overseas on the above date was 67,605. From November 14 to March 13 13,365 deaths from injury have been reported overseas, of which 12,533 were from battle wounds. During the last week in March, 47 deaths from wounds received in action were reported.

Capt. Thomas Cassidy of Spencer, Ind., who was a medical student at the University of Chicago when the war began and who went overseas as an ambulance driver three months before his graduation, and later became an aviator, has been decorated with the Distinguished Service Cross, the Cross of the Legion of Honor, and the Croix de Guerre.

High School Honors Doctor Who Died of Wounds.—The Jordan High School of Lewiston, Maine, had dedicated the March number of its school publication to the memory of Major Howard W. Beal, who died of wounds in France on July 20, 1918.

Casualties Among American Medical Officers in France from the time of the arrival of the first units to March 13 numbered 443. A War Department statement shows 46 were killed in action, 22 died of wounds, 12 died of accident and other causes, 102 died of disease, four lost at sea, seven missing in action, 38 taken prisoners, and 212 wounded in action.

War Risk Insurance Takes Over Camp Hospitals.—An extensive program providing for the care of disabled soldiers after their discharge from military service has been announced by the War Risk Insurance Bureau. Twenty-one hospitals with a capacity of 1,500 beds are already in use and the War Department has turned over to the Treasury seven camp hospitals for the care of disabled soldiers. These are to be enlarged and improved out of the $9,000,000 fund appropriated for hospitals for disabled soldiers to be controlled by the War Risk Insurance Bureau and conducted by the Public Health Service. All soldiers 10 per cent. disabled from causes suffered in the line of duty are entitled to compensation and treatment by the Bureau of War Risk Insurance. Men who after discharge develop physical disabilities attributable to military service are entitled to treatment. The hospitals which the War Department has turned over to the Treasury Department are located at Camp Cody, New Mexico; Camp Hancock, Georgia; Camp Joseph E. Johnson, Florida; Camp Beauregard, Louisiana; Camp Logan, Texas; Camp Fremont, California, and the camp at Perryville, Md. About $750,000 will be expended for enlarging and improving these hospitals. The Treasury Department has purchased the Speedway Hospital in Chicago, with a capacity of 15,000 beds. Improvements and changes costing $500,000 will be made in the hospital and it is planned to make it a national center of medical study and research. Portions of the Battle Mountain Sanitarium at Hot Springs, S. D., and a hospital at Corpus Christi, Texas, have been taken over for the War Risk Insurance Work. The sum of $1,500,000 will be expended in the erection of a hospital at Dawson Springs, Ky., and other hospitals will be erected at Norfolk, Va., and in or near the District of Columbia. The Marine Hospital at Stapleton, S. I., will be taken over and $190,000 expended in improvements.

Deaths in the Service.—Capt. WILLIAM W. WALCOTT, M. C., U. S. Army, of Natick, Mass., regimental surgeon of the 101st Engineers, died in France, on March 16, aged 39 years. He was a graduate of Harvard Medical School in 1905, and a district health inspector under the Massachusetts State Board of Health. During his service on the western front last summer he was wounded and gassed, after which he spent a month in the hospital on account of injuries.

Lieut. HARRY AUGUSTUS SCHEPPACH, M. C., U. S. Army, of Newark, N. J., a graduate of Bellevue Hospital Medical College, in 1898, on duty at the Yale Army Laboratory School, New Haven, Conn., died in New Haven from typhoid fever, on January 29, aged 43 years.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, April 12, 1919.

WAS INFLUENZA EVER ENDEMIC BEFORE 1890?

THE statement is being made unchallenged that endemic winter grippe dates only from the pandemic of 1890. A survey of the annual indexes of the MEDICAL RECORD for some years previous to that year, taken in connection with the testimony of old practitioners, appears to make this claim good, at least so far as New York City and the Eastern seaboard States are concerned. Nevertheless a little investigation has shown that in certain parts of the world endemic winter grippe had prevailed prior to the year 1890. It readily appears that in parts of France grippe occurred almost yearly during the 80's, and that in our own country it was an almost annual winter visitor in Minnesota, at least, during the same period. The nearest approach to a pandemic before 1890 was in 1879, in which year the disease prevailed notably in certain parts of the United States and other countries. Still further back we find scattered epidemic incidence in 1874-5 and in 1871. But we are not interested in this connection in the strictly epidemic incidence. All goes to show that in the 80's, with the exception of parts of France and our Northwest, there was a notable absence of the disease in whatever form and incidence. In the *Index Medicus* for 1890, the second year of the pandemic, the list of names of authors of papers on the disease occupies in fine print nearly a column in the index of names. In 1889 there were but four papers indexed, one of which was by Dr. Merrill of Stillwater, Minn., which will be discussed later. Two others were by French and the fourth by a German author. The European articles were relatively insignificant. In 1888 not a single title was indexed. In 1887 three French articles were indexed, which indicated plainly the presence of a severe type of grippe in France, while in 1886 the number of articles indexed was five, three by French and two by Australian authors—for there was an epidemic of influenza in the latter country in 1885. The *Index Medicus* for 1885 contains but two unimportant French references to the disease. An analysis of the French articles which appeared between 1885-1890, or up to the time of the pandemic, shows conclusively that grippe was endemic in parts of France, including Paris, and was a serious affection. No less than three graduation theses appeared on the disease during this period in addition to a special monograph. The subjects were as follows: Epidemic of grippe at Rochefort in 1886; modalities of grippe; pneumonia and bronchopneumonia following grippe, and pleurisy of grippal origin. In addition there were two clinical papers on pleurisy complicating grippe, one dealing with empyema.

The words epidemic and endemic should not be confused in this connection, for they do not exclude one another. When winter grippe appears in a community in massed incidence we may call the episode an epidemic, but when it reappears with each succeeding winter we come to regard it as endemic for the locality. Moreover, in true epidemic incidence the disease is contagious and rapidly spreads to neighboring regions, which behavior is not seen in the purely endemic form. To obviate confusion writers may call winter grippe endemo-epidemic when it approximates the diffusible form.

We come now to the rather remarkable paper which was read by Dr. Merrill of Stillwater, Minn., in June, 1889, before the advent of the coming pandemic was dreamed of. This writer states plainly that local epidemics of influenza prevail in Minnesota "almost every fall and winter." One form, the enteric, passes under the name of "winter cholera." The disease, which is often unrecognized, does a vast amount of mischief, which passes unnoticed because physicians fill out death certificates with the complication, as lobar pneumonia, bronchopneumonia, and, in young children, convulsions. If space permitted we would like to quote extensively from the doctor's almost classical paper, which appeared in the now defunct *Northwestern Lancet* for 1889. It hardly seems reasonable that Minnesota could have been the only part of the continent of North America which suffered annually from grippe and a study of the mortality curves of other regions would doubtless, if expertly analyzed, show that numerous others were involved. The older clinicians could not have overlooked the highly diffusible and contagious influenza, but the endemic type, coming in the open season for bronchitis, pneumonia and pleurisy, is much more elusive.

ACTION OF THE *X*-RAYS ON THE CHRONIC LEUCEMIAS.

THERE is both a quantitative and a qualitative action of the *x*-rays on the blood. The number of white cells progressively decreases in striking proportions and in one case of myeloid leucemia Beaujard noted that in seven months the number of white cells per cubic millimeter dropped from 235,000 to 5,400. This leucocytic drop continued for several days following the application of the rays. From the qualitative viewpoint, the destruction is especially evident for the myelocytes, their proportion dropping from 50 per cent. to 1 or 2 per cent. in a few weeks. At the same time, the number of erythrocytes rapidly increases to such an extent that in a month the increase may amount to one million. This rise in

red cells is not parallel to the inverse phenomenon observed in the whites, for when the influence of the irradiations appears to have become spent on the leucocytes the rise in the number of red cells will be found to continue for some time longer.

The size of the spleen diminishes astonishingly because in a few months a spleen almost filling the abdomen may be reduced to a practically normal size. In other cases the reduction takes place more slowly. The same retrogression in the lymph-nodes likewise takes place. From ten to twenty days at the most after beginning the treatment the general health is sensibly ameliorated, the edema subsides, and the patient's appetite returns. This improvement does not necessarily coincide with a return of the blood to the normal, but there nevertheless is a close correlation between them. The improvement in health persists as long as the number of erythrocytes is on the increase, which indicates that the *x*-rays continue their beneficial excitation of the formative organs of the red cells. The activity of this hematopoietic elaboration is the principal act; the drop in the white cells is secondary, as analyses of the blood, when compared with the variations in the patient's health, will show.

Among the mechanisms offered for explaining the action of the *x*-rays in the leucemias, it has been supposed that they destroy the "morbid elements" and toxins secreted by these elements; but even should this conception be adopted, it must be admitted that no data of positive observation can be invoked in confirmation of such a view. If the conception of a bacterial action were admitted if the leucemia were really caused by infectious germs, how could the cure or amelioration in the health be explained? In these circumstances it must be supposed that the rays favor the process of immunization of the organism against the causal infection, but until more ample information is at hand the results of experience alone should be taken into consideration, and we know of no bactericidal action resulting from the *x*-rays applied in therapeutic doses at present employed.

It is generally conceded that the decrease in the number of leucocytes results from their progressive destruction, because after a few exposures of the rays numerous degenerated leucocytes are found in the blood, while the increase of uric acid in the urine clearly testifies to this. A number of competent writers explain this destruction by the formation of a leucotoxin or a special lysine which results either from a biochemical change in the lecithin of the white cells or from cholin, an active product resulting from the splitting up of lecithin. That such a leucolysin exists has been proven and that it is produced in normal subjects exposed to *x*-rays has been demonstrated by Ambrozio, but instead of attributing an all powerful curative action to the *x*-rays in leucemia, it would seem more logical to assign to them a simple exciting action on the defensive functions of the organism by stimulating the hematopoietic organs.

This mechanism has been explained by Roch. The spleen is the center of the formation of both red and white cells and is also the center of destruction of both, therefore it possesses four centers. An untreated leucemia is the result of an exaltation of the centers of white cell formation and destruction of red cells, and *x*-ray treatment attenuates their activity and at the same time stimulates the center of red cell formation and that of white cell destruction. Why this selective action of the rays? All four centers are stimulated, but the center of white cell formation and that of red cell destruction having reached a functional paroxysm on account of the morbid process, no longer respond to the stimulating action of the rays, while the other two, previously inactive, react with all their latent energy and an equilibrium becomes established. This conception has the advantage of being derived from physiology, while it is also compatible with the theory of the leucolysins, but in this case these are regarded as products of secretion of the macrophages of the spleen which enter into hyperactivity under the influence of the *x*-rays. All these hypotheses are laudable scientific efforts, but the subject has only begun to be studied and further work must be undertaken before any definite conclusion can be arrived at.

MEDICINE AND POLITICS.

MEDICINE and politics seem to be in the very nature of things antagonistic. In this country, perhaps, more so than in any other land, because following politics here is a good deal of a profession. Therefore, the medical man in politics is first and foremost a politician and is seldom elected to either federal or State legislature with the view of suggesting or urging the passage of laws in the interests of public health. The American political medical man is entirely merged in politics. In fact, the medical man in politics in America is practically a negligible quantity so far as being influential in promoting public health or the interests of medicine.

Unfortunately, although in a less degree, a similar state of affairs exists in Europe. In Great Britain, for example, it is now fully recognized, a lesson which the war has driven home, that the health of the masses should come before everything. Indeed, that it is quite the most important phase of administrative government. Now that British statesmen or politicians have come to a complete realization of the self-evident truth that no nation can prosper unless the general health of the population is good, it has been decided to form a Ministry of Health. One would imagine that in order to conduct the duties of such a ministry with success it would be necessary to have in Parliament a considerable body of medical men, and especially of those well versed in preventive medicine. This appears to have been the idea of the large number of members of the medical profession, who offered themselves as candidates for election on the grounds that they would be required in parliament to give expert advice as to the constitution of a Ministry

of Health and particularly with regard to its duties. The result has been deeply disappointing, for while some medical men of eminence were elected to the new Parliament, mainly on account of their prominence, and others were reelected who had made reputations as politicians, and while a few with strong personal or local claims came in with the flowing tide, yet it cannot be stated with confidence that in any one instance the returned member sits as a purely medical representative. Indeed, as in former British Parliaments, the medical members possess a political rather than a professional status. Certain of the medical men who are M.P.s are notoriously party politicians who owe their power to that fact and not to their professional abilities or to the trust placed in them by the medical profession.

There are two sufficient and valid reasons why medical men here and in Great Britain do not wield the influence they ought to wield when medical legislation is under consideration. One reason is that party politics is all powerful, and another is the lack of organization in the medical profession. That is to say, Ministries of Health should put into effect the object for which they have been created, to improve the public health, and not merely to add another national bureau in order to be able to reward faithful but greedy henchmen with lucrative offices therein. Moreover, medical men cannot expect to be appointed legislators unless they are loyally backed by a wholly united profession.

At the present time no form of reconstruction is as essential as human reconstruction, and so long as housing is inadequate, defective, and unsanitary, and unsanitary conditions prevail generally, just so long will ill health, discontent, and unrest prevail. A contented people do not create disturbances, but a people will never be contented while intolerable conditions of living exist on a large scale. The carrying out of measures calculated to decrease disease and to improve the physical well being of the community at large would prove a panacea for untoward economic conditions, and is to be advocated from every standpoint. In a campaign for the teaching and enforcement of healthful methods of living, the medical man, by virtue of his expert knowledge, should of necessity take the first place.

DERMATOPHOBIA.

Of all the many phobias, dermatophobia is probably one of the commonest, as dermatologists can attest. Cutaneous obsession is met with in young people only when they have received suggestion from their parents, usually the mother, and is unquestionably more common in cities than in the country towns for reasons too obvious to mention. Besides the well-known general causal factors common to all phobias, an occasional factor is also necessary which shall direct the morbid emotion that it has created. The latter factor is to be found in the perusal of certain kinds of literature, a conversation, or the sight of a cutaneous lesion. Medical opuscules and journals circulated with a so-called humanitarian object singularly favor the researches of these subjects in quest of medical knowledge. In other instances the patient suspects that he or she has some abnormal bodily condition, and in this case the mirror plays an important etiological part. This is what usually occurs in trichophobia, since the treatment of hypertrichosis by electrolysis and the *x*-rays has come into vogue. Of particular frequence is dermatophobia from fear of contamination in the barber shop. Contagion in this case is certainly possible, and the apprehension that it inspires is quite legitimate when not carried too far. The newspapers and measures taken by the health authorities have awakened fear in the public mind in respect to contagious diseases, and the result has been an ever increasing number of cases of dermatophobia. Frequently the morbid mental state develops after direct contact with a person supposed to be diseased. Thus a person believes he has contracted scabies because he has touched the skin or clothing of some one supposed to be the host of the busy little parasite, and so it goes.

Finally, dermatophobia can be communicated from one person to another by simple suggestion. For example, in one case a husband, believing that he was afflicted by a pruriginous skin affection, passed this belief on to his wife. In another case a mother who supposed herself afflicted with a cutaneous disease transmitted her dermatophobia to her daughter by mere suggestion. A yet more interesting example was that of a woman who had contracted a psychic pruritus and by suggestion mentally contaminated her son, niece, nephew, and their children, the sum total of transmitted dermatophobias in the family amounting to eight persons. Cutaneous obsessions can be transmitted from animals to man, this genesis being almost exclusive for parasitophobia; and lastly, an important cause of dermatophobia is to be found in pruritus with all its many origins. Pruritus has as principal causes a state of cutaneous hyperesthesia, direct local irritation produced by irritants acting on the cutaneous surface, subcutaneous irritations resulting from diseases or their effects, toxic or otherwise, local nutritive disturbances, and, last but not least, spasmodic contraction of the tensor muscles of the hair. The latter is, *per se*, a sufficient cause for the development of dermatophobia.

The conclusion is that the cause of the pruritus which gives rise to dermatophobia will frequently escape detection, in which case the phobia will be erroneously diagnosed as primary, and it appears logical to assume that dermatophobias without a substratum must represent a very small percentage of cases. It is not improbable that the so-called purely psychic cutaneous obsessions may result from trophic changes in the skin, the nature of which is as yet to be determined. It must be recalled that many of these patients are neurasthenics and arthritics, that is to say, candidates for arteriosclerosis and certain sclerous lesions have been found among them. All these considerations require

more ample verification, but they leave the impression that every case of dermatophobia possesses a material basis, and it is probable that one will not go far from the mark in admitting that a dermatophobia without a substratum does not exist.

CLINICAL HEMATOMETRY.

ONE of the most important of our clinical methods is the estimation of the hemoglobin content of the blood and yet the methods in general use for this procedure leave much to be desired in the line of accuracy. Hematometers in general are of two types, those which utilize for a standard a permanent color, ruby glass, for instance, which is of a different nature than that of the blood with which it is compared, as seen in the Miescher or Dare apparatus; and those which utilize a standard which is identical in nature, and therefore color, but which unfortunately is not permanent, such an apparatus as the Sahli. Furthermore the element of time, in the use of the latter apparatus is usually neglected. It is probably a safe statement that the majority of the hemoglobin estimations made, even in hospitals of good standing, have an error of fifteen per cent. or more. The oxygen capacity method of Van Slyke is highly accurate but is not a clinical method. These facts are emphasized by Newcomer in an article on the Absorption Spectra of Hemoglobins appearing in the *Journal of Biological Chemistry*, 1919, xxxvii, 465. He demonstrates that it is exceedingly difficult to find artificial matches for hemoglobin solutions because the absorption curves of the materials do not correspond with those of the solutions. Even in the Miescher instrument which has been considered the best of the hematometers, the curve of the glass standard only roughly approximates that of oxyhemoglobin and then only under fixed conditions of illumination. But he was able to find a glass, the "high transmission yellow" semaphore glass, which has an absorption curve with white light which very closely approximates that of acid hematin. When this is used with some colorimeter of the Bubosq type it is possible to get accurate readings quickly and easily.

It has been known for some time that solutions of acid hematin do not acquire their full color depth immediately and some authors have endeavored to compensate for this by making their readings at a fixed interval after adding the acid. Newcomer has developed a formula which does away with inaccuracies due to the time element. This is expressed as $xy = -40$ where x is the time in minutes and y is the per cent. by which the acid hematin falls short of its full color depth. y therefore is equal to $-\frac{40}{\text{time in minutes}}$ and this percentage should be deducted from all readings made of acid hematin solutions which are less than forty minutes old. Tables are given for use with pieces of glass of varying thickness and for translating the results into percentages. These findings not only furnish us with a quick and accurate colorimetric method for the estimation of hemoglobin, but also a method for the standardization of apparatus now in use, so that the rough approximations of the past will no longer be excusable. Chemical methods are increasing in accuracy and delicacy continually and it is hoped that this clinical method will find ready adoption until some better one appears.

THE DANGER OF MINISTERING TO SUPERSTITION.

BY reason of the fact that his lightest utterance anent matters in any way pertaining to health is taken by the laity as *ex cathedra*, the physician must be over-scrupulous how he acquiesces in popular fallacies. Early in his professional career a general practitioner learns diplomacy and psychology of the most practical sort. When he finds that the revered grandmother of the family has been applying therapy of the 1850 variety he must steer between the Scylla of retarding his patient's recovery and the Charybdis of offending the conceit of an influential adviser and an eventual loss of practice. He therefore learns to steer a middle course by agreeing verbally with the lay theories, but modifying the application as much as possible and insinuating gradually his own therapy. But when it comes to the question of a pet superstition, there is danger that his complaisance may lead him to a confirmation—which inevitably results in fixing the fallacy irrevocably—especially since there may seem to be involved no question of danger to the life or health of an individual. Often indeed these superstitions seem more fantastic than harmful, they are perhaps a matter of faith and have been maintained earnestly by the holder, who looks to his family physician to support him.

We are able to get a proper perspective on a question of this sort only by considering the function of the physician in society, which is broader than the alleviation and healing of disease; he is bound to disseminate knowledge and dispel ignorance in regard to matters pertaining to health, sickness, prevention of disease, etc. It is not on record that superstition ever led to good and it is impossible to estimate the amount of harm done by the spread of even one commonly held fallacy, leading as it may to fear states, with their accompanying psychic and physiological changes.

We are all familiar with the stories of prenatal frights with their resultant reproduction in nævi —the pregnant woman frightened by a mouse and the mouse-shaped birthmark, etc. Recently there was reported before a medical society the case of a child born with the osseous structure of the left chest missing, and this was attributed to an accident sustained by the mother when seven months and eighteen days pregnant! One might be led to wonder if the essayist had ever seen a fetus during the eighth month and if so, how he imagined a trauma would act which would cause half the chest

wall to involute, so to speak. No doubt in the case in question the relatives will make a family legend out of it—it will go down from father to son for many generations and be made the text and paradigm of many a lay discourse. And many and many a pregnant mother, stumbling over a wrinkled rug, or running against a table in the dark, will lie awake picturing horrible, monstrously deformed offspring. Let us then disseminate light rather than gloom and help the world to reason rather than to fear.

Symbiotes.

This term is applied by Portier in a monograph with that title reviewed in *La Presse Médicale* for February 14 by Desfosses to such bacteria as are constructive to the physiological processes of the organism and not antagonistic or indifferent. He apparently prefers the term symbiote to the older symbion. The conception of symbiosis extends deeply into organic existence and the author is at pains to show that a species of termite in Madagascar in constructing an ant-hill carries out the basic principles of constructive symbiosis. Certain special woods are sought and utilized and the dead wood is eaten and assimilated by the ants and the undigested residue which consists of pure cellulose accumulates in the form of cakes of a porous character which quickly become covered with a whitish mould. This product is the natural food of the young ant. The youngest larvæ live on the mould alone while the larger larvæ and adults consume both the mould and the fecal cakes, which by the way have been softened by the secretions of the superjacent fungus. Other specimens of the ant tribe cultivate these moulds for nutritive purposes. The "queen" on the occasion of a migration carries with her a specimen of the sacred fire, so to speak, to light a blaze at the new hearthstone; in more prosaic language she bears with her a specimen of ferment intended to be used in simple culture, not to ferment other food bodies. Nowhere else in Portier's opinion do we find an animal employing systematically a microorganism to prepare its nutriment. Mankind of course has used substances like beer wort and rennet and other ferment for milk products from the earliest times. To go from the ant to the caterpillar is to advance in constructive symbiosis, for these forms of the latter which feed on wood exhibit an intestinal content in which fungi are plainly seen to flourish on the digesting wood pulp. These organisms belong to the *Conidia* and while many of the spores are destroyed in the adult by phagocytosis others persist in the organism and entering the ova are transmitted to the next generation. The larva is thereby provided with its proper nutriment in advance. This is known as hereditary symbiosis. Apparently the wood-eating insects consume wood only as nutriment for the fungi which use it as a culture medium; and while the ant voids the combination of wood pulp and fungi for the next generation the larvæ of the butterfly and moth conserve the association within the organism so that the fungi abide in the ova as prenatal nutriment. Portier seeks to trace this principle up through the evolutionary scale and to explain by it many phenomena of human biology.

A Comparison of Breads.

Bread, the right kind of bread, is verily the staff of life, at any rate, for civilized peoples, and this fact has been accentuated by the necessities of war. Wheaten bread made from highly milled flour was for many years before the war the staple diet of practically all modern populations, who have by progressive pampering of their appetites developed extremely fastidious palates. For some considerable time, it has been pointed out that bread made from wheaten flour so dealt with that the portion of the grain in which the vitamine elements are present is got rid of, is not the kind of bread best adapted for the maintenance of health. By the elimination of the vitamine content, according to many investigators, conditions of disease are brought on. Not only does the absence of these essential elements of a diet predispose to or produce disease, but it is harmful from other points of view. In the first place, a bread or any food which requires little or no mastication is not good for the health. Such a diet does not give sufficient exercise for the teeth and jaws, nor for the digestive organs. It is believed by many, and with some apparent reason, that a main reason for the prevalence of constipation and dental caries among civilized communities is the habit of eating foods which are devoid of roughness and which call for little mastication. However, opinions as to the relative value of white flour bread and brown bread, or the lighter so-called 80 per cent. flour bread, vary. In the *Medical Press* of January 22, 1919, A. Stayt Dutton, discussing the matter of war bread, is inclined to depreciate the value of bread made from 80 per cent. flour and to extol white flour bread. He neglects, however, to mention that flour deprived of the germ and aleurone cells has been demonstrated to be unfitted to form the staple food of the population. The presence of the accessory or vitamine elements is essential for the proper nutrition of the nervous system and this alone is sufficient reason for the general use of bread in which the husk or part of the husk of the grain has been retained. So as to obtain the best results, bread should be made from a good quality of flour containing the germ and aleurone cells, and, above all, should be baked properly. A good deal of the prejudice against the so-called 80 per cent. wheaten flour bread is due to bad baking. When well baked it provides a sufficiently digestible and palatable bread, which contains the essential vitamines, affords exercise for the jaws and teeth, and work for the digestive functions.

Sublimate Kidneys.

Askanazy and Nakata have published an article on the stages of sublimate kidney in the *Correspondenz-Blatt für Schweizer Aerzte* for January 18, based on 15 cases of suicide from swallowing corrosive sublimate. Death took place at intervals which varied from 12 hours to 17 days. As all know, there is much discrepancy in the finds and criticism of the latter among pathologists in general. The authors claim that this discrepancy is due wholly to the failure to recognize the existence of three separate stages. These they denominate as follows: the red initial stage, the grey-white sublimate kidney, and the red sublimate kidney proper. The first may be

in evidence at any time during the first 24 hours. The organs are notably colored with an actual red or grayish red hue. The organ is hyperemic throughout but at the same time the degeneration of the renal epithelium may be already under way. This feature is now more fully developed and most fatal cases present it at autopsy. This second period stretches from the second to about the seventh day. The kidney loses completely any suggestion of red and becomes grey, either bluish or whitish grey. The microscope shows that the condition is in reality a pallor, the vessels having greatly reduced content. The anemia is due to compression by the tubules which are somewhat distended as a result of the degenerative process in the epithelia; in reality perhaps because of attempts at regeneration, new cells being in process of formation. The terminal red sublimate kidney is never seen before the first week following ingestion of the poison. It was present in seven of the author's series. The organ becomes once more light red or greyish red, which change is due to hyperemia and signifies the presence of active regeneration. The occluded tubules have in part expelled their contents while interstitial inflammation has taken place in some degree. Epithelial débris which cannot come away becomes calcified. As a result of their finds the authors dispute the word nephrosis in connection with sublimate kidney for they find everything which should be present in the makeup of a nephritis.

Acute Appendicitis in the Aged.

Dubs, in an article abstracted in *La Presse Médicale* for February 27, emphasizes the infrequency of this affection after the age of 50. In a material of 500 cases of the disease treated at a Swiss cantonal hospital during a period of three years only 19 occurred in subjects in the sixth decade, 4 in the seventh, and 2 in the eighth decade. In other words but 5 per cent. of these cases occur in subjects above 50 years. Figures show that at these advanced ages appendicitis occurs in two principal forms. The first is diffuse peritonitis following perforation and is fortunately rare, while in the other form the condition is of very slow evolution and may even simulate a neoplasm. Otherwise considered the attack in the elderly differs from the attack in the youthful because of the absence of a general reaction. The local symptoms may be sharply in evidence—notable muscular rigidity and marked tenderness to pressure, but reflex and constitutional symptoms are correspondingly less marked; for example nausea, which is usually absent. Whatever its intimate nature the treatment of appendicitis in the aged is essentially surgical and never expectant and the mortality under operation is about 12 per cent.

News of the Week.

Typhoid Epidemic in Baden.—A cablegram from Berlin to the *Associated Press* reports that an epidemic of typhoid fever is raging at Pforgheim, Baden. Thousands of persons are said to be stricken, and the epidemic is difficult to combat owing to the famished condition of the people.

Hospital Enlarges Site.—St. Vincent's Hospital, which has been gradually enlarging its site on the east side of Seventh Avenue, between Eleventh and Twelfth Streets, New York City, has recently added to its holdings a four-story dwelling fronting on West Eleventh Street.

Nutrition Inquiry in Germany.—According to an announcement from the State Department at Washington, a commission of physicians selected by representative organizations in neutral countries is about to inquire into existing nutrition conditions in Germany and Austria upon invitation from university faculties in Teutonic countries. It is reported that Norway has responded to the invitation, and that Dr. Brandt has left Christiania for Germany to serve on the commission.

Community Health Council.—At a meeting of the Community Health Councils for National Defense of New York City, on April 5, a Health Committee was organized under the chairmanship of Dr. Lee K. Frankel. The object of the organization is to undertake the establishment of preventive measures by bringing health questions clearly before the people. Dr. Frankel pointed out that following the influenza epidemic of 1891 there was an increased mortality rate for five years, and that the present epidemic would carry in its wake a similar increase unless vigorous measures were taken to safeguard the health of the people. In addition to a number of laymen interested in public health work the membership of the committee includes the following: Dr. S. Josephine Baker, Dr. John W. Brannan, Dr. Henry Dwight Chapin, Dr. S. S. Goldwater, Dr. Louis I. Harris, Dr. L. Emmett Holt, Dr. E. H. Lewinski-Corwin, Dr. Ralph Waldo Lobenstine, Dr. Frederick Peterson, Dr. Thomas A. Storey, Dr. Simon Tannenbaum, Dr. Herbert Wilcox, and Dr. Thomas D. Wood.

United States Interdepartmental Social Hygiene Board Announces Appropriations.—The United States Interdepartmental Social Hygiene Board, through its executive secretary, Dr. T. A. Storey, announces the following appropriations from the Scientific Research Fund of the Board: Leland Standford Junior University Medical School (1) for "Investigation into more effective treatment in acute and chronic gonorrhea," under the direction of Dr. R. L. Riglon and Dr. A. B. Spalding, $2,300; (2) for a study of "The Permeability of the Meninges to Antisyphilitic Drugs—An Attempt to Increase Their Permeability," under the direction of Dr. H. G. Mehrtens, $2,300; (3) for "Investigation Into More Effective Methods of Treating Syphilis," under the direction of Dr. H. E. Alderson, $2,600. The University of Michigan, College of Medicine and Surgery, has received an appropriation of $6,000 with which to conduct "A Research for an Improved Method of Demonstrating the *Spirochæta pallida* in Human Tissues," under the direction of Dr. A. S. Warthin. Regulations governing appropriations from this fund are published by the Government Printing Office stating the conditions under which the sum of $100,000 shall be paid to such universities, colleges, or other suitable institutions as in the judgment of the Social Hygiene Board are qualified for scientific research for the purpose of discovering more effective measures in the treatment and prevention of venereal diseases, copies of which may be obtained through the United States

Interdepartmental Social Hygiene Board, Washington, D. C.

United States Civil Service Examination for Medical Assistant.—The United States Civil Service Commission announces an open competitive examination for Medical Assistant, for men only, to fill a vacancy in the Bureau of Chemistry, Department of Agriculture, Washington, D. C., at a salary of $2,000 a year. Those qualifying will be eligible for future vacancies requiring similar qualifications. Applicants desiring to take this examination should apply for Form 2118, stating the title of the examination desired, to the United States Civil Service Commission, Washington, D. C., and applications properly executed should be filed with the Civil Service Commission prior to the hour of closing business on May 13, 1919.

Sir William Crookes, the famous chemist and physicist, whose experiments with vacuum tubes led the way to the discovery of the *x*-ray, died in London on April 4, at the age of 86 years. He also discovered the element thallium and was the inventor of the spinthariscope.

Medical Fees Under the Workmen's Compensation Laws.—At a recent meeting of the executive committee of the Physicians' Protective Association a resolution was passed calling attention to Governor Smith's message demanding revision of the Workman's Compensation Law, to prevent direct settlement between injured employees and the insurance carriers, and stating that a similar condition exists relating to the payment of physicians' fees by the insurance companies, which has resulted in the denial of the best medical service to the injured workmen and working women of the State. This is owing to the failure of the medical provisions of the Workman's Compensation Law either to provide a proper fee for medical service or to compel the payment of the fee awarded by the commission against the insurance companies. The Governor was asked to include in his proposed revision of the Workman's Compensation Law a measure to remedy this form of injustice to the medical profession.

Smallpox Epidemic in Italy.—A cable to the New York *Sun*, under date of March 31, reports a serious epidemic of smallpox, which for seven weeks has been ravaging the province of Apulia, Italy. It is said that thousands of the poorer classes have died, 1,500 having perished in the city of Bari alone.

Clinics for Treatment of Drug Addicts.—Frank Richardson, the head of the New York State Department of Narcotic Drug Control, has sent letters to Mayors and health officers throughout the State asking them immediately to take steps to establish local clinics for the treatment of drug addicts. He announces that a conference will be held on April 10 to speed up the work of checking sales of drugs. A plan is being prepared relative to the revocation of certificates of physicians who violate their authority to issue prescriptions for drugs. The commission will hold meetings in the several health zones of the State during April, May, and June to outline precautions necessary to prevent any undue use of drugs after prohibition goes into effect July 1. The New York City Health Department has opened a hospital for drug addicts on North Brother Island. The hospital has accommodations for 200 patients and will care for persons committed by the courts as well as those who voluntarily seek treatment.

Sanitation of Restaurant Kitchens.—Inspectors of the Bureau of Foods and Drugs of the New York Department of Health have been devoting attention to the methods employed in washing glasses and utensils used in restaurants, hotels, and ice cream parlors. Between October 8, 1918, and February 15, 1919, 196 arrests were made for violations, and of these 186 were fined a total of $904.

Dr. José Penna, a well-known internist, died suddenly in Buenos Aires, Argentina, on March 29.

Colonel Pearce Bailey of New York City, recently released from military duty, has been appointed medical chairman of the State Commission for Feebleminded to succeed Dr. Walter B. James resigned.

Dr. Royal S. Copeland, Health Commissioner of New York City, has issued a statement formally announcing his intention to resign his office in order to return to private practice.

Lieut.-Col. E. G. Zabriskie of New York City, has been designated senior consultant in neuropsychiatry for the American Expeditionary Forces, succeeding Col. Thomas W. Salmon, who has returned to the United States for duty in the Surgeon General's office. Dr. Zabriskie went to France as divisional neuropsychiatrist of the Fourth Division. Subsequently he was consultant in neuropsychiatry to the Third and Fifth Corps and to the First Army. After the armistice he served as consulting neuropsychiatrist to the Savenay Hospital Center.

Dr. B. J. Dreyfuss is conducting a Rectal Intestinal Clinic at the Harlem Dispensary, on Mondays, Wednesdays, and Fridays from 1.30 to 3.30 P. M.

Dr. David Bovaird, who has been serving in the Medical Corps of the United States Army, has resumed his medical practice at 32 East Sixty-fourth Street, New York City.

Obituary Notes.—Dr. DANIEL LEWIS, retired, a graduate of New York University Medical College, in 1871, died at his home in New York on March 22, aged 73 years.

Dr. EDWIN B. SHELTON, a graduate of Jefferson Medical College in 1889, died from Bright's disease at his home in Wickliffe, Ky., on March 19, aged 54 years.

Dr. RICHARD BROOKE MAURY of Memphis, Tenn., died from pneumonia at his residence in that city on March 17, aged 85 years. He was a graduate of the University of Virginia Medical School in 1858, a surgeon in the Confederate Army during the Civil War, being in charge of the Joseph E. Johnston Hospital for officers at Lauderdale Springs, Miss., as well as of other hospitals in that State and in Alabama. In 1867 he became professor of physiology in the Memphis Medical College, and a few years later became professor of the practice of medicine. In 1885 he assumed the chair of gynecology in the same institution. He served as president of the American Gynecological Society in 1906, and was also a member of the British Gynecological Society.

Dr. CHARLES FREDERICK DOLE, a graduate of Harvard Medical School in 1900, died after a long illness at his home in Sharon, Mass., on March 25, aged 43 years.

Dr. REMBERT TREZEVANT, a graduate of the Memphis (Tenn.) Medical College, in 1869, died at his

home in Evangeline, La., on March 15, aged 73 years.

Dr. JULIUS F. SIVENY of Auburn, Rhode Island, died in a New York hospital, following an operation, on March 16, aged 39 years.

Obituary.

FRANK VAN FLEET, M.D.

NEW YORK.

DR. FRANK VAN FLEET of New York died suddenly of heart disease in his office on March 5, aged 58 years. He was a graduate of Bellevue Hospital Medical College, in 1881, a former president of the Medical Society of the County of New York, and president of the Board of Surgeons of the Manhattan Eye, Ear, and Throat Hospital. He was consulting ophthalmologist to the Park Hospital and the House of the Good Shepherd. He was active in connection with the work on the draft boards and had served as consulting ophthalmologist to several government hospitals caring for wounded soldiers. He was a member of the New York Academy of Medicine, of the Medical Societies of the County and State of New York, and of the American Medical Association, and was a fellow of the American College of Surgeons. He is survived by a son who is a lieutenant in the Medical Corps of the U. S. Navy. For many years he was an active member of the legislative committee of the Medical Society of the County of New York and was instrumental in defeating many of the bills prejudicial to the health of the community and to the interests of the medical profession which are so constantly being prepared for adoption by the State Legislature.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, March 13, 1919.

The Cost of Medical Education.—The question of what, if any, pecuniary support should be given by the State to medical education has come into prominence again during the last week owing to the publication verbatim of the addresses of a group of distinguished men who recently urged upon the Government that in so many words higher education in England was still starving. The arguments put forward for State help in medical education were very forcible, and can be summarized much as follows:

1. The medical profession is in Great Britain on the whole poorly paid. It is true that since the institution of National Insurance there are more safe, if small, incomes to be made; but there is no progression by merit in this side of professional work; rather the tendency is that, the more a man obtains experience, the less will his income be. Further, there are no great pecuniary prizes in medicine that can be counted upon as a return for either industry or intellect, unless we except the gains of a small percentage of successful operating surgeons. Official posts, it is true, are getting more numerous, but compared with the salaries paid to State officers in the legal or the engineering professions, the emoluments and pension rates are meagre; there is no British medical man who gets an official salary more than half the size of the stipend of a Bishop of the Established Church, who moreover succeeds *in rota* to a seat in the House of Lords and as such becomes a legislator. On the whole the medical profession is poorly paid.

2. Yet this poorly paid profession exacts five or six years at least of strenuous work from those who would enter it, and the cost is expensive, not less than $5,000. The *Lancet* has estimated the figure as now being greater; and certainly it will become greater in the near future, for the mere material cost of medical education is advancing *pari passu* with the elaboration of scientific methods, the invention of new instruments, the introduction into clinical medicine and clinical surgery of a world of elaborate mechanism like that connected with radiology or with electrical treatment.

3. But this expensive profession is largely recruited from the sons of middle-class men who succeed to no private means, and whose parents are often sorely tried to find the money to support their children through a long and expensive curriculum.

4. Medical education, however, is controlled by the General Medical Council, a statutory body acting under the Privy Council, which has the duty of regulating the examinations by which medical students are admitted to the Medical Register. The work done by the Council in this as well as in other directions is delicate and arduous, *and it is carried on in the public behalf and in no sense for the protection of the profession of medicine.* The Council works under the Medical Acts, which are definitely designed to see that the medical profession is properly conducted and properly managed, so as to supply the public with adequate medical assistance. Yet this Council receives no grant from the Crown. The whole of its work is paid for by medical men who after their examinations proceed to registration by payment of a capitation fee. The income from these capitation fees supports the Council.

5. And while the Council, though existing for the public, is paid by the medical profession to see that the examination tests are good, the teachers, whose exertions bring the students up to the necessary mark, are either unpaid, or very poorly paid. Few of the medical schools, even those connected with wealthy universities, have any funds to be spent in a generous manner upon professorships, readerships, and lectureships in medical subjects; and much of the clinical instruction given in the wards by the staffs of the voluntary hospitals to their pupils is given gratuitously.

On these grounds medical men feel strongly that the time has come when an endeavor should be made to get from the Government some endowment of medical education commensurate with the value to the State of a well instructed medical profession. The Board of Education makes grants to certain medical schools, regarding them as institutions of technical instruction, but this is a drop in the bucket in comparison with the fluid cash that is required. The strong hope of the

medical profession is that in the debates in committee which will now follow upon the first reading of the Ministry of Health Bill, some of these questions will be thoroughly thrashed out. The position is not understood by the public and probably is but little better understood by the legislator. It would be very interesting if some American authority upon medical education would publish in England, at the present moment a succinct statement on the American position that it might be compared with the British position. How much does the medical training cost an American student, and how well- or ill-paid are his instructors, and who finds the money?

Death of a Famous Dentist.—Dr. George Cunningham, the well-known lecturer on dental anatomy and surgery of the mouth at Cambridge University has died at the age of 67 from respiratory troubles following influenza. An M.A. Cantab, he learned his science at Harvard, of which university he was a D.M.D., and first came into prominence in London as a member of the teaching and operative staff of the National Dental College and Hospital, and dental surgeon to the London Hospital. Later he migrated to Cambridge where he became not only well-known as a dental practitioner, but a strenuous and generous supporter of all movements in the cause of public health. I lay stress on the adjective "generous" because Cunningham neglected his private affairs for the public good in such a way as seriously to embarrass himself pecuniarily; few people knew that of him, until he was awarded a civil list pension, which might well have been larger, having regard to one piece only of his public work. He was appointed by the Home Office to report upon the use of phosphorus in the manufacture of lucifer matches, and his recommendations and opinions led immediately to the practical banishment of phosphorus necrosis from match factories. Cunningham was among the best known of British dentists away from his home country, being a member of numerous dental and odontological societies in the United States of America, France, Sweden and Holland, while at International Medical Congresses and Congresses of Hygiene, he frequently expounded the relation between sound teeth and good public health.

The Position of the Demobilized Practitioner.—A letter appeared this week in *The Times*, signed by Dr. Norman Moore, the president of the Royal College of Physicians of London, and Sir George Makins, the president of the Royal College of Surgeons of England, in which it was pointed out that certain of the conditions arising in the course of demobilization have not received sufficient attention from the authorities.

And it is a fact that the status and prospects of the medical practitioners who have been serving abroad have attracted slight consideration in spite of the activities of the Central Medical War Committee and of its Committee of Reference, formed from Dr. Moore's and Sir George Makins's Colleges. These statutory bodies made the best temporary arrangements which they could, to preserve, while the war was on, the interests of practitioners who had been called to the service of the country abroad. None the less, the future of many of these men is precarious, and the medical profession as a whole resents the fact that this should be.

The representations of the two presidents in *The Times* have been clearly designed to arouse the public conscience to the position. They point out that the medical men who have been working at home have generally behaved with the utmost fidelity to those who have been called away, and it is a fact that the majority of the medical men who remained in the country conformed to the various plans that were suggested for the maintenance of the interests of their colleagues abroad. Cases there have been where the man at home has not played so generous a part, but their number has been exaggerated, and, even when they have occurred, the fault has primarily lain with the public, who were quite unable to see that by exercising their right to a choice of doctor in too strict a manner, they might be severely injuring men who were fighting the cause of the country on foreign soils. The many difficulties attendant on dividing up practices, that have become conglomerated and whose personnels have changed in every manner, into anything like their original constituent parts, are obvious. During four and a half years of war many patients have died, and many have been born, while small neighborhoods have become very large, and large neighborhoods have shrunk. Houses are empty that were overfull; houses are sought for where no such accommodation exists; so that there is no return to an original pattern in correspondence with which a division of existing practices can be made in any strict manner. For these reasons it is obvious that the future position of the demobilized practitioner can only be ensured by a public comprehension of the conditions. Public bodies may be trusted to reinstate, as far as possible, to their former posts the medical officers who before the war held appointments in their service; but it is essential that the public should aid the demobilized practitioners by the promotion of a general feeling that their former patients should continue to call them in; and it may be pointed out that in most instances those who have served with the forces are returning with an enlarged experience, a broader outlook, and a more intimate knowledge of men and manners—qualities which are likely to be of great value to their patients.

Simultaneously Sir Robert Philip, president of the Royal College of Physicians of Edinburgh, and Mr. McKenzie Johnston, president of the analogous College of Physicians, drew attention in the medical press to the problems of demobilization as they affect the general practitioner of medicine, and they too ask for sympathetic consideration from the general public.

"Many doctors," they say, "who throughout the war have held commissions in the Navy, the Army, or the Air Force have now to face the question of return to civil practice. This is for them far from an easy matter. The natural growth of their practices has ceased during their absence. In spite of loyal help given, in most cases, by their colleagues—who deserve all thanks for their ungrudging efforts—and by professional committees, to hold together the practice in the interest of the

absentee, the normal wastage due to deaths, changes of residence, etc., has had the effect of materially reducing the practice from what it was in 1914. Beyond such unavoidable influences there is risk of curtailment from other causes."

The Scottish Presidents further make the good point that in a profession like medicine, where the work is essentially personal, the future of the demobilized medical men must depend on the attitude of the general public; and they would have the public interpret this personal feeling rather less narrowly than is expressed by the admitted right of the public to employ whatever doctor they choose. Where the personal relations of the patient to his medical man were, before the war, of the properly trustful and confidential sort, the patient should be ready—indeed, should feel it an honorable duty—to return to his old adviser whose absence from his practice has been at the call of the country. It is true that in the meantime similar pleasant relations may have arisen between the patient and the medical man acting in behalf of his absent brother; but while the substitute doctor is ready with all loyalty to hand over the patients to their former adviser, the delicate task of transference will be enormously simplified if the public acquires the feeling that such transference is right.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

PARIS, March 3, 1919.

Death of Professor Chantemesse.—Professor André Chantemesse has just succumbed in Paris to an attack of grippe which laid him up a few days ago. He was in his sixty-eighth year, being born at La Puy (Haute-Loire) on October 13, 1851. He leaves a son who is an officer in the French Army. M. Chantemesse studied in Paris under Pasteur and Professor Cornil. He visited Germany and worked in the laboratories of Koch and Bollinger. In 1885 he was appointed physician of the Paris Hospitals and passed his "concours d'agrégation" brilliantly in 1889. The Faculté de Médecine then appointed him to the chair of experimental and comparative pathology, and soon after he was appointed professor of hygiene. He was made a member of the Académie de Médecine in 1901. He was a member of the Comité Consultatif d'Hygiène de France and of the Comité de Salubrité de la Seine and became Inspector-General of Sanitary Services. He was entrusted with numerous missions in France and abroad Professor Chantemesse's principal works were connected with bacteriology, epidemic dysentery, infection of water, and with typhoid fever, against which he discovered a serum. A recent article by Professor Chantemesse demonstrated that many epidemic diseases, and particularly cholera, may be transmitted by flies.

Death of Dr. Morestin.—Another great surgeon has just died and his loss will be irreparable. H. Morestin during the four years of war became celebrated as the greatest living plastic surgeon. All of the badly disfigured cases of gunshot or shell wounds were sent to him and he practically made new faces for all of this class of wounded. His energy seemed inexhaustible. He worked without ceasing. He had a service in Valle de Grace Hospital, St. Louis, and his own institution over which he presided, the Rothschild Hospital. From time to time he presented the results of his work before the Surgical Society and Academy of Medicine and moved his colleagues to wonder by the results he secured. He was a student of Verneuil and later of Richelot whom he succeeded at St. Louis when the former retired full of years and honors. In the immensity of his work for those mutilated by war he knew no rest. He worked rapidly, feverishly; brushing aside all minor difficulties and restraints, he went directly to the results he desired, so much so that he was called brutal in his methods. Thin, wiry, nervous, and quick, he appeared brusque and unsociable, but he accomplished a tremendous amount of work and despite fatigue and signs of strain he continued without ceasing to the last day of his strength, falling a victim to quick consumption at the age of 49.

Return of the Influenza.—Another illusion has been shattered by the prevailing outbreak of grippe. It was formerly thought that influenza rarely attacked a person twice. This idea has now been proved erroneous. According to statistics gathered by the *Matin*, about a third of those now suffering from grippe have had a previous attack quite recently. Instead of acquiring immunity, they would seem to have been rendered more susceptible to the malady. No precaution should be neglected, therefore, to avoid possible contagion, particularly in view of the virulence of the present epidemic. In England, the deaths attributed to influenza numbered 3,046 last week, as compared with the previous week's record, 1,363. Although the outbreak in Paris is less severe, the statistics of deaths from grippe show an upward tendency.

Among the preventive measures which have been tried in England, one of the most efficacious is the simplest. It consists of gargling frequently and douching the nostrils with a solution of a tablespoonful of common salt in a quart of tepid water. As regards treatment Professor Albert Robin recommends pyramidon and quinine hydrochloride to counteract fever and hot infusions to provoke perspiration.

Progress of Medical Science.

New York Medical Journal.

March 29, 1919.

1. The Etiology and Treatment of Colds. Oliver T. Osborne.
2. The Venereal Disease Problem. Louis I. Harris.
3. Artificial Pneumothorax in Pulmonary Tuberculosis. LeRoy S. Peters.
4. Resistance to Disease. Casper L. Redfield.
5. A Comparison of the Bacteriology of Pneumonia, Antemortem and Postmortem. E. G. Birge and I. C. Havens.
6. Report of Influenza Epidemic. J. L. Swarts.
7. Diabetes Mellitus. T. Webster Edgar.
8. The Differential Diagnosis of Cutaneous Lesions at the Bordeaux School. Charles G. Cumston.

7. Diabetes mellitus.—T. Webster Edgar is of opinion that the solution of the diabetic perception is to be found in the lower bowel. He points out that intestinal stasis has a direct bearing on the proportion of glycosuria cases and that from a therapeutic point of view the condition may be divided into four main groups: (1) cases in which the symptoms are physical signs and which yield readily to therapeutic measures; (2) cases in which the symptoms are more pronounced and accompanied by objective indications of an abnormal

state of the digestive tract, but which are amenable to medical treatment; (3) cases which present extra-intestinal objective and subjective symptoms, amenable to specific and prolonged medical treatment; and (4) cases in which the condition of the intestinal canal is so abnormal that therapeusis fails and surgical intervention becomes necessary or inevitable. He places all glycosuria patients in the third of these groups, and has treated twenty cases of definite diabetes successfully, accepting chronic intestinal stasis and toxemia as the predisposing etiological factor. In over 80 per cent. of his cases, Edgar has been able to elicit a history of intestinal stasis and intoxication of varying degree, extending back in people of middle age for from ten to twenty years, the constipation increasing as maturity approached. He is convinced that glycosuria is but one sequela or complication of chronic intestinal stasis and that the prodromal or incipient stage of diabetes mellitus is intestinal stasis and toxemia. Furthermore he believes that if prophylactic measures are instituted, the complication may be avoided, or obviated. Heredity plays its part by environment and association rather than by actually being a predisposing factor. Edgar has found that the assimilation limit for carbohydrate is greatly decreased in cases presenting symptoms of intestinal stasis and toxemia, even when the patient is aglycosuric. In such cases the blood pressure is correspondingly high. This prodromal condition was present in 90 per cent. of Edgar's cases and the average number of grams of sugar that any one of five preglycosuric cases could take care of without sugar appearing in the urine was in relation to the condition of the intestine and in direct proportion to the time the individual suffered from manifest symptoms of intestinal stasis. Putrefactive and fermentative processes in the lower bowel result in extensive multiplication of the normal habitat, usually the *Bacillus coli communis*, which under ordinary conditions is harmless, with retardation and destruction of local tissues together with inhibition and destruction of all tissue functioning with which the generated toxins come in contact. The colon bacillus is capable of producing absorbable toxins which act first on tissue proximal to the seat of generation, gradually causing an atonic condition of the nerve endings in the lower bowel. This process lowers the threshold of normal stimulation in the rectal nerves, defecation is interfered with and the individual becomes constipated, setting up a culture media acceptable to the growth and multiplication of the invading organism. This toxin is gradually absorbed by the lacteals and vessels, producing a degeneration throughout the entire body. The ductless glands by virtue of their peculiar nervous influence are the first to suffer, with resultant interference of their delicate mechanism and loss of ductless gland equilibrium. There is first an overproduction of secretion, then consequent retardation and a beginning degeneration; finally they become functionally inert. Thus a vicious circle is established, which first by its action on nervous tissue inhibits function, and then by increased production causes cessation of glandular activity. Edgar found that exercise had a direct bearing on sugar metabolism in cases of incipient or mild diabetes on normal diet, and especially on the percentage of sugar excreted in the urine when combined with intramuscular injections of diabetic serum, e.g., serum prepared from normal blood after the animal is exercised to the point of fatigue. He was able to increase considerably the carbohydrate tolerance by the injection of serum combined with treatment of lower bowel, but not with serum injection alone. The injections were withheld until the condition of the lower bowel responded to treatment, which was usually in from six to eight weeks. It would seem, therefore, that the musculature of the body is able to produce a carbolytic enzyme or sugar splitting body capable of taking care of the excess sugar in the blood, either by enzymotic or oxidative processes, the intramuscular injection of serum acting as an activating agent. No lasting result was obtained by muscle stimulation or exercise in diabetic patients themselves. The author attributes this to the facts that injection of a foreign serum produces an anaphylactic action which causes a revolution in the metabolic processes which cannot be produced by autoinoculation; and that the tolerance of the diabetic receptors being lowered they are not capable of receiving stimulation in the form of self-manufactured antibodies. He believes, therefore, that true diabetic glycosuria is due more to functional inability of the body to care for its carbohydrate content than an overproduction of sugar. He explains the action of the injections as follows: The muscles under stimulation and exercise produce paralactic or sacolactic acid, which is a product of fatigue. The glycogen in the muscles and excess sugar in the blood are destroyed by an amolytic enzyme activated by the injection of the serum, the glycogen being converted into sugar, lactic acid, and finally dioxide and water. In four cases Edgar has succeeded in causing the sugar to disappear entirely from the urine, the patients remaining aglycosuric up to the time of writing. The tolerance in all cases (20) is gradually increasing for carbohydrates and patients are gaining weight. He concludes by the statement that "diabetes mellitus is a sequel of chronic intestinal stasis."

The Journal of the American Medical Association.

March 29, 1919.

1. Genital Defects and Venereal Diseases Among the Porto Rican Draft Troops Herman Goodman.
2. An Operation for Varicocele. Wm. A. Angwin.
3. Hospital Standardization, with Special Reference to Medical Education Work in Hospitals. A. R. Warner.
4. The Basis for Compensation of the Soldier for Cardiac Disease. J. C. Gittings and Bernard Smith.
5. Bacterial Protein Injections in Influenzal Pneumonia. Dudley Roberts and Edward G. Cary.
6. Gross Pathology of Epidemic Influenza at Walter Reed General Hospital. M. W. Lyon, Jr.
7. Transduodenal Lavage in the Treatment of Postoperative Ileus and Other Surgical and Obstetric Complications. Max Ernest Jutte.
8. Subcutaneous Emphysema, with the Report of Several Cases, Particularly One with Very Extensive Generalized Emphysema. M. E. Alexander and E. C. Follett.
9. Magnesium and Cancer. Shigemitan Itami.

5. Bacterial Protein Injections in Influenzal Pneumonia.—Dudley Roberts and Edward G. Cary report the results obtained in a series of cases of influenzal pneumonia treated by intravenous protein injections. This series was undertaken after the failure of other therapeutic methods, including blood transfusion from recovered patients and the hypodermic administration of mixed influenza, pneumococcus and streptococcus vaccines. At first it was thought that by the use of mixed influenza vaccines given intravenously a specific immunity might be quickly established against what were considered the secondary invaders, the pneumococci and streptococci. It was soon found, however, that in spite of massive consolidation, good results were obtained when there was a definite reaction following the injection and the authors therefore came to believe that the results were dependent upon a "nonspecific protein" reaction. They felt, however, that the use of a vaccine made from the prevalent organisms was advisable and no observations were made with other forms of protein. A saline suspension of heat killed organisms was used, so that each cubic centimeter contained 100 million influenza bacilli, 100 million pneumococci, types I, II, and III; 100 million streptococci and 100 million staphylococci. The initial dose used was 5 c.c. and this was doubled daily until four doses had been given. Later they used 1 c.c. as the initial dose and regulated the succeeding doses by the amount of reaction. Reaction occurred as a rule about half an hour after the injection in the form of a chill accompanied by definite rise in pulse rate. Half an hour to two hours later there was rise in temperature of from 1 to 3 degrees; this rise was of short duration and might easily be overlooked. When the chill is over and the temperature falls there is definite improvement in the condition of the patient. Generally speaking, the best results are obtained when there is a sharp reaction but this rule is not without exceptions. Two series of cases of definitely established pneumonias were chosen without regard to the condition of patient on admission to hospital; some in each series were hopeless from the beginning and died within a few hours. In Series I, treated with expectant treatment, out of a total of 86 cases there were 27 deaths, a mortality of 31.2 per cent. In Series II, treated with protein injections, out of a total of 200 cases there were 19 deaths, a mortality of 9.5 per cent. Whereas the temperature usually re-

turned to normal by lysis, in the first series crisis occurred in 20 per cent. of the cases, and in the second series in 26 per cent. The authors point out that not only was the mortality reduced by the therapeutic procedure described but the course of the disease was materially shortened. They state that the idea of using injections of bacteria and foreign proteins in the treatment of disease was forced on their attention by the excellent results reported from the use of typhoid vaccines intravenously in the treatment of typhoid fever, and by the fact that equally good results have followed injection of other organisms. The use of proteins has been exemplified principally in the treatment of arthritis by typhoid vaccines. Apparently something happens as a result of the reaction following protein injections. Gay and Claypole have called attention to the rise in the leucocyte count; in the authors' cases this rise was transitory and varied in its maximum, the increase being polymorphonuclear and at no time eosinophilic. Various observers have seemed to prove that there is a higher agglutinin and lysin production in animals subjected to high temperatures; others have shown that the opsonin and lysin content of human and animal serum is definitely raised after the therapeutic injection of foreign protein. The authors state that they themselves have observed the most striking results in the prompt recovery of patients when the amount given was so small that a passive immunity was out of consideration.

Hermann concludes that "the intravenous injection of foreign protein serves as a stimulus for the liberation of specific antibodies in animals in which the previously injected antigen was unable to cause such a liberation." In other words, while the therapeutic injection is nonspecific, the antibody response is specific. Experience shows that the repetition of phenomena excited by the invasion of pathogenic micro-organisms, or their accentuation during the course of a disease, is frequently followed by striking clinical results. Much remains to be done to determine the most desirable kind of protein and dosage but the authors emphasize the fact that, apart from the dangers attending intravenous medication, the procedure is harmless. Bacterial vaccines commend themselves because they are always available in safe and convenient form and there is no danger of anaphylactic sensitization. The authors conclude that in influenzal pneumonia protein injections have a very definite therapeutic value and they are inclined to believe that the procedure will eventually come to be accepted as useful in a wide variety of infectious diseases.

The Lancet.

March 8, 1919.

1. Hunterian Lecture (in abridged form) on the Early Treatment of Compound Fractures and Other Severe Injuries of the Upper Limb. E. G. Slesinger.
2. The Hysterical Element in Organic Disease and Injury of the Central Nervous System. Lieut.-Col. Arthur F. Hurst and Major J. L. M. Symns.
3. Note on Detoxicated Vaccines. David Thomson.
4. Spirochetes in the Blood in Trench Fever. Alfred C. Coles.
5. The Lower Uterine Segment and Uterine Tendons. E. Hastings Tweedy.
6. Attenuation of Human, Bovine, and Avian Tubercle Bacilli. Lieut.-Col. Nathan Raw, C.M.G.
7. Some Experiments on Masks. H. Mason Leete.
8. Prophylaxis in Influenza. F. T. Marchant.

3. Notes on Detoxicated Vaccines.—David Thomson has conducted extensive researches on the removal of the endotoxins from the gonococcus and other organisms in order to procure non-toxic vaccines which could be injected in sufficiently large doses to develop a great amount of immunity. By a procedure which will be described in a detailed paper to be published almost immediately, he has succeeded in reducing the toxicity of most germs some 50 to 100 times, and whereas with ordinary gonococcal vaccine it was necessary to commence treatment with doses not exceeding 5 millions and gradually increase to a maximum of 250 millions, in acute cases it was found possible to administer 2500 millions of detoxicated vaccine of the same strains and increase the dosage to 10,000 millions. Doses even as large as this caused less toxic symptoms than small doses of the ordinary vaccine. To test the therapeutic value of detoxicated vaccine, three parallel series of complement fixation tests were carried out on gonococcal cases. Series A received no vaccine treatment and showed on the average three units of immunity acquired naturally in the course of the disease; series B, treated with ordinary gonococcal vaccine, showed an average of four to five units of immunity; series C, treated with large doses of detoxicated vaccine, showed an average of eight to twelve units of immunity. The therapeutic results obtained corresponded very markedly with the serological tests, the cases showing the highest degree of immunity recovering much more rapidly. The results of inoculation in normal individuals were then compared. It was found that in subjects who had never suffered from gonorrhea and who gave a complete negative complement fixation reaction, no complement deviating substances were developed in the serum after an injection of 100 millions of ordinary gonococcal vaccine, followed by 200 millions six days later, but that malaise and fever were produced. On the other hand, a dose of 5000 millions of detoxicated gonococcal vaccine induced the formation of sufficient antisubstances in the blood to give a double positive reaction, and a dose of 10,000 millions developed a triple positive reaction; moreover, the symptoms arising from the dose of 5000 millions were scarcely noticeable and no fever was induced. Experiments have also been carried out with detoxicated vaccines for the prevention and treatment of bronchial and nasal catarrh with very promising results. Thomson adds that the clinical evidence is increasingly convincing that the detoxication process will eventually revolutionize the whole subject of treatment by vaccines as well as that of preventive inoculation.

8. Prophylaxis in Influenza.—F. T. Marchant submits the results of experiments undertaken to determine the germicidal value of emanations from the essential oils. The surface of the agar in several plates was smeared with coli broth, covers were applied, and the plates inverted. A drop of oil was then placed in what was previously the lid, so that only the volatilised material came in contact with the inoculated agar above it. The plates were then incubated for 24 hours at 37 deg. C. Growth was present in the plates in which the following oils were used: Oil of aniseed, oil of cloves, oil of eucalyptus, menthol, camphor, alcohol. However, in those in which oil of cinnamon and cloves, alcoholic solution of aniseed, cloves, cinnamon, and formalin, or formalin alone was used there was no growth. From these findings it would appear that oil of cinnamon destroys, or at least inhibits, growth of the organism. This is also true of formalin. The germicidal power of formic aldehyde is generally recognized and in the form of compressed tablets it is in demand for throat infections. Marchant has found that the irritating effect of formalin can be masked by the addition of cinnamon, the resultant mixture being both pleasant and of greater germicidal effect than the formalin alone. The most satisfactory results are obtained by adding 120 drops of oil of cinnamon and 60 drops of formalin to an ounce of alcohol. If a few drops of this mixture be placed on a handkerchief the alcohol quickly evaporates, leaving a very pleasant odor with no appreciable irritation from the formalin. Tests were made of the germicidal action of this mixture in the way already indicated, two drops of the mixture being placed in four agar plates and a fifth being used as control. After 30 minutes' exposure to the action of the volatile oil no growth was found. Growth was present in the control. Further experiments showed the shortest time of effective exposure to be 10 minutes and that the cinnamon alone did not destroy the organism. In order to prove that the organism was destroyed after 10 minutes' exposure sterile broth was poured on to the agar in plate, which was then incubated at 37 deg. C. for 24 hours. The broth remained clear. Marchant infers that since the coli organism is destroyed by 10 minutes' exposure to an alcoholic solution of oil of cinnamon and formalin, the influenza organisms would also be destroyed and believes that this mixture applied liberally to handkerchiefs would prove a useful prophylactic measure. The emanations would permeate the whole of the respiratory tract and would therefore, Marchant says, reach distant parts into which an ordinary gargle or a throat lozenge could not possibly penetrate.

Western Medical Times.

March, 1919.

1. What Do You Really Know About Healing the Sick? Eli G. Jones.
2. Etiology and Diagnosis of Uritis. J. A. Fuller.
3. Feeding the Sick Child. L. J. Simonton.
4. The Significance of the Declining Birth Rate. J. G. B. Bullock.
5. Surgical Pathology of the Peripheral Nerve. Sidney M. Cone.
6. Methods of the Cancer Quack. R. O. Butterfield.
7. The Value of the "No Good" Malocclusion. Douglas H. Stewart.

3. Feeding the Sick Child.—L. J. Simonton thinks that too much importance has been given to the chemical side of the picture and not enough consideration given to the fact that we have in the case of the sick child either some underlying defect or perhaps "idiosyncrasy," and also to the fact that the fault lies not with the food, but rather the weakened powers of digestion as a result of a temporary upset from one cause or another. In the latter case it is foolish to try to decide whether fat, protein or sugar is at fault; the fault lies in the child's weakened condition. In order to get this digestion back to normal we need simply to weaken the food for a time, eliminate intestinal toxins and sterilize the bowel. If there is an idiosyncrasy to certain articles of food, Simonton prefers the term anaphylaxis to milk; for instance, use one of the proprietary foods containing dried milk, give vitamines in the form of orange on mashed potato, until the acute attack has subsided and bowel returns to normal, when such articles as two-minute egg, etc., may be added to the diet. Oftentimes these children, on return to normal, where no anaphylaxis exists, are then able to metabolize fresh cow's milk. The constitutional causes underlying ileocolitis, aside from anaphylaxis, are often scurvy and rachitis. In scurvy furnish vitamines. In rachitis lime in assimilable form should be administered. The object of the author is to render the bowel sterile and the routine procedure is to clean out the bowel with full tablespoonful of castor oil, followed with daily dose of tablespoonful of mineral oil. Give intestinal antiseptics; copper arsenate, 1/200 to 1/1000 gram every three hours will answer. To this may be added bismuth, to aid formation of sulphides in the stools, and a little digestive elixir if desired. As to deficiency lying in intestinal secretion, it is Simonton's belief that the "alexins" are responsible by their absence for primary anaphylaxis.

7. The Value of the "No Good" Malocclusion.—Douglas H. Stewart makes the malocclusion of teeth the subject of the article of his series of the value of the "No Good" articles. If the teeth do not close properly ill health is the result. If there was a space upon every history chart for malformations of the dome and upper jaw, then would doctors and dentists begin to realize how many, very many days of sickness may be forestalled by setting mastication right at the age of five years or thereabouts. These facts are well known, but of what use is that knowledge if it is to be shelved or passed over in silence? The ignoring of a basic fact like the great importance of the relation of a good mouth to bodily health in no way lessens the importance of the fact itself. Therefore, perhaps, one of the greatest benefits to mankind would follow from a public health service that insisted that every child of from five to seven years of age should have a mouth that is either in good working order or is put into condition. The great treatment for many diseases lies in forced or ample nutrition, but this nutrition at the developmental age of childhood depends more upon mastication than upon almost any other factor. A small amount of study would suffice to show that if the upper jaw is much distorted then every cavity in the head is also distorted, with the possible exception of the ear, the function of which is but too often ruined by a catarrhal process that never would have started were it not for the bad ventilation of adjoining cavities and their membranes. Why not consider malocclusion as much of a symptom as any symptom and by its removal render the removal of other symptoms possible? Is it because of this that a shut mouth and well chewed food are perhaps two of the greatest barriers to various forms of infectious diseases? Has it never occurred to anybody that the baby that is nursing with a well shaped mouth and feeding from a breast that occludes that mouth escapes a lot of things, including scarlet fever? And it may be readily discovered that the family with good teeth and well closed mouths are almost immune, as compared with a family of mouth breathers, who are usually found to be "calamity gatherers."

Berliner klinische Wochenschrift.

December 16, 1918.

Juvenile Arteriosclerosis.—O. Meyer studies several cases of arteriosclerosis in young men dying from the effects of this process and concludes, by the method of exclusion, that this is due to primary hypertension whose cause still remains to be discovered. This primary hypertension is the etiological factor of early arteriosclerosis. In all the cases of juvenile arteriosclerosis, Meyer says, there was a marked sclerosis of the kidneys.

Divers' Disease.—A. Bornstein describes disturbances complained of by divers when they suddenly reach a depth of a few yards. The difference of tension in the external media acting upon the body surface and the air contained in the trachea and bronchial tubes produces an intense congestion of the respiratory system, as well as an afflux of blood to the head, which is in relation to the air contained in the closed and rigid helmet.

Prostatic Syphilis.—Th. Cohn describes a chronic inflammatory affection of the prostate in a sixty-year-old subject, having a destructive tendency. The writer concludes that the lesion was syphilitic, although Wassermann was negative. Three injections of 45 centigrams each of neosalvarsan, followed by an Hg. treatment, resulted in a rapid improvement.

Münchener medizinische Wochenschrift.

December 10, 1918.

Studies on the Etiological Agent of Influenza.—A Binder and H. Prell describe with abundant detai groups of granulations which they were able to stain in histologic sections from subjects dying from influ enza. Each granule measured from 0.3 to 0.6 μ in diameter. The writers do not hesitate to offer thes granular bodies as the etiological agent of the grippe although they do not bring forward any culture o inoculation experiments to back up their statement However, they call this problematical organism *Ænigmoplasma influenzæ* Prell.

Examination of the Exanthema of Latent Typhu Fever and Malaria According to Weiss' Procedure o Observation of the Capillaries.—G. Zuelzer believe that he is able to recognize latent typhus fever by sim ply examining microscopically the cutaneous capil laries in the living. He thinks that the procedure ma thus have a considerable value from the viewpoint o epidemiology. He gives the differential characters o the exanthema of typhoid and typhus fever, illustrate by microphotographs. The cutaneous manifestation of malaria are also studied and illustrated by micro photographs.

The Fundamental Notions of Modern Science o Heredity.—H. W. Siemens formulates, in a paper i which clearness is the least conspicuous quality, th Mendelian laws of heredity. Riddled with neologism this theoretical contribution ends with a conclusio weighty in consequences, namely, that a race whos nationality falls is destined to disappear.

A Report on a Small Epidemic of Trichinosis.—V Eisenhardt has noted as symptoms of this affection marked lassitude, even attaining muscular impotenc a high temperature from the start accompanied b edema of the lids. Intestinal disturbances were les frequent. The writer has been able to verify the grea diagnostic value of eosinophilia (as high as 62 pe cent.), accompanied by an absolute polynucleosi Arterial hypotension was constant. Thymol in th dose of 50 centigrams, repeated every two or thre hours, appears to have given good therapeutic resul in Eisenhardt's hands.

Deutsche medizinische Wochenschrift.

December 12, 1918.

On Silver-Salvarsan.—F. Hahn appears to be in accord with other writers on the subject of silver-salvarsan. He attributes a remarkable efficacy to this product, as well as a great facility in its exhibition and an absence of any unfavorable effects. A total of sixty-eight patients received five hundred injections altogether; unsuccessful results were rare, although the subjects represented all types and stages of syphilis.

The Treatment of Tetanus by Injections of Antitoxin in the Lateral Ventricle.—Horneffer has injected antidiphtheritic serum in the lateral ventricles and under the dura-mater in two cases of tetanus. From 5 to 10 cc. were injected into the ventricle and from 10 to 20 cc. into the subdural space. In both cases an improvement was noted within twenty-four hours in one and and after several days in the second. At the time the injections were given the disease offered a distinctly bad prognosis.

Cardiac Diagnosis by Military Surgeons at the Front.—Dannehl maintains a somewhat personal opinion when he asserts, as he does, that soldiers with heart lesions, or those suspected of having cardiac lesions, should not be sent to special medical centers for expert examination. The danger of these special centers is the unfavorable psychic action on the men. Instead, the writer is of the opinion that the men should be placed under observation in camp from the viewpoint of their physical resistance as well as the cardiac compensation in relation to the existing lesions, etc.

The Psychology of Moral Insanity.—S. Kornfeld offers a series of psychological considerations which he believes he has derived from direct observation of cases. He reduces the syndrome of moral insanity to a primary fundamental deficiency, namely, a complete absence of the sense of fear. This deficiency of the psychological being brings about disturbances of a moral and affective nature, quite in contrast with the intellectual value, which is usually complete, in individuals afflicted with this mental process.

Gazette des Hôpitaux.

February 22, 1919.

Encephalitis Lethargica and Mumps Meningitis.—Grenet relates a case which occurred last June in a boy of fourteen years stricken in the midst of health with symptoms suggestive of meningitis. The parotids were swollen and tender and there was difficulty in opening the mouth. There was also a gingivitis. The diagnosis of meningitis complicating mumps was thought to be fully warranted. During the next few days the situation showed no marked change. There was some tendency to somnolence and lethargy, the boy remaining passive throughout. While the lumbar punctate was suggestive of meningitis there was a singular absence of headache and vomiting and in other ways the meningitis was atypical; and while the temperature, nuchal rigidity and Kernig gradually subsided, the boy did not improve in other respects and his somnolence and lethargy increased. Certain ocular pareses present from the first persisted. After a period during which it was becoming very difficult to nourish the patient, he rallied slightly and from that moment began very slowly to improve. Despite his youth and original good condition, slight bed sores had formed and healed. The lumbar punctate had become normal. After one month of illness the patient had regained control over his lips; he smiled and tried to speak, and in another day had regained his voice. The ophthalmoplegia still persisted. As the child entered the third month of his illness he was still unable to walk because of slight paresis of one leg, his voice was still unnatural and the eye movements still abnormal. By the sixth month he had nearly recovered, the only sequel of the disease being a taciturnity and lessened impetus to play. This case was quite isolated in the community and apparently the diagnosis originally made was not changed until attention had become focussed on lethargic encephalitis, whereupon a retrospective diagnosis of this affection was suggested. The multiple pareses of the facial muscles, which also extended to the larynx and extremities, and even the lumbar punctates were of the types seen in lethargic encephalitis. But what of the mild parotitis and the gingivitis? The patient had seven brothers and sisters and not one of these presented any symptoms of mumps, although such a highly diffusible affection, had it existed, must have spread to some extent, for not one of the seven children had had that malady. On the other hand, Netter, an authority on lethargic encephalitis, has reported that in some of his cases of the latter there was an initial sore mouth and swollen parotids, which should decide the entire question in favor of encephalitis.

Revue Médicale de la Suisse Romande.

February, 1919.

Defense Reactions in Pandemic Grippe.—Wanner alludes to the lack of defense by the economy which is the cause of the high mortality of the prevalent epidemic. Not only is defense reaction conspicuous by its absence, but therapeutically the profession has been unable to offer any substitute. An experienced clinician has said of grippe-pneumonia that once a patient contracts it he may survive or perish, but if he survive he owes nothing at all to treatment. Such fatalism, however, is dangerous, in that it leads to a let-alone policy and we must continue our search for a direct remedy. It is unfortunate that we cannot foresee the natural course of a given case of influenza and that we have nothing on which to base prognosis. This very peculiarity makes it almost impossible to state in a given case when a remedy has been of benefit. Statistics have taught us little, especially when the figures are low. Is it possible to divide grippe into types each with its own physiognomy and thus advance our knowledge? We can at least isolate several of the more deadly manifestations, for example, asphyxia, and let our knowledge accumulate. The facts are bizarre in the extreme. We saw much asphyxia in the summer, but not so much in the cold months. We have seen marked cyanosis associated with quiet, slow respiration, which may also be deep and sighing, and have been disappointed in finding no evidence of pneumonia. Subjectively there were oppression and burning under the sternum. The expectoration was frothy, red, and scanty. We know that in these cases there is congestion or edema of the lungs or perhaps capillary bronchitis. The slow, deep breathing is due simply to the need of forcing air into the alveoli. It is the breathing of the asthmatic or croupy child. Thus far we have been unable to add to this defense by the economy. The phenomenon of congestion is practically universal and betrayed by red face, hemorrhages from the various mucosae—for not only the respiratory, but the other functional systems are affected. It is a defensive phenomenon, but since it tends to cyanosis and asphyxia is often inefficacious. We have but one dependable remedy to ward off the latter and that is venesection. The immediate results are at least often strikingly good. Perhaps more important still is the toxic element present, which gives rise to many manifestations, because it attacks all the organs. In the blood we have leucopenia and without leucocytes in the blood in sufficient amount resolution of a pneumonia cannot take place. Certain principles which cause leucocytosis in health have been found of no value in grippe. An exception may be the fixation abscess used freely by Revilliod. Two cases are cited in which turpentine was used for this purpose and apparently with success, but the author fails to give the blood counts before and after. In both cases electrargol was also used, although when employed without the fixation abscess it seems to have been inert. Turpentine may be a source of danger, for it must be eliminated by the kidneys, but those who have used it in hundreds of cases have never seen accidents of this sort. In theory there may be other dangers, as infection, sloughing, etc. To sum up, the author would assist nature's defense by producing a leucocytosis by means of an early injection of electrargol and the establishment of a fixation abscess. This measure would deal effectually with the toxic element.

Book Reviews.

THE SURGICAL CLINICS OF CHICAGO. Vol. II, No. 4, August, 1918. Octavo of 204 pages with 110 illustrations. Published bi-monthly. Price per year, $10.00. Philadelphia and London: W. B. Saunders Company, 1918.

THIS number of the Clinics contains much less than the average of really interesting and important material. In fact, it strikes the reviewer as something akin to a combination of odds and ends sufficient to fill the required number of pages. There are thirteen contributors (an unlucky number quite suitable for this volume) and several of them are making their initial contribution to this series of volumes. Among the most instructive articles are McArthur's clinic on "Tumor of the Pituitary Gland," with description and illustrations of operative technique; Bevan's clinical lecture on a case of "Hemangioma of the Scalp"; Eisendrath's lecture on "The Acute Abdomen," covering conditions of the upper abdomen, those of the lower abdomen to be discussed in the next issue of the Clinics; Schmidt's clinical lectures on "Operative Treatment of Urethral Fistula" and "Technical Errors in the Operative Treatment of Urethral Stricture," and Hessert's clinical lecture on "Fractures."

LES PROJECTILES INCLUS DANS LE MÉDIASTIN. Par RENÉ LE FORT, Professeur adjoint à la Faculté de Médecine de Lille, etc. Prix, 11 francs. Paris: Felix Alcan, 1918.

THIS volume is devoted necessarily to radiographic diagnosis and is illustrated with seventy-five radiographs. The book is not entirely a product of the war for some of the material goes back as far as 1900. The actual number of military cases is thirty-nine, to which are added several cases of juxtamediastinal lesions and the antebellum material, both of the latter classes being very light. Thirty-two of the war cases were subjected to operation and recovered, while but two patients were lost. Prognosis after this sort of lesion has not yet been formulated. It was once understood that operation should not be practised unless the patient seemed in danger. The author's complete investigation of the physiology and pathology of the subject with his operative results have made intervention relatively benign. Operation must be performed under intermittent control by the screen, electro-vibrator, and other resources now in use. The type of operation depends on circumstances, but wide transpleural incisions give the best illumination and operating space.

LEÇONS DE CHIRURGIE DE GUERRE. Publiées sous la direction de CL. REGAUD, Professor à l'Institut Pasteur, etc. Prix, 9 francs. Paris: Masson et Cie., 1918.

THIS volume is the product of the collaboration of thirteen of the instructors of the Centre d'Etudes et d'Enseignement Médico-Chirurgicale. In civil practice the names are all famous, including those of Leriche, Jeanbrau, Guillain, Lecene, Nogier, Tissier, and others of equal prominence. The work should therefore possess unusual advantages. Tissier deals with bacteriology, Jeanbrau with blood transfusion, Nogier with radioscopy, Leriche with fractures and injuries of joints, Lecene with cranial wounds, and elsewhere with tetanus, Guillain with injuries of the encephalon. A feature of the work is the fact that these eminent men were all civilians before the war. No strictly military surgeons are concerned in the personnel. The selection of the men is due evidently to their experience as teachers and writers on surgery, medicine, etc.

AMBULANCE DE L'OCEAN (LA PANNE). Tome VI, Fasc. I, July, 1918. Travaux publiés sous la Direction de Dr. A. DEPAGE. Secrétaires de la Rédaction Dr. A. P. DUSTIN et Dr. G. DEBAISIEUX. Prix, 18 francs. Paris: Masson et Cie., 1918.

THE present number of this serial publication contains thirteen articles, of which eight have to do directly with ordinary war wounds. Lesions of the joints and abdomen are each the subject of an extended chapter. Other themes considered are cramoplasty, tetanus, elimination of microorganisms which have been injected into the circulation, pleurisy with cholesterin crystals in the exudate, and the fasciculation of the nerves. The number contains 352 pages and is richly illustrated. Seldom do we encounter such a number and variety of pictures, diagrams, and charts.

THE ORTHOPEDIC TREATMENT OF GUNSHOT INJURIES. By LEO MAYER, A.M., M.D., Instructor in Orthopedic Surgery, New York Post-Graduate Medical School and Hospital. With an Introduction by Col. E. G. BRACKETT, M.C.N.A., Director of Military Orthopedic Surgery. Price, $2.50 net. Philadelphia and London: W. B. Saunders Company, 1918.

THIS book is devoted almost exclusively to the orthopedic features of treating gunshot injuries; but, as Mayer points out, there is no sharp dividing line between what the general surgeon and the orthopedist should handle, each necessarily doing more or less of the work that might be considered to belong to the other's specialty. After a short introduction, the book is divided into two parts: Part I covering work at the front, Part II that at base hospitals. In Part I there are four chapters: Fractures and Injuries to Joints; Injuries to Nerves; Injuries to the Muscles, Tendons, and Cutaneous Tissues; and Transportation of the Wounded. Fractures and joint injuries are briefly considered and the proper fixation apparatus indicated in more or less of a general way. In the chapter on nerve injuries the symptoms of injury to the principal peripheral nerves are given somewhat in detail, for Mayer considers the neurological examination important even at the front, since he thinks the treatment of nerve injuries should begin as soon as the patient reaches medical hands, and proper splinting is as essential for the injured nerves as for the fractured bone. The immediate treatment of nerve injuries is then outlined. In the treatment of injuries to muscles, tendons, and cutaneous tissues two principles must be followed: (1) prevent contractures; (2) seek to maintain function of the injured structures. The two pages on transportation of the wounded are largely taken up by illustrations and are very unsatisfactory. Even in peace times the problem of transportation of the wounded, by gunshot and other traumatic agents, is always with us and should have been dealt with somewhat in detail if at all.

Part II, occupying about three-fourths of the book, is divided into the following chapters: The Treatment of Bone Injuries; Joint Injuries; Contractures; The Treatment of Nerve Injuries; Injuries to Tendons and Tendon Operations; and Treatment of the Amputated. There is also a final chapter on The Aims and Organization of the Orthopedic Reconstruction Hospital. In the treatment of bone injuries non-operative methods of restoring continuity and correcting angulation are first taken up, then the operative, this latter applying especially to the cases of vicious and nonunion, Albee's operations being recommended for this class of cases. The treatment of joint injuries is pointed out under varying conditions, such as with and without infection, ankylosis, etc. The proper methods of handling contractures in various regions are briefly discussed. The question as to when to operate on nerve injuries is still *sub judice*. Mayer has formulated the following rules: "(1) When the symptoms of a nerve lesion are progressive, operate at once. . . . (2) If the symptoms are regressive, do not operate. . . . (3) In other cases, where there is no change whatever in the extent of the paralysis or of the sensory symptoms, wait until the wound has healed, and then determine on the basis of the anatomical course of the nerve and the direction of the bullet whether there is a strong probability that the nerve was directly injured by the passage of the projectile. If so, operate; if not, wait still longer." The technique of operation on the various peripheral motor nerves and tendons is given at considerable length. The chapter on the treatment of the amputated is very interesting, not only because of the technical points presented, but also through the discussion of apparatus for the upper and lower extremities and the development of prosthetic appliances so that the patient can work at various trades.

The book contains much information of value to those who have to do with reconstruction work. It is particularly strong on the symptomatology, diagnosis, and treatment of nerve injuries and on the technique of tendon operations.

Society Reports.

INTERNATIONAL CONFERENCE ON REHABILITATION OF THE DISABLED.

(*Concluded from page* 588.)

SEVERAL important and instructive papers were read concerning medical service in relation to rehabilitation.

Lieut.-Col. F. MCKELVEY BELL, Director of Medical Service, Department of Soldiers' Civil Reestablishment, Canada, discussed medical services for discharged Canadian soldiers. Colonel Bell described somewhat exhaustively the methods in vogue in Canada, from the medical point of view, for dealing with discharged soldiers in Canada. He said that the measures employed had met with a great deal of success, inasmuch as the majority of these men improved under treatment. The figures were very satisfactory; 64 per cent. either recovered or improved in sanatoriums. Tuberculosis is the disease from which they mainly suffer. Bell suggested that colonies be established for those who cannot do continuous labor, and that industrial colonies should be founded for feeble-minded epileptics and for sufferers from such types of mental disabilities. He was of the opinion that occupational therapy and its intelligent practice has been and is responsible for keeping down disease among returned soldiers. Out of 500,000 Canadians who served under the British flag there were only 100 incurable cases. In Canada it matters not whether the disabilities of a soldier have been incurred directly from the war or indirectly, all are treated and looked after medically and surgically. After a man has been medically examined and passed as fit it is considered that the Government is responsible for his welfare, so far as medical service is concerned. All ex-soldiers for one year after discharge are given medical treatment, whether the injuries or diseases occurred or were contracted while they were still in the army or not. Bell spoke in the very highest terms of the benefits derived from the employment of occupational therapy.

Dr. G. W. GRAHAM, Vocational Medical Adviser for Ontario, Department of Soldiers' Civil Reestablishment, Canada, dealt with the sphere of the medical adviser in Canada. He especially dealt upon the fact that the vocational officer must be endowed with tact and sympathy, as without the employment of these attributes his services will be bereft of much of their value. Also, and this is an essential point, the vocational officer must use great discretion in putting men to a retraining regimen; that is, he must be able to select or advise the man to undertake retraining for that trade or handicraft which is best suited to him. In order to be able to do this satisfactorily the vocational officer must be a good judge of character, and likewise must possess a considerable knowledge of the various trades and handicrafts. It must be borne in mind that the future success of the retrained man depends very largely upon the vocational officer. The pre-war occupation of a man must be taken into account. Before a final decision is come to as to the choice of a trade or handicraft the soldier should be referred to a specialist, so that as little room is left as possible for error as to choice of vocation.

Dr. DONALD A. KINGSTON, Vocational Medical Adviser for Montreal, Department of Soldiers' Civil Reestablishment, Canada, pointed out that frequently diagnosis of a man's disability is extremely difficult. A man may be suffering from a hidden disability which will tax the knowledge and skill of the medical advisor to the utmost to discover. Also Kingston drew attention to the fact that the war changed the mental attitude of a man profoundly. Men of the age of forty or thereabouts return from the front old men. A man who has been often close to death views life from altogether another aspect than one who has never undergone such an experience. The one who has been "over the top" many times comes back in an indifferent state of mind. He is inclined to think that nothing matters much. In short, he has lost the perspective of the civilian and he will be long before he regains it, if ever he does wholly. In addition, the returned soldier is to some extent an irresponsible being. His not to make reply, his not to reason why, his but to do or die. In addition to not being master of his actions, he is so carefully looked after by officers when in the ranks and so cared for, even pampered, when sick, that he loses the independence that he used to possess when a civilian. All these points then must be taken into consideration by the vocational officer in dealing with the returned soldier and render it necessary that, in order to obtain the best results, the vocational officer must himself be possessed of special characteristics, of which the chief are tact, sympathy, and infinite patience.

Dr. C. B. FARRAR, Psychiatrist, Medical Branch, Department of Soldiers' Civil Reestablishment, Canada, gave an address on the rehabilitation of those having nervous and mental disabilities. Dr. Farrar criticised the vague manner in which the nervous affections are grouped. Of the chronic, obdurate, difficult cases of neurosis, these is an underlying condition which is fundamentally constitutional. Instead of regarding only the superficial symptoms of nervous disability, we should analyze the condition; it will then be found that not more than 50 per cent. of these are, strictly speaking, cases of neurosis. Many of them are borderland subjects, who were passed into the army when men were badly wanted and when rigid examination was somewhat neglected. They are cases of emotional instability, psychopathic inferiority, but not mentally defective. In the opinion of Farrar, cases of dementia precox among returned soldiers are more common than those of all the mental diseases put together. Neurosis of primary origin and dementia precox supply four-fifths of all types. Eligibility of subjects of nervous disabilities for vocational training is not very great; vocational training plays very little part in purely mental cases. Farrar stated, what is very true, that the entire question of mental invalidism has attention focussed on it now as never before. Treatment, too, is under criticism, and indeed views on the whole subject of mental invalidism are undergoing revision.

Dr. ANDRÉ TREVES of Rennes, France, gave a brief paper dealing with medical service in relation to rehabilitation in France. He said that the French Government provides all discharged soldiers with free medical treatment. Just as it has been decided to provide the disabled with prosthetic appliances for the duration of his life, so a sick or wounded veteran is entitled to demand from the State free hospital treatment when such treatment is necessitated by a wound or by disease contracted in service. For example, a man has a fistula develop in his old wound, or a fractured bone with or without grafts breaks again in the old place as a result of some injury, or a man has contracted malaria or tuberculosis in the army and has been pensioned for it and is overcome by the disease—all such cases are entitled to free treatment and hospitalization. In respect to whether a disease is attributable to the war or not, the pension law is very liberal. It admits a presumption in favor of the man and his right to a pension for every illness contracted after sixty days' service, and, of course, by this very fact a man is entitled to free treatment for the sickness which occasioned his discharge. Naturally, the right can only be claimed for the wounds or disease which rendered the man unfit for service and thereby caused his discharge. If a soldier disabled in the arm breaks a leg or becomes tuberculous, the State is in no way responsible.

Referring to the French Departmental Committees which are analogous to the Local War Pension Committees of Great Britain, Dr. Treves pointed out that these committees send to the mayors of all the communities in the department questionnaires which the mayors are expected to fill out by giving the name, address and disability of all the discharged soldiers in the commune. They are also asked to state in each case whether the man is working and whether he has need of medical treatment or of trade training. Inspectors who are chosen from wounded officers and are attached to the departmental office go through the communes to verify the reports submitted by the mayor, get into touch with the discharged soldiers, and look into their needs. They may organize lectures of propaganda for reeducation and give to those interested all useful information about admittance to a reeducational school. All discharged soldiers are entitled to attend a reeducational school without cost to themselves.

In the section devoted to a consideration of the rehabilitation of the tuberculous the question was discussed on March 20. The first paper read was by Captain J. Roddick Byers, Medical Superintendent, Laurentian Sanatorium, Ste. Agathe des Monts, Quebec, Canada. Occupational therapy was introduced by Captain Byers for tuberculous Canadian soldiers in 1916. At the beginning physical therapy, that is, mechanotherapy and so on, was by no means popular and 48 per cent. of the men refused such treatment. It was then decided that something must be done to render these methods popular and vocational therapy was given a trial. It has become so interesting that the men are especially keen about it and every kind of vocational therapy is followed almost with avidity, all the classes being constantly filled. The system is commenced whilst the patients are in bed by knitting and so on and the modes of employment become more strenuous as the strength of the disabled increases. All kinds of vocational occupation and reeducation are carried on, drawing, engineering, engraving, typewriting, carving, languages taught, agricultural work, gardening. The results have been eminently satisfactory. More than 900 soldiers have passed through the institution and of these only twenty-four have died. Before leaving the sanatorium the candidates for discharge are subjected to somewhat severe physical tests in order to show as far as possible whether they are in a good physical condition. Captain Byers' address was illustrated by a large number of pictures on the screen depicting the patients in the different stages of occupational therapy.

Mrs. Ethel Wood, Secretary Local War Pensions Committee, spoke of the problems of the tuberculous soldier in Great Britain. She said that the problem of tuberculosis in Great Britain has increased enormously since the commencement of the war. Mrs. Wood referred to the effect of tuberculosis on the mental attitude of the returned soldier, saying that his mind is tinged with bitterness and that he is very impatient of restraint. She also said that in London the men dislike intensely the open-air treatment. Of course, for the good of his family and the community it is necessary to isolate those who have the disease in an advanced stage. The author drew attention to the well-known fact that it is almost impossible to make those who have been treated and are sufficiently recovered to be discharged understand that they must take precautions when at home. The British War Pensions Committee has provided separate beds and sometimes separate rooms for certain cases. Mrs. Wood emphasized the point that the atmosphere of hospitals for the treatment of tuberculous soldiers in London is highly depressing.

Col. George E. Bushnell, Medical Corps, U. S. Army, retired, described the Surgeon General's program for the care of tuberculous soldiers. He said that tuberculosis has been practically eliminated from the American army in France; that large hospitals for the treatment of tuberculous soldiers have been established in different parts of the country; that in all about 7,500 beds for such cases have been provided. Statistics as to results have not yet been compiled and collated, but so far as can be judged up to the present time, the effects of treatment have been favorable. Colonel Bushnell did not appear to be quite so enthusiastic with respect to the beneficial results of exercise in tuberculosis as are some. He thought it was better to go too long in the direction of rest than to give exercise too soon. Moreover, decision as to these points must be left to the physician and not to the reconstruction officer. Also while undoubtedly the psychological influence of exercise and occupational therapy counts for much, it is not wise to exaggerate this importance. He pointed out that the tuberculous patient is notoriously untrustworthy in his statements respecting his condition. He is generally unduly optimistic and what he says concerning his feelings must be largely discounted.

Dr. Bayard Crane of Rutland, Mass., discussed vocational work for the tuberculous. He laid emphasis on the fact that there is a type of tuberculosis which lies between the acute cases and the incipient, a chronic fibroid infectious type. Persons suffering with this kind of tuberculosis are not prone to die quickly and yet in every way they are misfits hygienically, economically, and socially. These unfortunates should be given a chance both for their own sakes and for the sake of the community. Dr. Crane holds, and his belief has been successfully tested by experience, that such people are best adapted for life in an industrial sanatorium or colony. They should be given whatever work is best suited to them. In this way an industrial sanatorium or colony is of great service therapeutically and economically. Dr. Crane, therefore, suggested for returned soldiers and sailors afflicted with tuberculosis, and especially for those with disease of a chronic semi-active type, industrial and agricultural colonies.

Capt. Edwin A. Baker, M.C. (Croix de Guerre), Department of Soldiers' Reestablishment, himself blinded in the war, gave an address on the after-care of blinded soldiers of the Canadian forces. The address dealt principally with the evolution and development of the methods of reeducating the blinded in war at St. Dunstan's House, London, rendered possible by the munificence of Sir Arthur Pearson. All of the first blinded Canadian soldiers underwent training and retraining at St. Dunstan's House. A few reached Canada without training and are being trained at the Military School, Hart House, Toronto. The methods used there are the same as those employed at St. Dunstan's House.

Dr. André Treves read a paper dealing with agricultural readaptation of the disabled in France. Of these 60 or 70 per cent. were farmers. The disabled numbered considerably more than half a million, so that the problem in France of how, with a stationary birth rate and with deplorable lack of healthy adults, properly to till the land, is more difficult of solution by far than in the other Allied countries. Even before the war congestion in the French cities was beginning to attract attention and, of course, at the present time the conditions unfavorable to working on the land are greatly intensified. France needs all her farmers, however much they be crippled, and, therefore, the energies of her surgeons are mainly directed toward rendering crippled farmers fit to work on the land. As Dr. Treves pointed out, difficulties which are reduced to a minimum for amputations below the knee are carried to the other extreme for thigh amputations, particularly when the stump left is very short. Before they are allowed to commence work they are fitted with a temporary appliance with what is known as a farmer's shoe or sabot, made as nearly as possible to the shape of the normal foot. There is also a large, round end with a leather shoe to obviate sinking into the soft ground. The large, round end can be fastened to the appliance instead of the ordinary rubber covered one, or it can be made adaptable to the rubber one. Property owners, farmers or agricultural laborers usually go home while their permanent apparatus is being made, and it is found that nearly all work in the fields.

For a long time these men made little use of their second and permanent appliance, because they preferred the ordinary wooden leg, but some of those now see their mistake. The American leg with which they are supplied, with a large sabot interchangeable with the better looking foot and ankle, has a contrivance by which they can work on their knees if they so desire.

For men with arm amputations the difficulties appeared at first insurmountable. The greater number of those who were equipped with apparatus during the first year of the war were lost to agriculture. Nowadays, with the improvements that have been made these men can adapt themselves to work quicker even than those with disabled legs. The progress in this matter is due entirely to the improved apparatus. Dr. Treves described the vast improvements that have been devised in tools fitted to the artificial limbs, so that men disabled or crippled, by aid of one or other of these improved apparatus and tools, are enabled to do almost any kind of agricultural work.

The account given above of the International Conference on Rehabilitation mentions but a tithe of the papers read. Owing to the lack of space, only the papers and addresses referring to surgical and medical matters have been discussed and even a good many of these have necessarily been passed over.

The meeting was in a way epoch-making and, of course, was the largest of its kind and most international in character ever held in this country and in the world. Undoubtedly it has done much good. The great lesson learned from the papers and discussions is that physical therapy has a remarkable curative and remedial value, a value not as yet appreciated at its full worth. Whether occupational therapy is more beneficial than mechanotherapy is a moot point. Both methods possess obvious merits and it is probable that Dr. Tait McKenzie is correct in saying that both should be employed according to the discretion of the surgeon in charge. The lesson learned through the war with regard to apparatus and tools for the disabled reeducation, and so on will be of the greatest service in civil life.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held February 18, 1919.

DR. EDMUND P. SHELBY IN THE CHAIR.

Dr. EDMUND P. SHELBY, in introducing Dr. Shively, recalled that Dr. Henry L. Loomis made the first attempt to induce artificial pneumothorax at Bellevue Hospital, and with most disastrous results. It was thought at that time that the method held little promise of relief for the sufferer from advanced tuberculosis; however, during the last seven or eight years the method had come into more general use and was giving much better results than were at first expected. It was largely due to the efforts of Dr. Shively that artificial pneumothorax held the place it now occupied.

Treatment of Advanced Tuberculosis of the Lungs by Artificial Pneumothorax.—Dr. HENRY L. SHIVELY presented this paper, in which he said that in addition to the hygienic measures, which could usually be carried out in a well conducted sanatorium, there were, he believed, but two really important curative measures in the treatment of pulmonary tuberculosis. These were the administration of tuberculin in selected afebrile cases with good resistance who had not obtained an arrest of their disease by the ordinary hygienic methods, and artificial pneumothorax for certain far advanced cases. It was the one thing that was unusually successful in combating an otherwise hopeless condition. Anyone with even three-fourths of a lung functionally capable might get along fairly well through a long and useful life, and it was upon this fact that the treatment by induced pneumothorax was based. It had long been a matter of observation that pleural effusion might have a favorable effect upon a tuberculous lung. It was an interesting fact in the history of the method that one of the pioneers in the development of the pneumothorax treatment was the distinguished Chicago surgeon, Murphy, who, in 1898, advocated and practised pneumothorax. It was eminently fitting that a surgeon should have contributed to the development of the idea, for the treatment was founded on the old and well-known surgical principle of immobilization and rest for a diseased organ. The application of this method to a diseased lung was not so simple and easy as in the case of a diseased joint, but the principle was the same. As to the indications for and limitations of the operation, it was formerly, and was sometimes still, urged that the treatment should be used only for patients in whom the disease was practically confined to one lung. It was not often, however, that one saw advanced tuberculosis in which some evidence of the disease might not be detected in both lungs. Some of the most brilliant results of the pneumothorax treatment had been in patients having a considerable involvement of both lungs. Here, as in every case of tuberculosis, the treatment should be individualized and based upon a rational study of the patient by all the ordinary methods of examination, including *x*-ray plates and the fluoroscope when possible. Cases most suitable for collapse therapy were those which had been thoroughly tried out and had failed to respond to other methods of treatment, who had active and progressive disease or a cavity in the top of one lung, with the other lung relatively sound, who were febrile, and losing weight. After a few injections in this unfavorable type of tuberculous patient, the temperature might drop to normal, the cough and expectoration be reduced by one-half or more, and the morale of the patient completely changed. The results were often life-saving and astonishingly brilliant in hemorrhagic cases. As the writer's experience with the method had increased he felt that there were fewer contraindications to a trial of pneumothorax than we had hitherto believed. Obviously moribund and incurable cases were to be excluded, and one would hesitate to apply the treatment to cases with grave complications, such as diabetes, advanced nephritis, intestinal tuberculosis, organic disease of the heart, tuberculous kidneys, and perhaps severe tuberculous laryngitis. He felt sure that the patient, if not permanently relieved, was often made more comfortable and his life prolonged by the treatment. When a cavity was present in a lower lobe the case was less favorable for treatment. The complications seen and the rare accidents reported were so infrequent that they could not count as a factor in determining a trial of pneumothorax in suitable cases. In five out of fifty of his cases he had had a pleurisy with effusion, which was a frequent complication noted by all who had used the treatment extensively. Aside from a reduction in the amount of gas possible to introduce on account of the bulk of the fluid, this complication had never seemed of much importance. The site chosen for the introduction of the needle was determined by a careful physical exploration of the patient's chest, by percussion and the stethoscope, and also the fluoroscopic and *x*-ray plates. In a number of cases in which the patients were too ill to be removed to an *x*-ray laboratory for examination he had not hesitated to make use of the treatment without preliminary *x*-ray examination. Cavities, adhesions, and thickened pleura were to be sedulously avoided, and an effort made to select a spot where the percussion note and the breath and voice sounds approximated most closely to the normal. The flow of gas should never be attempted until the readings of the manometer tube, wide oscillations with negative pressure, indicated beyond the possibility of a doubt that one had entered the free pleural cavity. Dr. Shively said he had never been able to understand why some writers advised arbitrarily limiting the amount of gas to 200, 300, or 400 c.c.; if the patient took the gas well he saw no reason why all of the gas that could be introduced without harm to the patient might not be given at the initial treatment. Dyspnea, rapid heart action, or pain should cause the cessation of the flow of gas, irrespective of the amount introduced, which in all cases would depend upon the subjective symptoms and objective signs during the administration. After the first few treatments the patient should have a rest in bed and careful observation, but later in many cases the gas might be administered as a part of the office treatment. The gas was usually absorbed more rapidly at first than after a number of injections had been given. A number of different gases had been employed in peumothorax. In practice it had been found that sterile nitrogen, on account of its being less rapidly absorbed than other gases experimented with, was the one to be usually preferred. At the Loomis Sanatorium and several other institutions in favorable climatic situations, atmospheric filtered air had been used with success. The disadvantage of this was its more rapid absorption. During the past three years the writer had employed the pneumothorax treatment in fifty cases, all of them in the far advanced stage of the disease, not more than ten of which were without cavities of considerable size. In twelve of these cases very good permanent results were obtained. In six the effects of the treatment might be considered somewhat spectacular, as, for instance, one patient who received twenty injections, lost her fever, cough, expectoration, and bacilli, gained 56 pounds, and had been apparently well for a year and a half.

Dr. S. ADOLPHUS KNOPF said that although a great deal had been learned that night about artificial pneumothorax, he considered that it was still in the experimental stage. There was no doubt, however, about its being a valuable means to improve certain cases of advanced tuberculosis, and a great help in uncontrollable hemorrhage. In advanced cases the difficulty in employing artificial pneumothorax was getting into the pleural cavity. Most advanced cases of pulmonary tuberculosis had many pleuritic adhesions. It was important to bear this in mind and to tell the patient of

the possibility of failure before undertaking the operation of artificial pneumothorax, so that he might be prepared in case it was impossible to enter the pleural cavity.

Dr. FENTON B. Turck said he spoke because Dr. Murphy was his former chief at the time he was carrying out these experiments on artificial pneumothorax, and one of the first cases they had was an abscess of the lung which was cured by his method of treatment. After this came the development of the use of nitrogen in tuberculous cases, and it was based on the idea of bringing together two edges of a wound. Dr. Murphy's great work was to bring tissue together to produce rapid healing. The bringing together of wounded surfaces and immobilization was the conception Dr. Murphy held at that time. One other point to be considered in these cases of advanced tuberculosis was the ravage of the tissues, which was not so much due to the tuberculous infection as to the products of necrosed tissue, these products causing more rapid results than the infection itself. Therefore in this connection it should be remembered that we were dealing with the autolyzed products of the tissues themselves. Working on this theory, he had in many cases in which there was the phthisis habitus used an antitoxin made by injecting human lung tissue into a horse to produce a serum. All were familiar with the results of foreign protein injections in stimulating bodily resistance and the use of the lung tissue served to give the protein the additional value of specificity. There were problems which were of very great moment in medicine in connection with tissue autolysis, and among them was the relation of tuberculous infection to tissue destruction and the effect of artificial pneumothorax in limiting tissue autolysis.

Dr. ALFRED MEYER asked if he had understood Dr. Shively to say that he would exclude diabetics as unsuited for the artificial pneumothorax treatment. He had taken that point of view originally and had hesitated several times to perform pneumothorax on patients having diabetes, but he had had an experience at the Polyclinic Hospital that had led him to change his views on this point. He had performed pneumothorax on a patient with a high percentage of sugar and acetonuria, with a bilateral pulmonary involvement and hemoptyses with brilliant results. This patient lived some years afterward. The immediate results of artificial pneumothorax were a fall in the temperature and relief of hemoptyses. He knew that he had prolonged the life of other patients with diabetes complicating tuberculosis by pneumothorax, and these experiences had made him feel that we should not exclude diabetics with pulmonary tuberculosis from the possible benefits of pneumothorax. Dr. Meyer said he was glad Dr. Shively had mentioned the value of manometric readings. Forlanini had finally been won over to the importance of taking these readings. The fact that Dr. Shively had followed this rule was probably the main reason he had had so few disastrous results in applying the treatment.

Dr. SHIVELY, in closing the discussion, stated that as to the treatment of lung abscesses, not associated with tuberculosis, by artificial pneumothorax he could only say that his experience had been limited to tuberculosis cases, but in a review of the literature he had seen a number of brilliant results reported from the use of pneumothorax in non-tuberculous abscesses, and this was one of the fields in which the procedure was being extensively used. The reason he had not touched upon this point in his paper was because the subject was so large that it was difficult, indeed impossible, to cover that part of the subject related to tuberculosis in a brief paper. In reference to the use of pneumothorax in diabetics, he did not mean that it was to be absolutely excluded. Among his cases in which pneumothorax was used were some of intestinal tuberculosis and Bright's disease complicating the pulmonary tuberculosis, but the point he wished to make was that in such cases one should not expect to get as good results in uncomplicated advanced pulmonary tuberculosis.

Some Lessons of the War.—Dr. JAMES ALEXANDER MILLER, speaking informally, reviewed the situation as regards tuberculosis among European nations at war, going over the ground covered in a recent address before the New York Academy of Medicine. (See MEDICAL RECORD, Feb. 8, 1919, p. 255.) He emphasized the lessons drawn at that time, namely: (1) The experience of the army indicated that there was less hazard than supposed in hard physical exertion and exposure, as regarded the breakdown of resistance to tuberculosis, provided these conditions were combined with open-air life. (2) There was relatively infrequent development of pulmonary tuberculosis as the result of exposure to poisonous or irritating gases and of chest wounds. (3) Following the system developed in the American army of rapid and systematic chest examination in the elimination of tuberculosis suspects, large groups, especially industrial workers, could be detected early. (4) Food was an important factor in increasing mortality from tuberculosis, and the effects of long continued malnutrition were cumulative. (5) The tuberculosis situation in France and England and its analysis as an industrial condition among young women would indicate the importance of the place in economics of industrial hygiene. Systematic supervision of working conditions should go hand in hand with home supervision and sanitation of workers. (6) Two phases of the experience of the Tuberculosis Commission in France possessed value for adaptation to the general tuberculosis problem; they were the organization of educational propaganda and the training of health visitors for tuberculosis and child hygiene. (7) The last suggestion presented by the war was that of reeducation and vocational training for the tuberculous.

Dr. MAURICE FISHBERG said that this was the second or third time he has listened to Dr. Miller's experiences in France and he had learned more from him as regards certain etiological factors of tuberculosis than he had for many years before. When we entered the war a scare cry was spread as if tuberculosis were the main menace. But this country was very fortunate in selecting two rational men to handle the tuberculosis problem during the period of the war. Colonel Bushnell, whose admirable work in the army was known at present all over the world, at once allayed the apprehensions of the alarmists. The Red Cross was equally fortunate in sending Dr. Miller to France to handle the problem among the civilians in that country. At the beginning of the war we were in imminent danger of sending "literature" and sputum cups to the trenches, as was, in fact, suggested by one well-known writer. But Dr. Miller, as well as Colonel Bushnell, acted differently. In May, 1915, Dr. Fishberg stated that he read a paper before the Academy in which he pointed out that the menace of tuberculosis was negligible, and that in no war of which we had any historical record had tuberculosis been found to present an important problem. This point of view aroused considerable criticism. Now Dr. Miller's report about conditions in France fully bore out the speaker's contentions in 1915. In fact, it appeared from Dr. Miller's remarks that thus far the country had been called upon to care for several hundred cases of tuberculosis among an expeditionary army of over two million in France. The National Tuberculosis Association had prepared to care for several hundred thousand. A peculiar feature of the problem was that the slight increase of tuberculosis during the war had been noted among non-combatants, especially among women. It had also been noted in non-belligerent countries to the same extent as in warring countries, all of which went to show that it was not directly warfare that was responsible, but probably the increase in the cost of living all over the world. Dr. Fishberg spoke of the excellent work done by the selective draft boards, and pointed out that signs of slight pathological changes in the thoracic viscera did not always mean tuberculosis. Many ex-patients of sanitoriums had made excellent soldiers and in Europe it had been found that even positive sputum did not always mean that the subject was unfit for military service.

Dr. BRUNO S. HOROWITZ said he had listened to Dr. Miller with great interest because of his own work in the army service, which was that of Special Tuberculosis Examiner. He was gratified to hear that so few cases of tuberculosis had developed among the men sent to France, as it showed the success of the rapid three-minute examinations used in the army. It was

surprising how much could be accomplished in so brief a period of time, if the method developed by the Section of Tuberculosis under the direction of Colonel Bushnell were properly employed. The examiners were urged to make a diagnosis upon the physical findings, if possible without recourse to bacteriological examination or observation in a hospital ward.

Dr. MILLER said he did not wish to have any misapprehension in regard to the work he had done on the Commission. Dr. Livingston Farrand had had charge of the work and deserved a great deal of credit for the diplomatic way in which he had handled the situation, and it was only right that all should know that it was due to his successful leadership that they had been able to accomplish what they did. The Red Cross was to be congratulated in having secured Dr. Farrand's services as director of its peace public health program. The medical profession should help the Red Cross in the campaign it was about to undertake to the end that the best results might be attained.

Dr. KNOPF said the statement of Dr. Miller that there were now about 6000 tuberculous soldiers in this country was absolutely correct. In the *American Journal of Public Health* for February, 1919, the statement was made that there would be 13,000 tuberculous soldiers and sailors in this country by 1920, and because there were already 5000 cases of tuberculosis among the military population, the United States Public Health Service was demanding from Congress an appropriation of $26,000,000 with which to build a chain of tuberculosis hospitals all over the country. The sum of $10,000,000 has been requested immediately to care for existing ones. It was planned to erect these hospitals on Government property.

Prevention of Relapses in Cases of Arrested Tuberculosis Among Soldiers.—Dr. S. ADOLPHUS KNOPF presented this communication, in which he declared that we should be just as eager to cure thoroughly, carefully, and lastingly the unfortunate soldiers who had contracted tuberculosis in the performance of their duty, and to re-establish their earning capacity, as we were to cure and rehabilitate those wounded by shell or shock. He described the precautionary measures employed to prevent the entrance of tuberculosis into the army and said that in spite of these there was a certain number of soldiers who had returned or were returning to us invalidated because of tuberculosis. To provide for these men eight hospitals, with a capacity of 8000 patients, had been constructed and were now in operation. The Government had announced its intention of caring for tuberculous soldiers until they had recovered or had made as complete recovery as was to be expected. Relapses from tuberculosis in the civilian population, particularly among the working classes, presented a most difficult medical and economic problem, but when it affected the soldiers and sailors, young men between twenty and thirty-six years of age, representing the flower of the manhood of the nation, it was all the more serious a problem. In his paper on "Blinded Soldiers as Masseurs," read before the Conference on Rehabilitation of the Wounded, September 20, 1918, he had endeavored to throw out some suggestions as to the possible solution of this problem, and the present paper presented a somewhat more elaborate study of the various phases involved and a description of some therapeutic methods whereby it was hoped to reduce the number of relapses among tuberculous soldiers and sailors and if possible shorten the time necessary to attain a reasonable security against any recurrence of the old trouble. While absolving the sanatoria and health resorts from all blame, Dr. Knopf stated that there was no denying the fact that a great number of patients returned home with the label "arrested case," whose muscles were flabby from the prolonged rest cure on the reclining chair, and whose respiratory system had become indolent because they could not and should not breathe deeply while their lesions were active. Very often the excellent climatic conditions which prevailed in sanatoria and health resorts had tended to increase their sensitiveness to atmospheric changes and not heighten the resistance to the invasion of pneumococci and the minor respiratory infections, all of which tended to reawaken an arrested tuberculous lesion. . Add to these the disturbing factors of the toxins (fatigue poisons), produced by overworked flabby muscles, and one need not wonder at the frequent relapses. In some institutions hydrotherapy was employed and this, after all, was the best means to fortify the circulatory, cutaneous, and nervous system against atmospheric changes and the invasion of microorganisms through the respiratory system. The same things might be said of that important part of our armamentarium for the treatment of numerous diseases in modern as well as ancient medicine known as massage, and so sadly neglected by most of us in the management of our tuberculous cases. The writer quoted from other authorities to show that in holding this opinion he did not stand alone. In his hospital practice in the City of New York, where he had to deal almost exclusively with advanced cases of tuberculosis, massage was not feasible and but rarely indicated, and the same was true of hydrotherapy and respiratory therapy, but in convalescent patients and in those returning from sanatoria as arrested cases they had proved of greatest value. He had been able to teach massage to many of his pupils and nurses and where, for financial reasons, a patient could not employ a masseur he had succeeded in teaching a well member of the family how to apply the treatment. It was surprising to see how many men and women there were with a natural aptitude for this work. Physiotherapy, that was to say, a judicious combination and application of massage, cold water, and graded breathing exercises, seemed up to this date our only means to prevent relapses in arrested cases of pulmonary tuberculosis. It should be applied for a period of four to six weeks after the case had been pronounced arrested. Individualizing in the post-sanatorium treatment of course was as essential as in the sanatorium treatment proper. The post-sanatorium treatment was not in any way intended to do away with the contemplated program of teaching our tuberculous soldiers a variety of trades and occupations before they left the military hospitals, each adapted to the individual so that it would be conducive to the preservation of his health and helpful in re-establishing his earning capacity. All the objections which confronted us in applying massage in private practice in sanatoria or in civil hospitals, such as financial considerations, unwillingness of the patient to remain, scarcity of masseurs, or phthisiophobia on the part of the latter, need not enter into consideration when we were dealing with tuberculous soldiers. The writer had the assurance that a number of war-blinded soldiers would be trained as masseurs in the U. S. Base Hospital No. 7 for the Blind at Roland Park, Baltimore, which was under the direction of Lieutenant-Colonel Bordley. If this hospital should not be able to provide a sufficient number of masseurs for this tuberculosis work, there would be among our maimed heroes a number who had received injuries to the lower extremities and other types of injuries who could be trained as masseurs. In the final analysis of this work of preventing relapses in cases of arrested tuberculosis among our soldiers there would be an actual saving of thousands and thousands of dollars of pension money, restoring inestimable man power, and saving valuable human lives. Dr. Knopf then described in detail the character of massage to be employed, stating that four simple movements, namely friction, kneading, tapping, and stroking, sufficed for all practical purposes. The so-called movement cure could be added to the general massage and was not difficult to teach or apply. These joint manipulations consists in assistive, passive, and resistive movements of the extremities. Although helpful, they were hardly necessary in the average case of the recovered tuberculosis invalid. The effect of massage applied as described was to arouse dormant capillaries, increase the area and speed of the circulation, further absorption, and stimulate the vasomotor nerves, all of which were aids and not hindrances to the heart's action and to nutrition in general. Dr. Knopf described in detail the method of accustoming a tuberculous individual to the use of cold water, the important precaution in such cases being to avoid chilling the patient. To do this he had the patient stand in a tub of hot water and with a spongle apply water at a temperature of 85° to the body; as time went on the temperature was gradually lowered until the

subject could use water at a temperature of 40° or 45°, which was usually the temperature of water coming from the faucet. In the beginning the patient should return immediately after the bath to a warm bed. If, in spite of all precautions, he failed to react the cold baths must be discontinued. The plentiful ingestion of pure water, in preference to all other beverages, played an important part in the success obtained with the external application of cold water. Respiratory exercises should not be resorted to as long as there was activity in the chest, but in dealing with entirely arrested cases one need not fear any harmful effect from this part of their physiotherapy. Nevertheless, as was shown, breathing exercises should be graded and the chest not violently but gradually expanded. These exercises were described in detail and demonstrated. It might be asked if there was anything in our materia medica which could help in making our cured tuberculous invalids more resistant to relapses, and to this he could say that he knew of nothing which could conscientiously be recommended for that purpose that was better than the soluble lime preparations, such as the syrup of calcii lactophosphate with or without iron. When all the measures described had been applied for a number of weeks and the patient was considered as safe from relapses as the physician's skill and his own personal care and training could make him, there remained the necessity of selecting an occupation and environment for him which would tend to increase his chance of remaining well and he must be impressed with the importance of regulating his life in conformity with the hygienic principles that he had learned during his treatment.

Dr. Fenton B. Turck stated that Dr. Knopf's presentation showed that the etiology of tuberculosis was dependent more upon autolyzed tissue cells and that the tuberculosis was a secondary infection. It was well known that starvation promoted cell autolysis and it was also known that specific treatment with tuberculin had been shown to be of almost no value whatever, but if one removed the influence of stasis which was increasing the formation of polypeptids from necrosed cells he accomplished something in the way of improving the condition of the patient. All this was brought out in the paper and showed the direction in which we were traveling and that we were acquiring a new conception of disease, and that influenza, pneumonia, and tuberculosis were diseases not primarily due to a microorganism, but that the part played by the microorganism was that of a secondary invader, as Dr. Miller has just stated. Therefore, the problem in many diseased conditions was one of tissue autolysis and the toxins of tissue autolysis and this would have to be solved if we were to meet conditions as they existed. Dr. Turck congratulated Dr. Knopf on his application of physiotherapy and emphasized the importance and value of these too frequently neglected measures. A more careful application of these methods would yield much more gratifying results than chasing the "will o' the wisp" of antitoxins against microorganisms, since by these means of tissue antisera and physiotherapy we could reach and stimulate to activity those diseased tissues that could not be reached by other means.

Influenza in a Tuberculosis Sanatorium.—Dr. Alfred Meyer read this paper. (See page 592.)

Dr. Fishberg stated that he had had 136 patients at the Montefiore Home and had had an experience very similar to that of Dr. Meyer. Supplies had been very freely carried into the institutions and people had gone in and out. One day there was a first case of influenza and within two days in one ward with thirty patients there were eighteen or twenty with influenza. Our previous ideas in regard to influenza in tuberculous patients had not been borne out by experience during the recent epidemic. The former idea was that if influenza attacked a tuberculous patient that patient was doomed, but that was not true. The mortality of influenza among tuberculous patients was about 4 or 5 per cent. and that was not higher than the mortality among other classes of individuals without tuberculosis. If the tuberculous lesion was inactive the patient had the same chance of recovery as any other person. If the tuberculosis was active and the fever high, then influenza was liable to prove fatal, but he had not seen a case of inactive tuberculosis aggravated by an attack of influenza, and the presence of tuberculosis did not adversely affect the prognosis.

Dr. Meyer said he thought we should reserve our judgment as to the effect of influenza in reactivating tuberculosis until more time had elapsed.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

California State Board of Examiners.

Sacramento, October 22-25, 1918.

(*Concluded from page* 550.)

GENERAL MEDICINE.

(Answer ten questions only.)

1. A child three years old has urticaria. Discuss probable etiology and the procedure necessary to determine the same.
2. A woman 20 years of age shows nervousness, loss of weight, irregular menstruation, slight cough, increased sweating and tachycardia. Discuss the diagnosis.
3. What significance has a "plus minus" Wassermann? Discuss fully.
4. Discuss the main complications to be feared the first two years in the course of lues and means of recognizing the same.
5. What are the causes of "Salvarsan death"? Of thrombophlebitis after Salvarsan injection?
6. A man 18 years of age has nodular swelling of legs anteriorly, fever, generalized pains, irregular heart and a positive Wassermann. Discuss the differential diagnosis and treatment (briefly).
7. A man 30 years of age has bradycardia, evening temperature, constipation, occipital aching and epistaxis. Discuss the diagnosis and treatment (briefly).
8. A patient presents a chronic relapsing, inflamed sensitive buccal mucosa, asthenia, pale frothy stool and more or less diarrhea. Discuss probable diagnosis and prognosis.
9. Discuss the etiology and prognosis of pruritus ani.
10. Differentiate between Bright's disease and myxedema and discuss etiology.
11. A young woman has rapidly developing marked edema of one eyelid, nausea, vomiting and severe colic. Discuss diagnosis and prognosis.
12. A young child has sudden vomiting, high temperature, furred tongue and flushed face. Discuss possible diagnosis.

SURGERY.

(Answer ten questions only.)

1. Ununited fracture of femur of ten weeks' duration two inches below great trochanter, in a woman 60 years of age. Give pathology.
2. In question one give technique of operative treatment and post-operative care.
3. Discuss movable kidney.
4. Give technique of an acceptable operation for the fixation of a movable kidney.
5. Give technique of suprapubic prostatectomy including pre-operative measures and post-operative care.
6. Discuss surgical treatment of empyema.
7. Give indications for and technique of skin grafting. Give three useful methods.
8. Discuss nerve suture.
9. Give pathology of a bunion. Give technique of its surgical relief and after care.
10. Give pathology of hemorrhoids. Give two acceptable methods for cure by surgery.
11. Give post-operative management of a hemophiliac (bleeder).
12. Discuss post-operative ileus.

ANSWERS.

GENERAL MEDICINE.

1. *Urticaria* in a child is probably due to some digestive disturbance such as eating some particular kind of

food (as strawberries); or to some irritant such as stinging nettles, or insect bites; or to dentition or intestinal worms. The diagnosis is made by observing the lesions—wheals (and papules and sometimes vesicles). The wheals are pale in the center, with red margins, and are distinctly raised, so that they can be felt with the hand; they cause intense itching, which may interfere with the child's sleep.

2. The patient may have phthisis, goiter, anemia or chlorosis. In case of *phthisis*, other marks will be: deficient chest expansion, prolonged expiration, dullness or impaired resonance over apex of lung, fine moist rales at end of inspiration, general weakness, dyspnea, anorexia, slight fever. In case of *goiter*, there will be the enlargement of the thyroid gland, exophthalmos, and nervous symptoms. In *chlorosis*, the blood examination will show a diminished hemoglobin content. A slight loss of red cells, poikilocytosis, and a slight leucocytosis. *Pernicious anemia*, the blood examination will show a diminution in the number of red cells, a relative increase in the amount of hemoglobin, the presence of nucleated red cells, and variation in the size of the red cells.

3. A *plus-minus Wassermann* has no more significance than a single plus or a minus Wassermann. It is not diagnostic of syphilis. Some observers believe that it indicates a syphilitic hereditary taint. It may bet met with in persons who give no history or signs of syphilis; it is also present in cases of malignant growths.

4. "The *secondary stage* of syphilis consists of lesions of the skin (syphilides), mucous membranes (mucous patches), appendages of the skin (onychia, paronychia, alopecia), enlargement of the lymph glands in different parts of the body, neuralgic pains, inflammation and thickening of the periosteum, arthropathies, iritis (rarely other forms of eye disease), epididymitis, and interference with the general health (fever, anemia, disorders of digestion) and with the process of reproduction. Retinitis, choroiditis, affections of the acoustic nerve, and meningitis are being reported as secondary manifestations with increasing frequency, whether as the result of salvarsan treatment or more careful observation is a matter of dispute. . . . *Syphilides* generally appear in from six to seven weeks after the appearance of the chancre, occasionally earlier, and sometimes, notably when mercurial treatment has been administered from the beginning, not for several months. The secondary skin rashes (*syphilodermata*) may (1) ape any form of cutaneous eruption, but are always an imperfect counterfeit; they are (2) often apyretic, (3) slow in evolution, (4) non-inflammatory, (5) seldom itching or painful, (6) often of a ham or copper color, (7) apt to occur in circles or segments of circles, and (8) when affecting the extremities, most frequent on the flexor surfaces (which include the sole of the foot and the palm of the hand); (9) they tend to recover, and are (10) superficial, (11) profuse, (12) disseminated, (13) polymorphous, (14) symmetrical, and (15) desquamating. . . . The *mucous membranes* are affected somewhat like the skin. The sore throat of secondary syphilis consists of a reddening of the fauces or tonsils, which is sharply limited, reniform in shape, and often followed by ulceration, the ulcerated area being shallow with a grayish color and steep edges. *Mucous patches* are papules due to the overgrowth of papillæ, which, owing to the sodden condition of the epithelium, are white in color; they are circular or oval in outline, may progress to ulceration, originate a highly contagious discharge, and are commonly seen in the mouth and about the anus and genitals. *Condylomata* are large tubercles due to hypertrophy of papillæ; they look somewhat like warts, often appear in cauliflower-like masses, and occur most frequently about the anus and genitals. Eruptions or inflammations in the larynx produce syphilitic hoarseness, in the ears transient deafness. *Syphilitic alopecia* is usually detected at the time of the sore throat and skin eruptions. It may involve the head alone or the entire body. It occurs as a general thinning of the hair or in irregular patches. The skin is apt to be scaly. As the follicles are not destroyed, the hair is usually reproduced. The *nails* may be shed owing to inflammation of the matrix (*onychia*), or the skin around the base of the nail may be inflamed or ulcerated (*paronychia*). The *bones* in various regions may be the seat of fugitive pains, which are usually more severe at night (*osteocopic pains*). Nodes due to periostitis may form, especially on the skull, clavicle, and tibia. In the *joints* a symmetrical synovitis may be noticed. *Syphilitic iritis* makes its appearance in from three to six months after the chancre. It affects one eye at first, but is very apt to spread to the other. There are pain, impairment of vision, photophobia, lacrymation, a pericorneal zone of hyperemia, blurring of the pupil, often a change in color of the iris, and irregularity of the pupil, which is usually small and fails to react to atropine. *Syphilitic epididymitis* may occur late in the secondary period, and consists of gummatous nodules which are quickly dispersed by mixed treatment; it may affect one or both sides. *Syphilitic orchitis* (*syphilitic sarcocele*) is a diffuse sclerosis of the testicle itself and belongs to the tertiary period."—Stewart's *Surgery*.)

5. *Salvarsan death* may be due to: Faulty technique, embolism, sepsis, arsenic poisoning, decomposition of the salvarsan with formation of toxic substances, liberation of endotoxins from the killed microorganisms, anaphylaxis, idiosyncrasy; cardiac collapse, nephritis, or encephalitis.

Thrombophlebitis may be caused by local necrosis of the tissues, and also by the presence of the salvarsan in the blood.

6. The patient has syphilis, and syphilitic periostitis, or ostitis. In this condition the pain is of a boring character and is worse at night. There is not the high fever which would be found in a pyogenic infection; and a tuberculous lesion would be accompanied by signs of tuberculosis elsewhere. Acute rheumatism involves joints, and is accompanied by profuse sweats; it responds to treatment by salicylates.

Treatment of syphilitic ostitis: The general health must be attended to; good food and tonics are indicated; antisyphilitic remedies should be given; incision of the periosteum, with removal of the diseased part of the bone may be necessary.

7. The case may be one of arteriosclerosis, but no diagnosis can be made from the meager information given in the question. Treatment consists in proper mode of life (quiet, hygienic, with gentle exercise, plain food); potassium iodide is useful.

8. The case may be one of dysentery—probably bacillary; a microscopical examination of the feces will decide the matter, by finding either the entamœba hystolitica (amebic dysentery) or Shiga's bacillus (bacillary dysentery). The information given in the question is too meager to act as the basis of an exact diagonsis. The condition is probably chronic, with acute exacerbations.

9. *Pruritus ani. Etiology:* Piles, anal fistula and ulceration, threadworms, eczema, nephritis, gout, jaundice, constipation, alcoholism, opium, or tobacco habit. Sometimes it is a neurosis.

Prognosis is guardedly favorable. Sometimes it disappears on the removal of the cause; sometimes it does not. Division of the sensory nerves of the affected part has cured some cases.

10. *To differentiate between Bright's disease and myxedema:* In Bright's disease there will be found pallor and subcutaneous swelling; albumin and casts will probably be found in the urine. In *myxedema* the following symptoms will be found (which are not present in Bright's disease): The skin is thick, dry, indurated, and does not pit on pressure; there is loss of hair, subnormal temperature, decided physical weakness, and mental apathy with slowness of speech and thought.

Etiology of Bright's Disease.—*Acute nephritis:* "Cold and exposure, scarlatina, diphtheria, malaria, and other infectious diseases, traumatism to the back, pregnancy, and the persistent use of irritants, such as turpentine, cantharides, phosphorus, ginger, etc., are the most common causes. It may also be associated with certain skin diseases, extensive burns of the skin, and simple follicular tonsillitis. The affection is most frequent in childhood."

Chronic parenchymatous nephritis: "It rarely follows an acute attack; in the majority of cases it is subacute or chronic from the onset. It is a disease of young adults, especially males, and is seldom observed after forty years of age. Habitual exposure to cold

and wet, malaria, syphilis, alcoholic excesses, chronic mercurialism, lead poisoning, opium habit, protracted suppuration, phthisis, hepatic disorders, pregnancy, and some undetermined nervous condition are the principal causes."

Chronic interstitial nephritis: "The disease occurs usually in males from forty to sixty years of age. It may be primary, or secondary to chronic parenchymatous nephritis. Gout, chronic lead poisoning, syphilis, alcoholism, opium habit, chronic cystitis, chronic gonorrhea, long-continued worry, anxiety or grief, alterations in the renal ganglionic centers, hereditary influences, passive congestion from heart disease, and hepatic disorders are the principal causes."—(Hughes' *Practice of Medicine.*)

Etiology of myxedema: Atrophy or diminution in the functional capacity of the thyroid gland.

11. The case is probably one of *angioneurotic edema.* The condition is generally transitory, but is apt to recur. When the colic is very severe, the condition may (at first) be taken for appendicitis; but the absence of fever and pain or tenderness in the right iliac fossa rule out appendicitis. The prognosis is good for the recovery from the present attack, but recurrence is to be expected.

12. All the features mentioned are present at the onset of scarlet fever. In twenty-four hours the characteristic eruption should be manifest. The sudden vomiting is also present at the onset of many other febrile infections and is seen in meningitis. In the latter case examination of the cerebrospinal fluid will aid in the diagnosis. In none of the conditions just mentioned is the fever likely to be so high as it is in scarlet fever. In tonsillitis there is a very high fever, but the characteristic rash is absent.

SURGERY.

1. *Pathology of ununited fracture of shaft of femur:* "There are two groups, one containing most of the cases, in which the fragments are united end to end or laterally and more or less closely by fibrous tissue, and another, very rare, in which a distinct joint has formed between them. The varieties of the first form are very numerous, the variations depending upon the relative positions of the fragments, the extent of the preliminary rarefaction, the amount of fibrous tissue, and the presence or absence of a productive osteitis or partial ossification of the bond. In short, the process of repair in any of the widely different forms imposed upon it by the character of the fracture and the displacement may be arrested at any period or may be continued unevenly but still incompletely at different points. Thus the fragments may be in close apposition and united by a short firm bond with only slight motion between them, or they may overlap in such a way that the surfaces of fracture are not apposed and the union is only by the thickened interposed connective tissue; or the displaced end may be enlarged, with osteophytes extending into the fibrous bond and separate nodules of bone developed within it, needing only a slight additional ossification for complete bony union; or the effect of the preliminary rarefaction of one or both fragments may not have been corrected by subsequent ossification, and they remain soft and spongy, or atrophied and pointed, and even this process of rarefaction may be so exaggerated as to create as distinct a gap between the fragments as if a piece had been removed or even to transform the entire shaft of the bone into a fibrous cord. Of the second form, the creation of a joint between the fragments, only a few examples have been recorded. They show, in more or less complete and distored forms joints with a fibrous capsule embedding cartilaginous or bony nodules, a cavity containing a synovia-like liquid, and the ends of the fragments rounded, eburnated, usually enlarged, sometimes smooth and polished and sometimes covered with a fibrous or even a cartilaginous lining."—(Stimson's *Fractures and Dislocations.*)

2. *Operative treatment of ununited fracture:* "The greatest possible care must be exercised to observe the rules of asepsis. A general anesthetic having been given and the parts prepared as for other aseptic operations, a constrictor is applied well above the seat of fracture. The ends of the fragments are exposed and freed of all fibrous tissue covering them. The ends are now resected to an extent sufficient to expose the medullary cavity of the bones. The bones should be squarely sawed across, so that exact end-to-end apposition is secured. There is considerable difference of opinion as to the advisability of using wire or other means of fixation. If apposition seems to be maintained when the bones are held together before closing the wound, no suture or other apparatus is necessary. Great care is to be observed in applying a cast or splint to prevent any disturbance in the apposition. If there is the least tendency for a malposition to recur it is the safest plan to use some form of retention. Silver or bronze aluminum wire are the best nonabsorbable materials, and kangaroo tendon and chromicized catgut the best absorbable substances. In the case of the femur, wire is the best. In general, a single opening through the cortex into the medulla will suffice. When the ends of the bones are atrophied or a considerable interval exists, an osteoplastic flap can be made by detaching portions of the bone with the periosteum and wedging them in between the fragments."—(Keen's *Surgery.*)

3. *Movable kidney.*—"This is to be distinguished from *floating kidney;* in the latter condition, which is said to be always congenital, the kidney passes forward into the abdominal cavity and is completely surrounded by peritoneum, being attached to the posterior abdominal wall by a mesonephron. In movable kidney the organ is excessively mobile behind the peritoneum. Eighty per cent. occur in women, and the right kidney is involved in about the same proportion. It is most common between twenty and forty, but may be seen at any time of life. The adrenal gland remains in place, since it lies in a separate compartment of the perirenal fascia. The *causes* are conditions which render the abdominal walls flaccid, such as pregnancy, emaciation, removal of abdominal tumors, etc.; Glénard's disease; tight lacing; trauma; and conditions which increase the size or weight of the kidney. In many cases, however, no cause can be found, beyond the fact that the patient has a long and slender waist, and this bodily conformation is inherited, hence movable kidney may exist in several members of the same family. According to the *symptoms* the cases may be divided into four classes: (1) In most cases symptoms are absent. (2) In others there is dragging pain in the loin, with indigestion and nervousness. (3) In this class complications arise. If the ureter becomes kinked or twisted, there is transient hydronephrosis, with violent pain in the kidney and epigastrium, vomiting, collapse, and subsequently elevation of temperature and the discharge of a large quantity of urine (*Dietl's crisis*); if the pedicle becomes twisted gangrene of the kidney may ensue. Dragging on the duodenum or bile ducts may cause gastric and biliary disturbances and even jaundice, and the condition is not infrequently associated with chronic appendicitis or mucous colitis. Albuminuria, pyuria, and occasionally hematuria may occur, from congestion of the kidney or pyelitis. (4) In this group the prolapse is secondary to tuberculosis, tumor, hydronephrosis, or some similar malady, hence presents the same symptoms as the primary trouble. In all cases the symptoms are intensified by exercise or by lying on the sound side, and are usually relieved by lying on the back. The diagnosis is made by feeling the kidney descend below its normal level on deep inspiration. In the severer forms the hands can be approximated above the kidney, and in the worse cases the kidney may be found in the pelvis; percussion over the loin is said to give resonance, but the sign is fallacious. The *x*-ray may show the position of the kidney and reveal unsuspected conditions, *e.g.* a calculus."—(Stewart's *Surgery.*)

4. *Operation for the fixation of movable kidney:* An incision is made in the lumbar region outside the edge of the quadratus lumborum, downward and outward, from the twelfth rib; the muscles are separated; the fatty capsule is opened, the kidney is caught and pulled into the wound. The true capsule is incised along the convexity, and part of it stripped back; two or three stout chromic gut sutures are inserted deeply in the cortex and the reflected capsule, and penetrate the muscles on each side of the wound, where they are tied together, so as to close the wound and fix the kidney. Strips of gauze should be packed down to the kidney, for drainage, and also to encourage the formation of

adhesions. The operation is carried out with the patient laid face downward, the belly resting on a narrow air pillow (*Edebohl's*) to push the kidney up into its place.—(Buchanan's *Surgery.*)

5. *Suprapubic prostatectomy:* "If there is much cystitis, the bladder must be carefully prepared for a few days by keeping the patient in bed and washing it out with a mild antiseptic, or even possibly by draining it. At the time of operation it is again irrigated, and some 6 ounces or so of boric acid lotion left in it. The patient is placed in the Trendelenburg position, and the usual suprapubic incision made into the bladder. The vesical wall is by some anchored to the abdominal parietes by a deep silkworm gut stitch on either side, so that it shall not be unduly torn or displaced in the subsequent manipulations; this step is not essential, although the introduction of a silk sling through the bladder wall on either side is desirable. The portion of the prostate projecting into the bladder is now carefully examined and its removal commenced. The index and middle fingers of the left hand (which is covered with a sterilized indiarubber glove) are introduced into the rectum so as to steady and push forward the prostate. The right index finger tears through the mucous membrane behind the projecting median lobe or collar, thus passing between it and the displaced sphincter vesicæ. It will often be found an easy matter to pass the finger around the enlarged organ and enucleate it; the larger the prostate, the more easily this is effected; but when it is comparatively small and hard enucleation may be difficult. In this procedure the ejaculatory ducts are torn across, as also the vessels which enter and leave the gland on either side. The urethra is either removed entirely, or the lower portion of it is detached and left behind. The prostate when free in its sheath remains either in one mass, or not unfrequently separates into two halves which can be peeled off the urethra and removed separately from the bladder. This enucleation is attended by remarkably little bleeding in the majority of cases, and even when at all free it can be quickly restrained by irrigating the cavity and bladder with hot saline or boric acid solution through a catheter. A large rubber tube is passed into the bladder and stitched in the lower angle of the wound, the upper end of which is closed by deep sutures. The wound is covered with a few layers of cyanide gauze, and over this absorbent wool is placed in sufficient quantity to take up the urine secreted. Morphia is often needed to combat the pain and spasm that supervene, and it is advisably given as a suppository, or as a starch and laudanum enema. The subsequent treatment varies somewhat. Probably the best method is to dress the wound with gauze and wool, which are renewed every four or six hours as may be required. The amount of dressing required is large, and the expense is considerable. Some surgeons employ Irving's apparatus, a glass cap which fits closely over the wound, kept in place by elastic bands round the body, and draining into tubes which carry away the urine to a bottle between the legs. This appliance keeps the patient dry, and saves the expense of dressing, but it keeps the patient on his back, it presses on the wound and lower abdomen, and probably it hinders the healing process somewhat. The bladder is irrigated daily through the suprapubic incision, and blood and small sloughs will escape for some days. As soon as the suprapubic wound is protected by a layer of granulations, the tube should be withdrawn, and the urine allowed to escape or to collect in the bladder. A catheter is passed about the end of the first week, and the bladder washed out through it. The patient is allowed up in an armchair as soon as possible to avoid pulmonary complication. Not infrequently he will commence to pass urine naturally in about a fortnight or three weeks, and subsequently the function will be maintained in a normal fashion."—(Rose and Carless' *Surgery.*)

6. *Empyema:* "Treatment should be undertaken without delay. Aspiration seldom cures, but may be undertaken where the dyspnea is great, and an anesthetic given afterward for the excision of a piece of rib. Drainage is always necessary, and is best done by excising a portion of the fifth or sixth rib in the mid-axillary line. The patient should be allowed to come round quickly from the anesthetic, so that the coughing which occurs will expel the masses of coagulated lymph and help to expand the lung. A big drainage-tube is then inserted. Daily dressings are necessary, but irrigation of the cavity is seldom needed. If, because of delay in treatment, the cavity does not soon close, Estlander's operation, or some modification, must be performed. The wound must be enlarged and a number of ribs exposed and sufficient of them removed to convert the cavity into a pyramidal one, the base of which is the open wound. This is packed with gauze and allowed to heal from the bottom. If the operation has to be extensive, the flaps are allowed to fall back upon the granulating surface of the lung, and in these cases marked scoliosis and weakness of that side of the chest follow."—(*Aids to Surgery.*)

7. *Skin grafting is indicated* in cases of large healthy sores, ulcers, burns, various defects of eyelids, cheeks, nose etc.; also to cover the raw surface after excision of skin in lupus. *Three methods:* (1) *Reverdin's Method:* Small pieces of cuticle and cutis are cut off with scissors and divided into two or three smaller pieces. There are placed here and there on the granulating surface. The ulcer is covered with aseptic protective and dressings, and left undisturbed for four or five days. The grafts form islands, from which the epithelium spreads. (2) *Thiersch's Method:* All the granulations are scraped away. The surface is covered with protective, and pressure applied while the grafts are being cut, to stop the bleeding. The best knife to use is a medium-sized amputation knife. Thin shavings as large as possible are cut down to the tops of the papillæ. These are spread evenly over the raw surface, overlapping one another as well as the edges. The whole is covered with sterile protective and dressings, and left for five days. Antiseptics should be avoided, and only sterile saline solution used. (3) The whole thickness of the skin is sometimes used, either detached altogether or left with a pedicle, which is detached after a week or ten days.—(*Aids to Surgery.*)

8. *Nerve suture:* "The treatment of a divided nerve depends upon its size and function. If small and of slight importance, no special treatment is required; but any of the main nerves of the extremities must be dealt with at once by *primary nerve suture.* This is best accomplished by using a domestic sewing needle without cutting edges, or a fine Hagedorn needle, and the finest chromicized catgut; one or more stitches should pass through the nerve, and the rest merely through the sheath. Absolute asepsis is essential in order to obtain satisfactory results. It is most desirable that the nerve should be protected from the pressure of adhesions by wrapping it in gold-beater's skin or Cargile membrane. In wounds involving the nerves about the wrist the deep fascia should also be carefully sutured to prevent the formation of adhesions between the nerves and tendons to the skin, whereby subsequent mobility would be impaired. If the wound has been inflicted months before, and a bulb has formed, *secondary nerve suture* must be employed. The nerve is first exposed by a free incision through the cicatrix, the two ends identified and isolated, and the fibrous tissue of the bulb removed to a sufficient extent to expose healthy nerve fibrillæ; the divided ends are then brought together with as little tension as possible. To bridge the gap traction upon each end of the nerve may be employed to stretch it, and the limb subsequently placed in such a position as to relax the parts—*e.g.* the wrist flexed to a right angle, or the elbow bent (except when dealing with the ulnar nerve above the elbow, flexion of which increases the tension on the nerve). Resection of a segment of bone may be justifiable in certain cases to allow the divided ends to be approximated."—(Rose and Carless' *Surgery.*)

9. *Bunion:* "Probably as the result of ill-fitting shoes, the proximal phalanx of the great toe is thrust outward and is subluxated on its metatarsal bone—*hallux valgus.* Over the enlarged metatarsophalangeal joint a bursa forms, which by pressure becomes painful, and frequently becomes infected. Palliative treatment of the milder forms consists in relief of pressure and in proper shoes. The frequently accompanying (and causal) flat-foot requires attention. For the severer grades excision of the head of the metatarsal, or of part of it, will usually be necessary. If secondarily infected, the bursa must first be opened and drained. There-

after shoes built on proper lines must be worn, and perhaps a flat-foot brace in addition. Some operators transplant the extensor tendon of the great toe."—(*Reference Handbook of the Medical Sciences.*)

10. *Pathology of hemorrhoids:* "*External piles* are found at the margin of the anus, and are covered with skin. They consist of a small central vein in a varicose state, surrounded by a development of subcutaneous fibrocellular tissue, which latter is much more abundant than the vascular element; they practically consist of longitudinal folds of skin of dark brown color radiating from the anus, and superficial to the sphincter."

"*Internal piles* consist of dilated veins held together by a certain amount of connective tissue, and covered by mucous membrane. At first they are quite soft and compressible, and easily emptied on pressure; but when they have existed for some time the connective tissue may be increased in amount, and arterial twigs are often found running into the mass. The condition is limited to the lower two inches of the bowel, and may present very varied appearances in different cases. Thus, there may be general dilatation of the veins in the submucous tissue without the formation of any distinct tumors. The mucous membrane is then of a deep claret color, somewhat thickened, and liable to protrude during defecation.....When distinct hemorrhoidal masses form, they may be of two types: (*a*) The *longitudinal or fleshy pile,* consisting of broad sessile masses, dusky in color, soft and compressible in consistency, and covered by mucous membrane, which, although thin and stretched, still remains smooth and shiny, like the skin of a black grape. . . . (*b*) The *globular or bleeding* pile is single or multiple, and as a rule somewhat pedunculated; the surface of the tumor is roughened and granular, like a strawberry, due to the existence of dilated capillaries. When, however, a portion of it has been repeatedly protruded, the exposed mucous membrane becomes hard, and practically converted into skin, and the columnar epithelium may be replaced by the squamous type. The hemorrhage may be abundant, and comes either from the dilated superficial capillaries, or occasionally from a central arterial twig."—(Rose and Carless' *Surgery.*)

Two methods of cure: "(1) *Operation by the clamp and cautery* is favored by many surgeons. The pile is caught with forceps, and a Smith's clamp, the blades of which, in order to prevent burning, are covered with ivory on the side which rest against the mucous membrane, applied to the base of the pile, in the long axis of the rectum. The pile is then removed with scissors, and the base seared with the cautery at a dull red heat, after which the clamp is removed. (2) *Whitehead's operation* consists in removal of the entire pile bearing area, and is indicated when there are masses of varicose veins which occupy the whole of this region. A circular incision is made at the junction of the skin and mucous membrane; the tube of mucous membrane containing the varicose veins is then dissected up and amputated, and the divided mucous membrane sutured to the skin. Stricture and incontinence occasionally follow this operation."—(Stewart's *Surgery.*)

11. *Hemophilia:* "From a surgical point of view treatment is emphatically negative. It is most important to avoid performing operations on hemophilic subjects, and when hemophilic symptoms are present to abstain from any active measures such as the cautery or aspiration of blood effusions. Prolonged rest and firm pressure are the only methods ordinarily available. Both stitching and cautery are useless, because bleeding occurs from the stitch-holes or from the cauterized surface. The following methods have had some success: (1) *Calcium salts.*—Calcium chloride in 30-60 grain doses or calcium lactate 10 grains hypodermically in a 5 per cent. solution. (2) *Blood serum.*—Fresh antidiphtheric serum is a convenient form. It is given in 20-30 cm. doses subcutaneously or 10-20 intravenously. It has been used as a prophylactic before necessary operations. (3) *Normal blood* applied on a dressing to the wounded surface. (4) *Gelatin,* injected subcutaneously to increase coagulability. (5) *Adrenalin, Ergotinine,* injected locally to contract the bleeding vessels. (6) *Ovarian extract,* given because women are so exempt from hemophilia. (7) *Thyroid extract* may act by supplying a substitute for fibrin ferment."—(Grove's *Synopsis of Surgery.*)

12. *Post-operative ileus* is divided into three classes by Finney: (*a*) mechanical; (*b*) septic; (*c*) dynamic. "While the distinction is very often impossible, the diagnostic features are generally as follows: *Mechanical ileus* is characterized by later onset, visible peristalsis, and severe colicky abdominal pains. The abdominal distention is asymmetrical, and at first there is no change in pulse or temperature. Later the condition is characterized by persistent vomiting and constipation. *Septic ileus* is often masked by the general signs of septicemia, thus differing in its clinical aspect from that of mechanical ileus. A *dynamic ileus* develops as the result of a paralysis of the intestinal muscles, with few of the signs of obstruction and none of the signs of septicemia. The difficulty of differentiating an acute ileus from an acute peritonitis is apparent, and the later the case is seen the more difficult does this differentiation become, for advanced cases of obstruction are almost always complicated by peritonitis. In both conditions the leucocytes are increased, and in both the opsonic content of the blood is very high. In favor of the diagnosis of obstruction are a rapid, feeble pulse; ashy, pinched countenance; rapid distention of the abdomen, which is not board-like; increased peristalsis; early and severe vomiting, soon becoming fecal; severe, cramp-like pain referred to the umbilical region, and absence of fever. In some cases of postoperative obstruction no symptoms appear until weeks or months after the operation. The symptoms are usually due to bands or adhesions. The diagnosis in these cases presents no difficulty. The symptoms of obstruction appear in a patient who has previously been subjected to an abdominal operation. There are other cases in which adhesions following an operation result in incomplete obstruction. In this class, especially frequent after appendiceal operations, the patients present a variety of symptoms. The patient may complain simply of colicky pains, accompanied by more or less abdominal distention and constipation. In other cases there is the history of colicky pains, accompanied by nausea and vomiting, recurring at irregular intervals. A form of postoperative ileus of the mechanical type, to be especially mentioned, is strangulation of a loop of intestine in a postoperative hernial opening. This may occur months or years subsequent to an operation."—(Eisendrath's *Surgical Diagnosis.*)

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

PROGRESSIVE MEDICINE. Vol. XXI, No. 5. Edited by HOBART AMORY HARE, M.D. 333 pages. Illustrated. Price, $6.00 per year. Published by Lea & Febiger, New York, N. Y.

A CONTRIBUTION TO THE STUDY OF MYOSITIS OSSIFICANS PROGRESSIVA. By JULIUS ROSENSTIRN, M.D. 83 pages. Illustrated.

THE DRUG EVIL AND THE DRUG LAW. By CORNELIUS F. COLLINS. 27 pages. Published by M. B. Brown Printing & Binding Company, New York, N. Y.

TRICOMONOSIS INTESTINAL. By Dr. EDMUNDO ESCOMEL. 74 pages. Illustrated. Published by the Tipografia Moderna, Montevideo.

THE ESTABLISHMENT AND CONDUCT OF A TUBERCULOSIS SANATORIUM. By CHARLES B. SLADE, M.D. 138 pages. Illustrated. Published by M. B. Brown Printing & Binding Company, New York, N. Y.

CORNELL UNIVERSITY MEDICAL BULLETIN. 572 pages and others. Illustrated. Published by Cornell University Press, New York.

MANUAL OF EMERGENCIES. By J. SNOWMAN, M.D., M.R.C.P. (Lond.). 324 pages. Price, $4.50. Published by William Wood & Company, New York.

LICE AND THEIR MENACE TO MAN. By Lieut. L. LLOYD, R.A.M.C. (T.) 130 pages. Illustrated. Published by the Oxford University Press, American Branch, New York.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 95, No. 16.
Whole No. 2528.

NEW YORK, APRIL 19, 1919.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

EPIDEMIC ENCEPHALITIS WITH STUPOR.*

BY FOSTER KENNEDY, M.D., F.R.S. (EDIN.),

NEW YORK.

ASSOCIATE PROFESSOR OF NEUROLOGY, CORNELL UNIVERSITY MEDICAL COLLEGE; DIRECTOR, NEUROLOGICAL DEPARTMENT, BELLEVUE HOSPITAL.

IN the past twelve months there have occurred in England, France, and Austria many cases of an acute nervous affection characterized broadly by somnolence, vertigo, ataxia, disturbance of vision, and evidences of interference with the functions of the midbrain and basal ganglia.

The purpose of this report is to draw attention to similar cases now appearing on this continent.

CASE I.—A. B., male, aged forty-two, a patient of Dr. Mefford Runyon of South Orange, whom he first consulted early in January of this year. He complained at that time of intense weakness and inertia approaching somnolence. He had within a couple of weeks become quite disinclined for and unfit for any exertion. These symptoms for the first two weeks of his illness were slowly progressive, but in that period were not sufficiently severe to make him take to his bed; by them, however, he was entirely prevented from doing any work. He attributed his condition to a tapeworm from which he had suffered for over two months. He was seen by his friend and neighbor, Dr. Runyon, on January 17, who was shocked to find him so slow mentally and so much aged in appearance. He complained of inability to read and glasses failed to help him. The left eyelid seemed to lag. His voice was dull and toneless, the face without expression, the head was held looked slightly forward, the arms were held rather stiffly adducted with the elbows flexed, the shoulders were bowed, and the gait festinant. Dr. Runyon was struck by his resemblance to a case of paralysis agitans. The cerebrospinal fluid was normal. The blood picture was that of a secondary anæmia. The Wasserman test was negative in both the blood and cerebrospinal fluid, which was itself normal in other respects. Indicanuria was moderately severe. Appetite was abolished. The systolic blood pressure at this time was 128. He was admitted to Dr. Runyon's hospital, where I saw him in consultation on February 7. He lay on his back in bed, the face mask-like, quite devoid of all emotional expression. The head was rarely moved, and the eyes had the unwinking, staring look so characteristic of Parkinson's disease. This immobility of the eyes, head, and face was present in the rest of the body—all necessary movements were slowly, laboriously, but correctly performed. Mentally the patient was clear, but very inert; questions were answered accurately, but after delay and with every appearance of effort—the voice being toneless and as free from emotional expression as was his face. The ocular movements were ill-sustained and showed paretic jerking on conjugate deviation in all directions. Upward and downward movements of the eyes were limited, but not lost. The pupils reacted sluggishly to light, and still more sluggishly and more slightly on convergence. The optic disks were clear. The tongue movements were normal in amplitude but weak and slow.

Dr. Runyon three weeks earlier had noticed a "lagging" of the left eyelid. This had increased by the time of my examination so that the left lid in rest was partly dropped and at the same time could not be completely closed. In short, innervation to the left eyelid was defective in both the third and seventh cranial nerves. There was a well-marked weakness of the left facial muscles of peripheral type—a typical incomplete Bell's palsy. He could swallow without accident, but did this act as all others, slowly and with an appearance of toil.

The entire musculature showed great increase in tonus, similar in kind but greater in degree than that found in most cases of shaking palsy. His weakness was largely subjective; power was good. Rigidity was more marked on the left than the right side. There were no signs indicative of changes in the motor tracts; the deep reflexes were present but not easy to obtain.

FIG. 1.—Case II, showing myasthenic facies and catatonic attitude.

There was generalized profuse sweating, the complexion was muddy and the tongue quite dry and heavily furred.

CASE II.—J. D., male, aged thirty-two. Seen at Bellevue Hospital. In the middle of January he struck his head on rising quickly from a stooping position in a bank vault. He had no immediate symptoms, but complained of severe headache during the next few days; he became sleepy and would not play as usual with his children. He had a temperature of 102° F.; his condition was diagnosed as influenza. During this first week he had spontaneous nose bleeds on three days—this is not an unusual circumstance with this man. After seven days' illness he was continually drowsy, and is said to have been rambling in his speech and to have been unable to recognize his wife. From the date of admission to hospital, January 26, to the present time—a period of about six weeks—his condition has been variable as regards the depth of his stupor, but at all times it has been possible to rouse him by sharply spoken orders or by shaking his shoulder. He has always

*Read before the Practitioners' Society of New York, Friday, March 14, 1919.

been clear in his mind under our observation, commands have been slowly but properly executed, and all questions tediously but clearly answered; on the other hand, he has expressed no emotion whatever, either in facial expression, by gesture, or in his speech. There is severe but incomplete ptosis of both eyelids; the eyes cannot be closed firmly. The pupils are unequal and react very sluggishly to light and not at all on attempted convergence. Conjugate movements of the eyes upward is defective and unequal, and neither eye can be swung downward below the horizontal. Paretic jerkings of the eyeballs occur on looking to either side, which movements further are not complete.

The mouth is habitually held agape—its corners lag and the normal creases which lend expression to the face are smoothed out. This man does not remind me of Parkinson's disease in his appearance; he has a facies differing in no respect from those of persons suffering from advanced myasthenia gravis.

From the beginning of his illness he has had definite weakness in the right facial muscles; but this is only an aggravation of the paresis manifest in all. The head is held stiffly, but on command he can put his chin on his chest. Kernig's sign is absent. The abdominal reflexes are normal; the deep reflexes depressed and the plantar reflexes have been indefinite in type. The arms are held stiffly, as are the legs. Usually he maintains any position, however fantastic, in which his arms

Fig. 2.—Case III, showing characteristic attitude of the hands; the patient improved rapidly and when photographed had largely lost his mask-like expression.

are placed, but this catatonia differs from that seen in some psychoses in the ability of the patient to correct his attitude on command. Without this stimulus, however, he lacks the initiative to move his limbs from any position, however uncomfortable or grotesque. The tone of the muscles seems lowered; they themselves are flabby to touch, but the tendons and ligaments are tense, so that there is produced a state approximating the waxy flexibility of dementia præcox. This increase in ligamentous tone gives an air of spasticity to the limbs.

When first seen there was a coarse tremor in both arms, and such movements as are involved in the finger-nose test were accompanied with much motor ataxia. These symptoms have now passed and the arms are held in the rigid attitude described in the first case.

The blood pressure is $\frac{112}{78}$. The man looks profoundly toxic, the tongue dry, swollen, and furred. Percussion of the pectoral muscle produces at the site a slowly transient tumefaction with a visible vermiform contraction propagated in both directions along the muscle fiber—phenomena not characteristic, of course, of this disease, but seen in many conditions accompanied by marasmus and toxemia. The urine is normal, as is the cerebrospinal fluid. On January 30 the leucocyte count was 11,400, of which 53 per cent. were polynuclears. Rather less than a month later these figures had changed to 26,500 and 90 per cent. respectively.

Case III.—W. F., male, aged fifty, a chauffeur. Admitted to Bellevue Hospital February 16, complaining of drowsiness and general weakness. His illness had begun three weeks earlier with headache, dizziness, and inability to keep awake. This latter was so pronounced as to make him fall asleep, not only in his chair during the day but, latterly, also at his work. At the same time he became very weak and incapable of exertion.

On examination, he was found to have the mask-like facies so evident in the patient first described. Profound emotional stupor, but the mind behaved lucidly under stimulation. The eyes were held fixed in an unwinking reptilian stare. The head never moved. The arms and hands were ordinarily held in the attitude characteristic of paralysis agitans and showed a coarse tremor, more evident at rest than in action. This tremor was also present in the lower limbs. Rigidity was everywhere manifest. Catatonia was extreme. There was profuse general sweating—a condition most evident in all my cases. Incontinence of urine and fæces often occurred, the result in some measure of his inability to initiate enough activity to secure attention.

The pupils were ectopic and reacted sluggishly to light. Accommodation was badly carried out. Conjugate deviation of the eyes upward was much limited and all downward movement was lost.

The optic fundi in all these cases were clear. The abdominal reflexes were present; the deep reflexes were present, but reduced apparently by the failure to secure tendon relaxation; the plantar reflexes usually were on the right side of flexor and on the left of extensor type.

No abnormality was found in the urine or cerebrospinal fluid. There was a leucocyte count of 10,000, of which 77 per cent. were polynuclear cells. Blood culture was negative, except for a white staphyloccal contamination.

Case IV.—Male, aged forty-seven, physician. Seen in Hartford, Conn., three days ago (March 11), a patient of Dr. Kingsbury.

Four weeks earlier he had developed severe intermittent headache, associated with vertigo sufficiently severe to cause him to stagger in walking. Transient diplopia occurred within a few days. The temperature was then 102° F. and has reached this height irregularly since. Intense weakness and drowsiness was an early symptom and has varied in intensity. Always clear mentally, but quite lacking in initiative. The cerebrospinal fluid has twice been found normal. Urine normal.

Profuse sweating. Toxic tongue. Myasthenic facies. Weakness, especially in right face, but without much facial power of any kind. Rigidity of posture. Catatonia. Absence of power of convergence of the eyes. Pupil reaction for accommodation lost and sluggish to light. Absent upward and downward movement of the eyes. Deep reflexes depressed. Abdominal reflexes brisk on the left side and absent on the right. Plantar reflexes indefinite. In the past week, while emotional stupor has been lighter, there has been a progressive increase in pulse rate and complete gastrointestinal atony. For ten days there has been retention of urine and an inability to expel even enemata.

These cases have been discussed in some detail in order to depict the development and character of the clinical pictures. In the past week seven other more or less similar cases have come under my observation. In all, the diagnosis has been manifest. Stupor, however, varied in degree and was absent in one, a girl of sixteen, in the Neurological Institute; in her case there was the usual history of onset with headache, vertigo, and diplopia over about a week's time, together with at present Third and Seventh nerve palsies, much increase in tendon tone and pronounced coarse tremor of the right extremities. Another case, a man aged thirty-five, seen in Bellevue Hospital, has no emotional stupor, but lies curled up in bed complaining of headache, fretful, and irritable. He vomits from time to

time and presents inability to look above or below the horizontal and lacks the power of visual accommodation.

It would seem certain, then, that we now have to do with the same disease as was described by Economo in April, 1917, in Austria; by Netter a year later in France, and at the same time by various British observers in England.

The clinical picture described by these workers is so clearly cut as to be easily recognized, and there is no difficulty in establishing the identity of the symptom complex in these American cases with that seen in Europe, especially in the past twelve months. The picture in the main is that of an acute illness ushered in by a moderate pyrexia and usually associated with headache, vertigo, diplopia, and progressive emotional stupor; ingravescent palsies of the cranial nerves, especially those of the midbrain and affecting ocular movements; catatonia with increase in tendon tone, tremor in the limbs, and variable evidences of damage done to the long motor tracts.

Brains of those in whom the disease has proven fatal show minute hemorrhagic areas, usually discrete, rarely confluent, grouped in the subthalamic area, throughout the mesencephalen and the aqueduct. Microscopically, a perivascular parenchymatous infiltration is seen consisting of plasma cells, lymphocytes, and many giant glia cells. Marinesco most guardedly reports finding diplostreptococci in some of his specimens, and Economo makes a similar claim, not with regard to his human material, but in the brain of a monkey infected subdurally by an emulsion of spinal cord and brain from a fatal case.

The symptomatology proceeds logically enough from the character and site of the lesion—the interruption of afferent impressions to the thalamus producing sleep; the affection of the cranial nuclei, the local palsies; the interference with the long tracts, the tremors, and reflex changes. One may remember the affective palsy of one side of the face in cases of compression of the opposite optic thalamus when observing the failure of these patients to express themselves emotionally, and again the peculiar rigidity and spasticity following lenticular nuclear degeneration, and realize that the incidence of this disease should make for increased knowledge concerning the functions of the basal ganglia.

So far there has been no family grouping suggesting contact infection. Macnaulty in his report quotes the proven existence of diplococci of Weichelsbaum in the nares of persons not suffering from cerebrospinal fever, as an explanation, by individually lowered resistance, of the sporadic incidence of this disease, as also of poliomyelitis.

I am not impressed personally by the arguments which try to show that acute poliomyelitis and epidemic stupor are one and the same condition—further, it is not evident that this disease is a sequela of influenza in each individual, though similar symptoms have been described as having appeared during and after previous influenzal epidemics.

The mortality does not exceed twenty-five per cent, and in most series is much lower than this.

In fine: The etiology is conjectural, the diagnosis is uncomplicated, the contagiousness unproven, and the therapy symptomatic.

20 West Fiftieth Street.

THE PSYCHOLOGY OF SUCCESS IN MEDICINE.*

By ANTHONY BASSLER, M.D.,

NEW YORK.

PROFESSOR OF GASTROENTEROLOGY, FORDHAM UNIVERSITY MEDICAL COLLEGE AND NEW YORK POLYCLINIC MEDICAL SCHOOL; CONSULTING GASTROENTOROLOGIST, PEOPLES, CHRISTS, POLYCLINIC, BETH-DAVID HOSPITALS, ETC.

ALTHOUGH a debutante as one of the teachers in this school, through the kindness of our president, I am privileged to address you on the happy consummation of your ambitions as medical students—namely, the conferring of the degree of M. D. On several occasions in my life I have sat as you do, listening to an address which at the time seemed wise and useful, but was quickly forgotten and not recalled or understood until years afterward. I do not expect any better luck for such remarks as I make tonight, because the psychology of things with you now is one of joy, a reaction from the years of study you have gone through. It took me several years to appreciate the significance of a remark made by the late Dr. Joseph D. Bryant at my graduation in medicine, a remark that gathered in significance as I went on. Substantially he said: "Do not think you have reached the top of your climb and sit down with your diploma. You have just begun, and now, as well as at all times in your future, he who sits down in satisfaction will soon observe that he is facing down hill." With the much improved and more complex conditions about practice today than twenty-one years ago, when I graduated, this will be even truer for you than it has been for me.

Being physicians, many will be the pitfalls that shall surround you. As historian of my class, one of about 150, I recall that only five are teachers of note today. Perhaps about 25 are prominent practitioners in their communities; the largest proportion are working in ordinary practices; not a few have fallen by the wayside from unfortunate habits; sad alliances bringing on harrowing climaxes in others; the almshouse and other asylums have gotten some, and about a third died in the early forties. This, surprising as it may seem, is not a bad record as college statistics go, and it is the record of what was considered at the time the best class the school had graduated in many years. With your permission, then, I will endeavor to draw one or two conclusions, presenting these on the basis of the psychology of daily life in the practice of medicine, with the hope that something I may say will be of service to you toward arriving at success in your future years.

Live as exemplary a life as possible. Remember that in our work we are servants of the people, and the people often expect more of us in living moral and normal existences than they do of themselves. Always remember that a physician is a semi-public man, held up and looked up to when the public respect him, and over-criticised when it does not. Nothing destroys a physician's reputation quicker than that he is too familiar with both men and women, that he is loose in his habits; fond of cards, horse races, drinking, etc., not capable of being gotten at when needed, and too confidential about his personal affairs with his

*Address delivered to the graduating class of the Fordham University Medical College, February 19, 1919.

patients so that they know and batter to and fro his domestic troubles. If your character is like the spire of the flame, ever heavenward however the candle is inclined or bent, and your personal desires and domestic life always toward the best, then the untruths said about you can only enhance and outline your character.

Success in medicine, like everything else in life, is always relative. Such as there is is resident in achievement, in which satisfactions abound. Against accompiishing, however, the inherent tendencies of the human mind militates, and against these dangers we must be constantly on our guard. The method of doing things is commonly the first one that promises results. Largely it is unconsciously adopted and this unreflective adaptation is not always the best, because it is usually the one which requires the least expenditure of energy and thought. Learn the habit of attending to details, and in overcoming obstacles, keep as far away from the "trial and error" method as possible. Man is gifted with intelligence, but many do not reason as they should. Unreflective—unconscious —adaptation was the method of progress in the early history of medicine. It rested upon authority and the trying of one thing after another. Massaria, of Padua, in the sixteenth century, would rather be wrong with Galen than right with any other physician. Naturally no great progress was made.

But today scientists no longer wait for the tedious, unintelligent elimination of mistakes. They set definite problems, study the conditions, and then plan their investigations so that the errors of earlier workers may be eliminated. But the scientific plan has not been as generally adopted in medicine as it should be. We still wait for something to turn up and then adapt ourselves as best we can. You see I am arguing for research and study, and nothing in medicine is so small that it should not have these at all times. There are so many shades and nuances that unless we have this policy as cardinal, experience will not be a filing-case of facts which we can interpret with proper attitude. One of the pitfalls of progress is not so much lack of experience as it is in proper make-up of the experiencer. The new physician must have a method of progress, must make it his business to criticise experience and not accept things on appearance alone, or take them for granted.

The general practice of medicine, which I hope you will all go through for a period of time at least, becomes rather uneventful and tends to mental stagnation, and after a time retrogression. Always keep up your interest, perseverance, and determination. Therefore keep in contact with hospitals, clinics, medical societies, and the teachers. Go where you will have and feel opposition. This does not put brains in men but draws the best out of them, and however strong the obstacles or adverse the circumstances the better you should become. Physicians as a rule move along lines of least resistance, and this tends to lower the maximum efficiency and reduces the dimensions of the job and themselves. This is racial indolence, because with the proper spirit and enough of it, no job in medicine cannot be made a big one. Remember that while the general death rate has declined in recent years, because of the improved conditions in handling infants, children, and young adults during the last thirty years, the death rate from organic diseases has increased 94 per cent. in fifteen American cities. There are many reasons for this increase in heart, liver, kidney, and blood-vessel conditions, but there are many more, in fact the most important, that are still to be found out. You are coming into the profession at a wonderful era in medicine. Will to do your share in it by keeping in mind that scientific medicine is your duty, and will to do it with a type of mind that accomplishes in substantial ways, even though the environment in which you do it is humble and remote.

If you adopt the policy of careful scrutiny and maintain a plan of effort, thinking will not be a spontaneous process, like breathing. One gains little from the mere succession of experiences or things thought of. Experiences, things, and ideas must be related and correlated. The success or failure in achieving depends upon the accuracy of the process of thought, and this depends upon fundamental principles. In addition to what you deduct from your own experiences, try to discover meaning in the experience of others, and reconstruct it in terms of personal experience. Never be a literal man with no sense of proportion and no sense of humor. Such men never can interpret experience, and only follow rules and prescribed modes of action. With understanding, emergencies and deviations are best met, and as physicians we deal with these all the time. Experience is always prospective. It looks toward the future and furnishes fundamental principles. These principles are rules of action and the mediocre mind follows them to only mechanical efficiency. But when the primary training of the mind is penetrating and the interpretations good, then comes a flood of suggestions and you see deeper meanings than the rules express. There is a vision in some physicians, a sagacity which is amazing to the moderate mind. This wisdom is not genius, nor a miraculous product. It comes through early association of ideas, organization of knowledge and experience. A physician cannot become great on nothing, and no amount of information can make him wise. It comes because he has worked hard and also worked hard with himself, things I hope you will also try to accomplish, so that when responsibility falls upon your shoulders your Alma Mater and the teachers here will have joy in your achievements.

There is an old proverb, "Beware of the young doctor and the old barber." This was true when written, but today the world knows that the young physician is the best trained and fears him not. It's now only true of the barber. So your youth is really an asset for making your living in medicine, although don't expect the older physician to acknowledge or respect it. Your teachers get along with that nicely by being tolerant and having hopes for you. I was once young like you, and today I know this must be true in the way they put up with me as I was. What is surprising too is that your teachers never seem to forget you, remembering your faults as well as your virtues. One of my old teachers said to me only a few years ago that as a young physician I had given him some very trying moments, but that his hopes

for me, thank God, had been realized. Of course you do not think yourselves anything like I was, although when you marry, and you must all do that some day, you may, in a son who has just graduated in medicine and with whom you argue a case, a condition, or the treatment therefor, see the replica of yourself in how you were at graduation.

And now as you scatter from this University, I hope that you will always appreciate what the Professors and the good Fathers here have done in their efforts for you. Theirs has been a labor of love for the art of medicine, and interest in your behalf. We all hope your lives, careers, and successes will give us happiness, that ultimate joy that comes when one labors for a cause or for the devotee in it. Ours is a noble field of work, and you ennoble yourself by being graduates in it. Permit me to congratulate you most heartily.

21 West Seventy-fourth Street.

THE EARLY TREATMENT OF FACIAL PARALYSIS.

By WILLIAM MARTIN, M.D.,

ATLANTIC CITY, N. J.

Recently the writer read an interesting paper* upon the etiological factors bearing upon the therapy of Bell's palsy, and in the course of the paper there appeared the following paragraph: "During the first ten days to two weeks no electricity should be given whatsoever. But about the end of this time a test should be made electrically to determine the amount of damage done. If faradic irritability is present in any degree, a more favorable prognosis in store for the patient. I have seen these patients get better within two weeks." The author then goes on to those cases of longer standing in which may be found the reaction of degeneration with their less favorable prognosis, and he then further outlines their treatment electrically, using the well-known interrupted galvanic current.

There are some points in this paper that will bear investigation as to their merit. Why should we delay even ten days before treating electrically? These statements are not followed by an explanation so that one can properly judge their correctness, so they are open to question.

As neuritis may be recognized as the factor involved in a fair number of cases, there can be nothing gained by waiting for the neuritic process to extend. The logical thing to do would be to get at it at once when recognized, and the only method of treatment of avail is the electrical. This does not mean the use of the interrupted galvanic current, but the more modern method. As in any case of neuritis, we have the inflammatory exudate causing mechanical pressure at the points of exit of the nerve and naturally this must be removed before a cure can be had. The best current for this effect is the static wave current, which by its mechanical action, causes frequent contractions of the tissues, thus breaking up adhesions and clearing out the exudate.

It can be readily seen that the longer the exudate remains in situ the more likely is it to become organized, and thus make additional pressure with the resultant effect of interrupted motor and sensory function.

Hyperemia appears to be one of nature's methods of restoration, and in her effort to secure this, we often have a circulatory stasis instead. If, therefore, we can produce a true hyperemia, it would seem logical to believe that we could restore function, granting that the pressure had been removed from around the nerve. This calls for radiant light and heat, produced by radiations from a high-candle powered carbon-filament lamp properly hooded, so that the rays are thrown in parallel. This applied over the face to a point of active hyperemia, will meet the requirements. The two treatments mentioned, static wave current and radiant light and heat, should be used as early in the case as possible after the paralysis happens, for the rapidity of relief and cure depends upon this early treatment.

In those cases that the physician unfortunately does not see as early, there must be used in addition the slow surging sinusoidal current, the basis of which may be the constant or galvanic current, if preferred. The interrupted galvanic is a harsh method of applying the current, and once a patient has the sinusoidal used, it will be impossible to have his consent for the use of the interrupted current, for the difference is so marked when comfort is considered, that they cannot be placed in the same class.

As an etiological factor we must not lose sight of focal infections. As these cause a neuritis of other nerves, so may they be the cause of facial paralysis, and all tooth abscesses, pyorrhœal pockets, and other foci, must be eliminated before we can expect to secure the effect that we desire.

In the writer's experience there have been cases of atrophy of the facial muscles in cases of facial paralysis of only two months' standing. This shows the danger of delay. In every case of this kind, it has occurred as the result of the physician's advice to wait before doing anything. Such advice usually calls for six weeks delay before using electricity, and is the result of medical teaching of decades ago, from which many do not seem to have recovered, in spite of what has been since taught by modern electrotherapists.

Within recent time three cases came to the writer's notice that illustrate what this paper is meant to imply, the danger of delay. These cases came within two days, one being a case a week old, another six weeks old, and the third of over two months' duration. The latter had well advanced atrophy and all the physical signs exaggerated. It will not be necessary to go into detail concerning the treatment of these, except to say that it was instituted at once in all cases. The first promptly got well under electrical treatment, being of less than two weeks' duration; the second improved considerably in three weeks, but did not continue treatments until entirely cured, while the third was forced to continue them for nearly two months.

In the latter case the atrophy entirely disappeared, but there remained for a considerable time

*J. H. Lerner, M.D., "Study of Etiological Factors Bearing on the Therapy of Bell's Palsy, Based on a Review of 177 Cases." Medical Record, February 22, 1919, pp. 319.

the inability to pucker the mouth sufficiently to whistle. This finally came also, and the patient was discharged cured, but somewhat sore about the physician's advice of delay in treatment.

In the writer's judgment, this cannot be too much emphasized, that in delay we have danger, that all cases must receive prompt treatment, and that if modern electrical methods are used, we will have prompt results from prompt treatment.

Maryland and Pacific Avenues.

RABELAIS' MENTION OF THE MUSCLES.

By Douglass W. Montgomery, M.D.,

San Francisco, Cal.

The physiology of the Middle Ages rested on the sentiments and feelings and for this reason alone is well worth studying, as sentiments and feelings now, as always, are the predominant and fateful features of human character. The sciences on which physiology and the practice of medicine now rest were unknown, and yet physicians were successful, had large and lucrative practises and great influence, as, for example, Rabelais himself.

What might be called the spiritual point of view in ancient physiology is nowhere better exemplified than in the conception of the action of the muscles.

The energy moving a muscle was not supposed to arise in the muscle itself, but was assumed to be transmitted to it in the form of spirits from the brain. Roughly speaking, the food was endowed; in the liver with natural spirits; in the heart with vital spirits; and in the rete mirabile and in the cerebral ventricles with animal spirits. The epithet animal has here not the same signification as with us, but referred to the soul (Latin, *anima*, soul). These animal spirits were assumed to be a most subtile fluid, and were transmitted from the brain to the muscles through the nerves, which were thought to be hollow. The idea that the nerves were hollow persisted long after the introduction of the microscope, as a medulary nerve, examined fresh shows a central core which appears to broaden out, and becomes obscure on raising the objective, and on each side of this core a border, which grows brilliant as the objective is raised.[1] In France, even yet, the nerves are called "*tubes nerveux*."

By means of these animal spirits the brain gave both sensation to the nerves and motion to the muscles.[2] The brain therefore was regarded as a force-producing, not merely a governing and regulating, organ.

Following out this idea of cerebral spiritual energy, Rabelais considered the animal spirits powerful, and compared them, in his fantastic figure of Lent, to mighty blows with the fist.[3] And in regard to the mode of transmission of these spirits he said the nerves, which were also supposed to be provided with valves, were like a faucet.[4] Furthermore, in the same fantastic figure, Rabelais compares a muscle to a bellows. Le Double has shown that the old spindle-shaped French bellows resembled the spindle shape of a conventional muscle, and its swelling and relaxation in action also carry out the same idea, so that in such a conception the animal spirits could also be naturally compared to the air inflating a bellows.

In those days the tendons and aponeuroses represented the strong part of the muscular system, and what we now call muscle was considered packing. This view had real common sense in its favor. Muscles were known to be strong, and the strong tendons, and the strong connective tissue fibers spreading out from these, were obviously stronger than the soft friable tissue making up the mass of what is now known to consist of muscle fibers. It was not till long after Rabelais that a Dane named Niels Stensen[5] and an Italian named Borelli[6] recognized that what we now call muscle was the real contractile part of the organ, and that what we now call the tendon and its fibers were the passive transmitters of muscular energy.

The Will and Voluntary Muscular Effort.—The muscles are the motor organs of the body, and many of them, those called voluntary, are admirably subservient to the will.

As soon as it became accepted, as it was in Rabelais' day, that the will resided in the brain, then the feeling of making an effort naturally also would be referred to the brain.

Take as an illustration the case of an ocular surgeon afflicted with the palsy and tremulousness of elderly life, who, when operating for cataract becomes absolutely steady. Here the old discipline and habit come in to aid the power of the will to control temporarily the failing steadiness. When the effort of the will is relaxed the palsy returns. It would be perfectly natural for such a man, under such circumstances, to refer the real seat of power, as well as the government of it, to the brain.

When the energetic and able monk, Friar John, was turning a band of the marauding army of King Pichrocole out of the vineyard of the Abby of Seuillé, if any rascal of them showed an inclination to resist him, the determined priest immediately gave him a sample of the strength of his muscles, and transpierced his chest by way of the mediastinum and the heart.[7] This indicates clearly that Rabelais considered the muscles as the motor organs of the arms. But in a physiological system built up on sympathetic and temperamental lines, the entire conduct of the monk, impelled as a harmonious whole by his fighting and imperious will, would lend itself to the idea that the power itself came from the brain.

Again, when Gymnaste, the esquire of Gargantua, was doing all sorts of circus tricks before the astonished men of Captain Tripet's company, he, in one of these tricks, sustained his entire weight on the muscle and nerve of the thumb placed on the bow of his saddle.[8]

In those days tendons were also called nerves, and undoubtedly the author refers to the magnificent tendon of the flexor *pollicis longus*. The whole scene refers to the action of the will carrying the body through all sorts of graceful motions, and is therefore an example of the old sympathetic view of physiology, conceived before oxygen or carbohydrate were ever dreamed of.

The word nerve originally meant the string of a bow, and bow strings were frequently made of sinews, so that it was natural to call any string-like structure in the body a nerve. Our old proverb, "Money is the sinews of war," occurs in Rabelais as "*Les nerfz des batailles sont les pe-*

cunes," and in this he only follows his Latin predecessors, as, for instance, Tacitus, "*Pecuniæ belli civilis nervi sunt.*"[9] It is interesting to note that in this proverb the idea of strength is referred, not to the true muscular substance, but to the tendons.

In the following situation in Rabelais, however, the term "nerve" is employed in the sense in which we now usually use it:

Out of love of mischief, Friar John, while on ship-board before the Island of Ganabin, induced Pantagruel to order a salute fired to the Muses, and, as he alleged, to prevent the powder going bad in the cannon. The real reason was to frighten Panurge, who was below decks, and therefore got the full effect of the noise of the explosions. The manœuvre was a complete success. As Rabelais puts it, the restraining virtue of the nerve which restricted the sphincter muscle (*sphincter ani*) of Panurge was relaxed.[10] This muscle is circular and has no tendon, so that the word nerve cannot here mean tendon, and must therefore refer to the nerve. It shows clearly also that Rabelais understood that the nerve had an influence on muscle, which, like the production of motion by muscle, was a very old observation.

There is still another reference to muscle of which I do not know the meaning: In the great public altercation by means of signs between Panurge and the learned Englishman Thaumast, the latter made a sign by striking the middle finger against the muscle of the palm, which is below the thumb (*le muscle de la vole qui est au dessoubs du pouce*).[11] By "muscle of the *vola manus* lying below the thumb," Rabelais undoubtedly meant the whole thenar muscle mass, which had not, in his day, been dissociated into its separate elements of the short abductor of the thumb, the opponens, the short flexor, and the adductor.

This sign made by striking the middle finger against the thenar eminence may have had some special meaning in the Middle Ages, now altogether lost. It was an age, as we know, particularly rich in signs and salutations, and appertaining ceremonies and precedures, many of which still linger in medieval governments, and which no doubt will give rise to many a shock to sensitive nerves in the diplomatic relationships between America and her European contemporaries after the present war.

REFERENCES.

1. Ranvier, quoted by A. F. Le Double, Rabelais Anatomiste et Physiologiste, 1899, p. 288.
2. The brain . . . will give no feeling to the nerves, no movement to the muscles. Book III, Chapter III.
3. Les esperitz animaulx comme grands coups de poing. Book IV, Chapter XXX.
4. Les nerfs comme un robinet. Book IV, Chapter XXX.
5. Niels Stensen (Nicholaus Steno) (1638-1686), whose name is familiar to us in Steno's duct.
6. Giovanni Alfonso Borelli (1608-1678).
7. Gargantua, Chapter XXVII.
8. . . . se soustenant tout le corps sur le muscle et nerf dudict poulce, et anisi se tourna troys foys. Gargantua, Chapter XXXV.
9. Gargantua, Chapter XLVI. Edition Abel Lefranc, Note 20.
10. La Vertu retentrice du nerf qui restrinct le muscle nommé sphincter. . . . Book IX, Chapter LXVII.
11. Book II, Chapter XIX.

EXPERIENCES WITH NEODIARSENOL (CANADIAN NEOARSPHENAMINE); 241 INJECTIONS WITHOUT ILL EFFECTS.

By HERMAN GOODMAN, M.D.,
FIRST LIEUTENANT, M. C., U. S. A.
VENEREAL OFFICER, CAMP LAS CASAS, PORTO RICO.

RECENT articles based on few observations, and without fully citing the method of administration have created a wrong impression concerning the neodiarsenol brand of neoarsphenamine which an experience with the drug in 241 injections to 100 women has failed to sustain, and which is thought to be of sufficient interest to warrant publication.

Neodiarsenol is made in Canada. The drug comes in ampoules and is canary yellow in color. It is powdered and does not cake in the ampoules. A small file, glass rod, and a sheet of instructions are in the container (sealed cardboard box), which latter carries the control number. This number is different for every tube, and the number is not carried on the label of the ampoule. We received one lot shipment of 500 ampoules of 0.9 grams with the control numbers about AZ6300.

In the preparation of the drug for intravenous use, rigid asepsis was observed. The apparatus was boiled just before using in distilled water. The water for the solutions was always freshly distilled (never more than six hours old), boiled, and cooled to room temperature. Solutions were prepared for six patients at once and since we were working at the Hospital Jail at Ponce, and were using two tables, each with its trained operator and assistants, all the solution was used within fifteen minutes of its preparation. One doctor made all the solutions.

One hundred c.c. of cooled freshly distilled water was put into an Erlenmeyer flask of 250 c.c. The neodiarsenol ampoules were opened by scratching the neck with a file, and gently tapping the end. The heated glass rod was not used. The powder was dropped on the water. Water was then added to make up the necessary bulk which was 30 c.c. for each patient. The flask was then gently rotated and the powder went into solution readily. It does not dissolve with the ease of the neosalvarsan of the Germans. Small particles persist for at least half a minute longer than the main bulk of the powder, but it has not been necessary to filter. We use the gravity method for the injection with the Fordyce needle. The solution is injected at room temperature.

The patients are always prepared for the injection by having the bowels emptied by a cathartic taken the day before, and by omitting the previous meal. Following the injection, the patient lies down. Only fluids are permitted (milk, coffee, or soup, and plenty of water), for the rest of the day.

Injections were given at weekly intervals to 100 women in the latent tertiary stage of syphilis, all of whom had four plus positive Wassermann reactions. In 52 cases, a full course of three injections was given. In the other cases the women had been released. Thirty-seven women

received the first two doses and 11 women only one. The initial dose was 60 centigrams; the second 25, and the third 90. The amount of fluid was 30 c.c. for each injection.

Although on the lookout for reactions, and the patients volunteered complaints readily enough when complaints were due, we had only 12 reactions of the delayed mild evanescent type. Headache was a symptom in seven cases, but it never lasted longer than 12 hours. General flushing of the skin accompanied this headache in 4 cases. Pain in the abdomen was complained of 4 times. One woman vomited about five minutes after an injection of 0.9 gm.

Further experience with neodiarsenol, in which three doses were administered within three days, is being reserved for another paper.

Summary.—Neodiarsenol was injected 241 times in 100 cases. With proper care in the preparation of the glassware, freshly distilled water that has been boiled and cooled to room temperature, and the patient prepared, the injections of neodiarsenol were not attended proportionately with any greater number or kind of reactions than the injections of 147 doses of arsenobenzol (Schamberg) which we administered to 59 women during the same period.

REFERENCES.

1. Zeisler: "The Toxicity of Neodiarsenol," *J. A. M. A.*, Vol. LXIX, No. 26, p. 2181.
2. Richardson: "Reaction following Administration of Neoarsphenamine (Neodiarsenol Brand)," *J. A. M. A.*, Vol. LXXI, p. 279.
3. Goodman: "Preparation of Solutions of Salvarsan and Arsenobenzol for Intravenous Use," *New York Medical Journal*, June 15, 1918.

A NEW INCISION FOR APPENDECTOMY.

By LEIGH F. WATSON, M.D.,
CHICAGO.

MANY writers have noted that in the cadaver the base of the appendix is found at McBurney's point, while in the living subject it is below this point, usually on a level with the center of Poupart's ligament. A number of operators have called attention to the ease with which the appendix can be removed when operating for right inguinal hernia. Since 1910 I have used a new incision with its center over the base of the appendix, and believe that in many cases it is an improvement over those in general use.

Incision: A point one and one-half inches from the right anterior superior spine, on a level with a line connecting the two superior spines, is selected for the beginning of a vertical incision which extends directly downward for two to three inches to a point just above and to the inner side of the internal abdominal ring.

Advantages: Traction to expose the appendix is avoided, because this incision, in the external oblique and its aponeurosis—the most resistant structures, is directly over the base of the appendix. It can be enlarged without weakening the abdominal wall. The ilio-hypogastric and ilio-inguinal nerves are not injured because the incision lies between them. Because this incision is made over the cecum, the small intestines do not crowd into the wound as they do with the McBurney and lateral rectus incisions.

30 N. MICHIGAN AVENUE.

Medicolegal Notes.

Liability of Hospitals for Employees' Negligence.—In an action against a corporation owning a hospital for the negligence of a nurse, the California Supreme Court holds that the question of whether a hospital is a charitable institution or is operated for profit is determined, not alone by the powers of the corporation as defined in the charter, but also by the manner of conducting the hospital. The purposes outlined in the articles of incorporation of the defendant corporation were almst as broad as the field of Christian philanthropy, extending its limits throughout the whole world. They included power to devote the funds of hospitals founded by the corporation to engage in the promulgation of hygiene, temperance reform, and Christian philanthropy and to manufacture and sell hygienic goods and sanitary products. The sanitarium founded had been operated at the time of the injury to the plaintiff for 13 years (1898-1911) without having at any time received any charity patients. Whatever the intent of the organization generally, the court said, it was evident that the hospital itself was being used as a money-making institution and should be treated as such, unless the fact that the corporation was a non-profit making corporation and that all money made in the hospital was ultimately devoted to some charitable purpose would prevent that. The trial court found that the hospital was in fact operated for profit. On appeal it was held that the evidence supported this finding, and the court saw no good reason for exempting the defendant from the liability incurred by other hospitals conducted for profit.

Although it was unnecessary for the decision of the case to pass upon the nonliability of public charitable hospitals for negligence or the reasons therefor, the court referred to the fact that the courts of this country have almost unanimously arrived at the conclusion that hospitals organized for charitable purposes are not liable to their patients for injuries arising from the negligence of their employees, where reasonable care is used in the selection and retention of them, although the reasons given for this rule vary in the different states. The most liberal theory of exemption is that based on what is known as the "trust fund theory," that is, on the proposition that the court will not allow funds held in trust for a charitable purpose to be diminished by the payment therefrom of damages due to the negligence of those employed by the trustees in charge of the trust property. The court cited the recent case of Gamble v. Vanderbilt University (Tenn., Feb. 9, 1918), 200 S. W. 510, to the effect that a corporation organized to conduct a public charity may also conduct an enterprise for gain and be liable for the negligence of its employees in such enterprise, although the profits derived therefrom are devoted to the general purposes of the charity. In reference to the trust fund theory of nonliability the court in that case said "How this shall be applied to particular cases or classes of cases is a matter in the wise discretion of the court of each jurisdiction, according to their conception of sound policy. . . . Public policy is not a thing inflexible. No court is wise enough to forecast its influence in all possible contingencies. Distinctions must be made from time to time as sound reason and a true sense of justice may dictate."—Stewart v. California Medical University and Benevolent Assn., California Supreme Court, 176 Pac. 46.

Construction of Harrison Anti-Narcotic Act.—In proceedings for violation of section 2 of the Harrison Anti-Narcotic Act it was unsuccessfully contended that to dispense or distribute the drugs is not to sell, barter, exchange, or give them away. The Federal District Court for the Western District of Pennsylvania held that it could hardly be said that words of so broad import as "sell, barter, exchange, or give away," when standing together, were intended by Congress to be so narrowly and strictly construed as to include only those cases where title to the prescribed drug was in him who undertook to dispense or distribute it. The lawmakers were not concerned with the ownership of the drug, but with its unlawful distribution. The statute was held to be constitutional.—United States v. Jin Fuey Mong, 253 Fed. 213.

Medical and Surgical Lessons of the War.

SANITATION IN WAR.

By Col. GEORGE G. NASMITH, C.M.G., Ph.D., D.Sc., D.P.H.,

TORONTO, CANADA.

SANITARY ADVISER AND OFFICER IN CHARGE WATER SUPPLY, FIRST CANADIAN CONTINGENT; OFFICER COMMANDING CANADIAN MOBILE LABORATORY, B. E. F. FRANCE.

It should be remembered in dealing with this subject at the present time that none of the warring countries of Europe have so far published statistics as to morbidity and mortality from preventable diseases. Though numerous papers have been published on special researches and phases of medical or sanitary work, little of a general character has been written. There is no summary available, for example, of the general sanitary methods and procedure followed in any given war theater, and naturally so, for during war one does not publish anything that may be of value to the enemy.

We are therefore at this date compelled to speak in general terms of sanitation in war, and, naturally to view the problems from the angle most familiar to us. In the case of the writer, experience of sanitation in war was gained during some two and a half years with the original Canadian expeditionary force in England and the British army on the Western front. Consequently sanitation as practised in the British army in France will be the practical basis of this article. The British medical and sanitary officer has had opportunities unrivalled by any other country in the world. Having to control the health of communities as great as India with her 300 millions of people and as varied as those of Egypt, Central and South Africa, Australia, Canada, West Indies, British Guiana, and Hong Kong, she has had to meet and endeavor to solve every sanitary problem known to humanity and has in consequence an unrivalled wealth of experience to draw from.

Naturally therefore it was to be expected that sanitation as carried out in the British army would be inferior to none, and that freedom from epidemic disease and a low morbidity and mortality rate would be found. Such proved to be the case. It may be said in general that in the first year of the war the British sanitarian had encountered and solved all the sanitary problems that were capable of a practical solution and had established a system that subsequently needed but little alteration. No apology therefore is necessary for taking the British army as a model from the standpoint of sanitation and hygiene.

The maintenance of the health of soldiers and the prevention of communicable disease is, in theory and practice, a comparatively simple matter provided you have proper medical organization and discipline of troops. This is particularly the case in permanent camps, where conditions are fixed, apparatus is stationary, extra assistance from civilian sources is always available, and soldiers are under absolute control. It is a simple matter in permanent camps to evolve a set of cast iron rules to be followed and to install the necessary sanitary apparatus. It becomes increasingly difficult to keep an army in a sanitary condition as front line conditions are approached.

In the temperate climate of western Europe the vast majority of communicable diseases of importance from the military standpoint are contracted largely in three different ways which may be outlined as follows:

Group 1. From intestinal excretions; *e.g.* cholera, typhoid fever, dysentery, etc.

Group 2. From throat and nose secretions; *e.g.* diphtheria, measles, influenza, etc.

Group 3. From biting insects; *e.g.* malaria, typhus fever, plague, trench fever, etc.

The first group, including typhoid and paratyphoid fevers, cholera and dysentery, all of which are intestinal diseases, is largely conveyed from the sick to the well indirectly through contaminated water and food. To develop a disease in this group means that the excreta of somebody who has the disease or who has had it, have been taken into the mouth and swallowed, and the germs finding a favorable medium in the intestines have multiplied and produced the typical symptoms.

The second group, which includes practically all the ordinary diseases like measles, mumps, whooping cough, influenza, pneumonia, scarlet fever, cerebrospinal meningitis, and diphtheria, is conveyed in most cases by one infected person transmitting directly to another person—through coughing, spitting, or sneezing—germs present in the nose and mouth secretions.

The third group is conveyed by insects biting people or animals infected with the disease, and subsequently biting people who are healthy. In this way the disease-producing organism is introduced into the body of the healthy person and there multiplying brings about the symptoms of the disease. Malaria is transmitted in this way by the Anopheles mosquito and typhus fever by lice. Insect borne diseases are greatly to be dreaded in any army because they are so difficult to control.

It is the primary aim of the army medical officer, and particularly of the Sanitary Officer, to prevent the germs of any of these groups from gaining entrance to the body of the healthy soldier and, also, where possible, to destroy them after they have left the bodies of soldiers harboring them. In other words the object of the army sanitarian is to destroy some link in the chain of operations whereby disease germs, discharged by cases or carriers of disease, find their way to healthy soldiers.

To accomplish this in the case of the first group it is necessary to destroy or sterilize all fecal matter which might contain the germs of enteric disease. As this is not humanly possible, it is necessary to protect such fecal matter from flies and other insects which may transmit any disease germs present to food. It is furthermore necessary to protect food from insects, and, since water and milk supplies may, in spite of all existing precautions, become contaminated, to sterilize these by boiling or other equally efficacious means. Wherever we have, as in typhoid fever vaccine, a specific

method of protection, this is invariably employed.

The second group of diseases, including those in which the infective agent is conveyed directly from person to person chiefly in mouth and nose secretions, is practically controlled in armies by early diagnosis, the removal and isolation of the infected cases, and the close supervision of immediate contacts.

Though the work in regard to this group is largely delegated to the responsible medical officer it is the function and the duty of the sanitary officer to see that the purity and safety of the milk and water supplies are ensured and that the drinking utensils of canteens and messes—one of the commonest means of infecting men wholesale—are properly cleansed and sterilized.

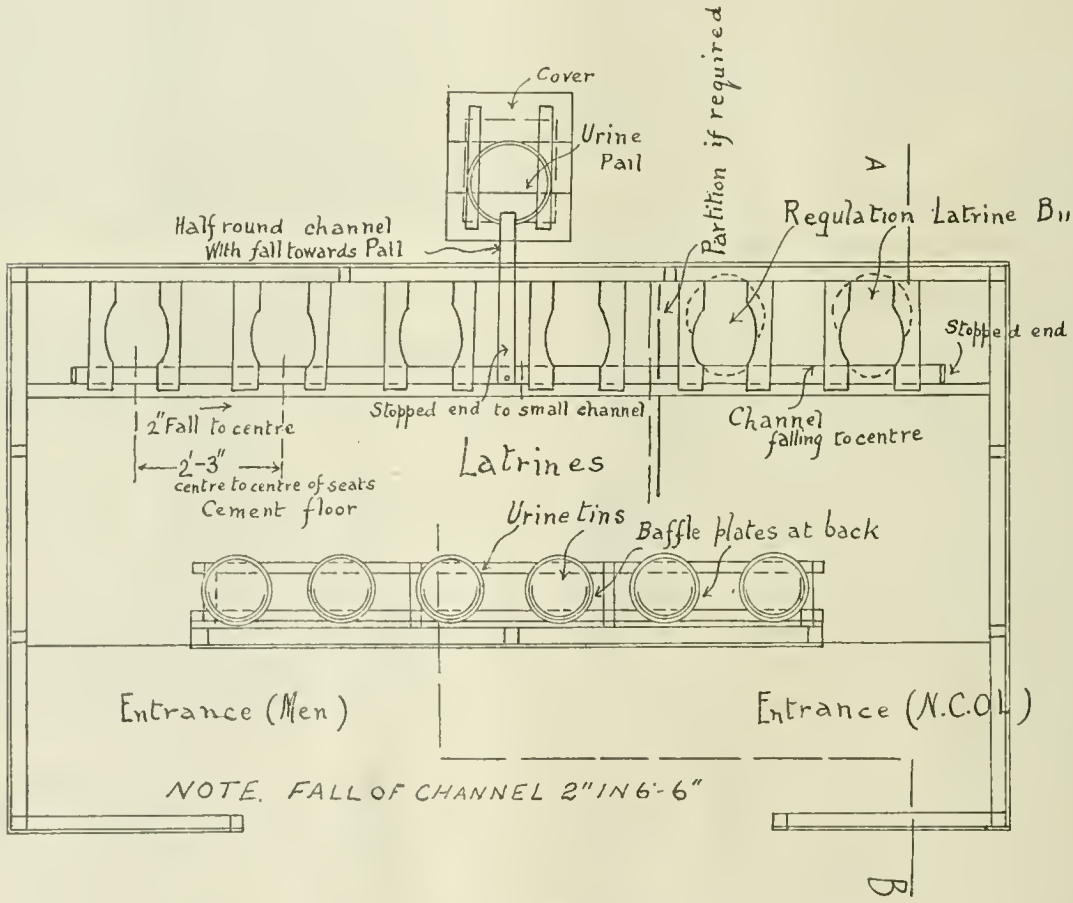


Fig. 1.—Sketch of combined latrine for permanent camp.

The third group of diseases, viz., those conveyed by biting insects, must be controlled through destruction of the insects themselves and their breeding places, as well as preventing infected and uninfected people from being bitten.

In the case of malaria it is good business, where possible to destroy the breeding places of the Anopheles mosquito; it is equally important to remove cases of carriers of the malaria parasite from the army area and to screen the sleeping quarters or even the sleepers in the open air in order to prevent infected mosquitos from transmitting the disease organism; but it is perhaps most important of all to employ the well-known prophylactic—quinine.

In the case of typhus fever, relapsing fever, and trench fever a constant war must be waged against the ubiquitous louse, which transmits the infective agent of each of these diseases; only those who have had experience with an army in Europe know what a continuous and worrisome war that is. Trench fever alone is said to have put more men hors de combat at one time in the British army alone than were present in the original British expeditionary force.

Accepting the above grouping as a working basis it is easy to see how sanitary methods must be adopted to prevent the transmission of disease germs from the infected to the healthy members of the army. Generally speaking it means the rendering of all excreta innocuous, the purification of all drinking water and milk supplies, the control of flying and biting insects, the disinfection of fomites, the early diagnosis and segregation of cases of disease, and the physical cleanliness of the soldier and his surroundings.

Permanent Camp Sanitation.—The sanitary control of permanent camps is a simple matter, particularly when the soldier once realizes that he is an integral part of the sanitary system.

Sewage may be disposed of: (1) By the water carriage system; (2) By the pail system; (3) By the trench system.

In the first case the method is similar to that of any modern town in which sewage is carried by a system of pipes to a disposal system consisting of screens, grit chambers, settling tanks and perhaps oxidizing beds or some modification

it. The effluent from a military camp sewage disposal system should be disinfected.

In the second case the solid and liquid excreta are collected daily in separate pails, and either buried without the camp or destroyed by fire. (See Fig. 1.)

In the third case excreta is received into deep or shallow trenches which are gradually filled in and the excreta finally buried. This method is not suitable or practised in permanent British camps because the area required is too great and the camp ground becomes too much fouled.

In Canadian permanent camps the water carriage system is the one in use; in American permanent camps the same practice usually obtains; in England the method in use depended on the location. On Salisbury plains standing orders forbade the pollution of the ground at all and consequently excreted matter had to be transported miles to districts where it could be buried or utilized as fertilizer.

No matter which of these systems is employed the latrines must be kept scrupulously clean and protected from flies, and disinfectant freely used. In the case of field latrines this fly problem is difficult, yet many ingenious methods have been worked out which have proved quite satisfactory. Crude oil in the pails is useful as a vermifuge and where the excreta are burned aids materially in combustion.

Where incinerators are in use to destroy excreta, it is always necessary to utilize a considerable amount of fuel. In camps and towns the waste paper and other combustible material collected is usually quite adequate but may be supplemented by the use of sawdust or other cheap fuel when available. The intelligence of the men employed at the incinerators and their methods of operation are as important as the fuel supply. In Bailleul, France, incinerators for the destruction of fecal matter were in use not 150 yards from my office in a garden backing up on the same square; yet it was six weeks before I discovered their presence and then through accident. On no occasion was their presence revealed by their odor.

In permanent camps the water supply presents no difficulties. Filtration and disinfection are essential and are almost invariably carried out.

The milk supply is also readily controlled by pasteurization when market milk is used or by the use of condensed milk or milk powder. An outbreak of disease due to a defective milk or water supply in a permanent camp may almost be put down to criminal negligence.

The constant surveillance of army canteens, the thorough cleansing of drinking and eating utensils, and, where possible, the disinfection of the same will do a great deal to prevent the spread of many common communicable diseases.

Control of lice and other vermin is not so difficult in permanent camps where it is possible to insist on frequent bathing. Disinfection of clothing by pressure disinfectors or in special huts heated by steam pipes is also a comparatively simple matter as compared with the handling of the same problems in the field.

Sanitation on Lines of Communication.—When we enter the war zone the problems of sanitation begin to take on a different aspect. At the base we have permanent camps like those at home; yet for the simple reason that nobody can foresee the length of a war or unexpected contingencies that may arise, there is a natural reluctance to expend large sums of money upon sanitary works of a permanent character, particularly in a foreign country. Consequently the tendency is to find sewage disposal works of only a semipermanent character at the base, though the baths, disinfectors, incinerators, and similar apparatus will be plentiful and of the most efficient types.

It must be remembered also that on lines of communication the great proportion of the army will be in billets. Consequently the local means of sewage disposal will serve a large proportion of the military community and will be supplemented only where necessary by additional latrines.

Under these conditions sources of infection through contact with the civilian population, impure water or milk, flies, and fomites will tend to approximate those of civilian life. The great difference between the civilian and army population is that every soldier is encouraged to go to his medical officer at the first symptoms of illness, a practice he is only too willing to avail himself of. Consequently, cases of communicable disease are picked out early and epidemics are nipped in the bud among soldiers, whereas they tend to take their normal course among the civilian population.

For this reason and because it is to the interest of the civilian and army population in warring countries to avoid epidemics, it is the practice for the civilian and military medical men to cooperate and be of the greatest possible use to one another. Thus if a civilian develops diphtheria or typhoid fever or cerebrospinal meningitis in the British army area, it is customary for the civilian medical man to employ the nearest military laboratory for diagnostic purposes and frequently to obtain expert military assistance to give the antiserum or vaccines.

In like fashion it has often been necessary for the British army, in order to protect their own troops billeted in a French town, to chlorinate the local water supply, supervise the local milk supply, assume charge of the sanitation, and even take over the problem of disposing of the contents of middens—no mean task where this is the common method of sewage disposal and consequently where there is one cesspool to every house.

With the British army in France there was comparatively little trouble so far as the French or Belgian authorities were concerned. Local jealousies were easily eliminated by a little tact explaining that the changes suggested would be of real assistance in helping along the Allied cause. It was readily understood by the civilian authority that a soldier was lost to the army and had to be replaced whether the cause was due to a preventable disease or a bullet.

The sanitation of special camps and hospitals on lines of communication was similar to that in base camps. There were no special problems in connection therewith.

Sanitation of an Army in the Field.—In the real

field army the problems of sanitation become more and more difficult of control but here again a great deal of the work is similar to that on lines of communication.

When fighting is stationary or the condition of

Fig. 2.—Incinerator made of petrol tins filled with clay and wired together.

trench warfare exists we have a series of fixed conditions. If we consider the appearance of an open fan we can realize something of the organization of an army. Back at the base of the fan handle we have general headquarters, where the general officer commanding and his staff reside—usually in a town of some size. Farther up on the blades of the fan we have a number of army headquarters. Farther out again are several corps headquarters for each army headquarters; farther out again are a number of divisional headquarters for each corps; still farther toward the periphery are several brigade headquarters for each division; forward still are the battalion headquarters and the front line trench system.

Sanitation in the villages and towns occupied by army headquarters is usually similar to that of towns on lines of communication. As the trenches are approached, however, permanent apparatus gives way more and more to extemporized equipment and field methods. Such field apparatus has usually been evolved through necessity and after much experiment.

Such standard movable equipment as is necessary to the health of the army is invariably cut to the minimum. No more latrine pails will be issued than the number laid down in the book. Iron incinerators can be obtained only with the greatest difficulty because they are heavy to transport and expensive. Consequently the sanitary officer in the field is thrown largely upon his own resources and of necessity has evolved methods and makeshifts that are efficient, are made cheaply from local materials, and can be abandoned without loss when the army moves away. The sanitation of the army in the field gives great scope to the ingenuity of the sanitary officer; it is the type of sanitation that is of the greatest interest to the civilian sanitarian versed in the general principles of hygiene and sanitation.

The sanitary methods in use in the town of Bailleul in Northern France, close to the Belgian border, will serve as an illustration of those found in other towns and villages in the war zone on the Western front. Bailleul was the headquarters of an army corps. In peace times it had a normal population of about 12,000, which increased to about 18,000 during war. There was no water-carriage system of sewage, each house having its own cesspool. The water supply was piped from Mt. Rouge, about three miles away, where it was collected in a series of galleries and wells sunk in the hillside. In the town a standpipe holding some 18,000 gallons served to equalize the supply and maintain pressure.

The sanitation of this town was taken over by the British army. Instead of muddy and littered roads and streets, the latter were swept daily and kept spotless. The rubbish, such as paper, cardboard, wood, straw, and other combustible

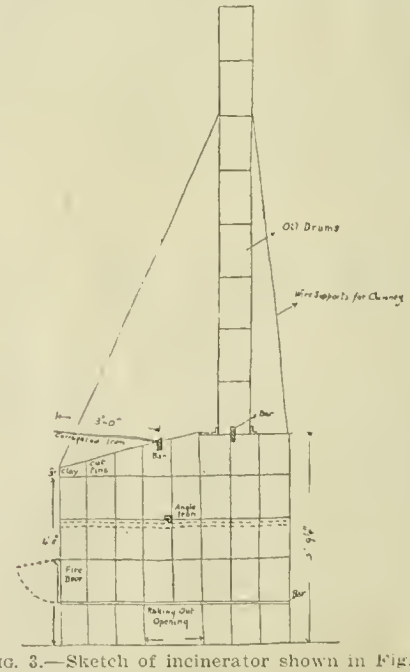


Fig. 3.—Sketch of incinerator shown in Fig. 2.

material, was used as fuel at the numerous incinerators constructed by the army sanitary officers on the edge of the town. Mud and other non-combustible matter was carried to a dump in the adjacent countryside. Horse manure,

of which there was a large quantity, was carted to special incinerators adjacent to the battery of smaller incinerators on the outskirts of the town, and burned. Even the cesspools were emptied under army supervision, by means of a mobile gaso-

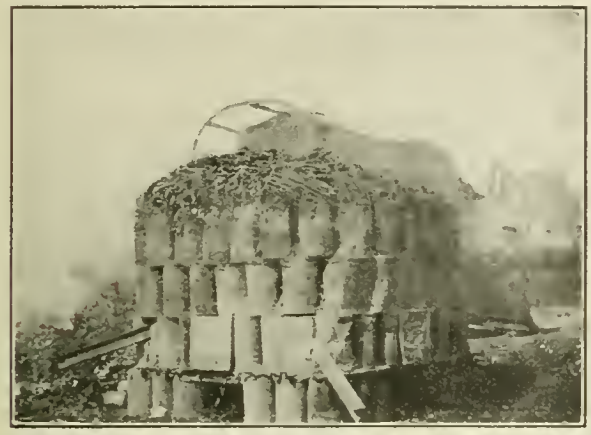


Fig. 4.—Incinerator for destruction of horse manure.

line engine, pump, fire hose and barrels, and the liquid carted away to the farms to be utilized as fertilizer.

Special latrines (Fig. 1) were constructed in different parts of the town for the use of the military only; these were always placed where considerable bodies of soldiers were stationed, as, for example, at the headquarters of an army supply column. In order that the excreta need not be carted through the town and for the sake of conservation of labor, incinerators for the burning of this excreta were built beside these latrines. The combustible material was also brought to the same points, and, as a liberal amount of sawdust was also available, the British soldier found little difficulty in operating these incinerators satisfactorily and without odor right in the heart of the town. In this way the problem of operating latrines, the disposal of excreta by incineration, the disposal of garbage, and economy of transport and labor was satisfactorily solved by a little common sense.

On the edge of Bailleul, near the railway station, a battery of home-made incinerators was constructed from plans elaborated by the British sanitary officer of the town. (See Figs. 2 and 3.) The country soil of Flanders is a heavy, tenacious clay. This sanitary officer discovered that a mixture of this clay and the ash from garbage, when burned, formed a stonelike concrete. He employed 5-gal. rectangular gasoline tins filled with this mixture as bricks with which to construct his incinerators, the cans being wired together with old wire from bales of hay, as shown in the illustration. Fire doors and ash doors were made of tins beaten flat. Old pipes, iron, rods, bayonets, or other scrap were used as grates to support the garbage, and the top was also built of flattened tins wired together. A partition built inside in such a way as to force all smoke through the bed of burning material did not allow of the escape of incompletely burned gases, and consequently there was practically no odor from this cause. The chimney was built of round oil tins with the ends cut out, fitted together and wired.

When the fire was started with rubbish the whole affair baked like stone, and, as the spaces between the tins were plastered with the puddled mixture of clay and ash the incinerator became practically a solid block of stone. The proof of the pudding is in the eating and when I first saw these incinerators in operation they were working perfectly and continued to operate as long as the army occupied the town.

These small units were used chiefly to burn fecal matter and garbage. Close at hand larger units were built for the destruction of horse manure (Figs. 4 and 5). These incinerators were built of gasoline tins or oil drums filled with the clay mixture, in the form of large cylinders about twelve feet in diameter eight feet high, and with open tops. The tins were loosely wired together so that a long iron rod could be inserted between them to stir up the fire and shake down the ashes. The grate bars employed to carry the tons of wet manure and garbage were pieces of old pipe or angle iron, and several pieces were also run at various angles across the incinerator higher up to distribute the great weight of material. When these incinerators once got under way there would be a glowing mass of incandescent material three or four feet deep at the bottom, surmounted by a zone of partially cooked material. On the top was the wet mass, which slowly dried out from the heat beneath. By judicious stoking through the numerous chinks between the drums the dried material was forced down and the fire kept steadily burning. In the evening these incinerators were piled high with refuse, which dried out to a considerable extent during the night, and burned rapidly when stirred up in the morning.

Of course there was a secret in connection with the successful combustion of fecal matter, gar-

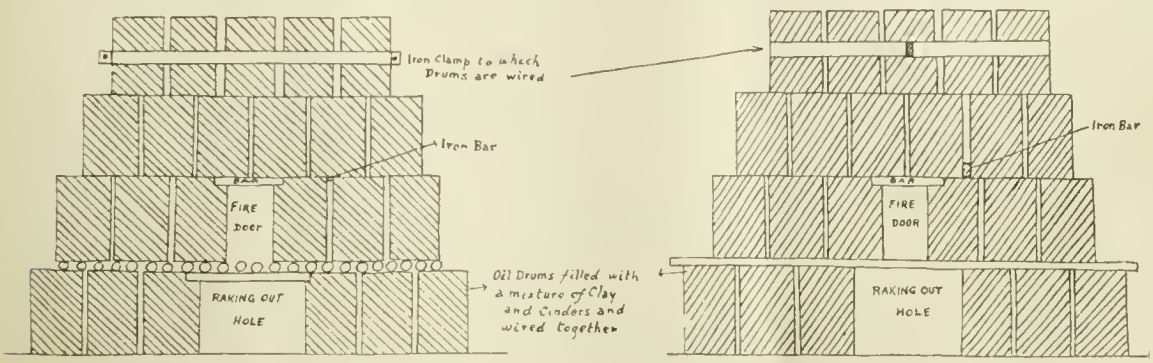

Iron Clamp to which Drums are wired
Iron Bar
FIRE DOOR
RAKING OUT HOLE
Oil Drums filled with a mixture of Clay and Cinders and wired together
Iron Bar
FIRE DOOR
RAKING OUT HOLE

Fig. 5.—Details of incinerator shown in Fig. 4.

bage, and manure, all of which was wet and tended to cake. Caking effectively prevented air and gases from getting through the mass and bringing about combustion. The great secret consisted in mixing large quantities of bully-beef and jam tins with the wet material to be burned. As the combustible material dried it separated from these tins, which also collapsed, with the result that innumerable air spaces formed throughout the mass, allowing a free circulation of air and gases and forming a friable mass which could be poked down with the greatest ease as it dried out.

The tins and clinkers from these incinerators were employed to build roads around the incinerators and make them easier of access.

The water supply of the town was of a yellowish tint and after heavy rains somewhat turbid, with occasionally high bacteria counts and *B. Coli* present in one cubic centimetre under the same circumstances. The water was examined daily in the local mobile laboratory of the British army and in consequence it was considered advisable to chlorinate the water supply. This was done by allowing a regulated amount of hypochlorite of lime solution to flow into the stream of water entering the water tower, a procedure that proved to be quite satisfactory.

The net result was that this particular town was kept clean and free from flies; the water supply was made perfectly safe; the sewage problem was solved most satisfactorily, and in general the inhabitants were never so thoroughly protected from disease as during the time of the British occupation. Furthermore the army laboratory was at the disposal of the local physician for diagnostic purposes and its personnel was availble for taking blood cultures, throat cultures, or giving vaccines or sera.

About seven miles from this typical French town with its typical problems of sanitation were the front line trenches. In this seven mile area were a few little villages and hamlets with extensive army iron-covered huts, built usually in close proximity to the more or less shattered villages. The intact buildings in many of the towns and the immediate neighborhoods served as quarters for the various divisional staffs, for hospitals and other purposes. This area back of the trenches proper was occupied by the artillery, engineers, army service corps, ammunition columns, labor battalions, and all the non-combatant units essential to carrying on the work of an army in the field. Every farmhouse, barn, and cellar was in constant use by some section of the army. Shelter from the elements was at a premium and any shelter is better than no shelter. Consequently in this forward area there were numerous single billets as well as villages, hutments, field hospitals, and other groups to be looked after.

The British army regulations are such that each officer and man must be a sanitarian and must not only observe the regulations but see that others do the same; the principle underlying this system being that "if each before his doorstep swept, the village would be cleaner."

There is in each division of approximately 20,000 men, a sanitary section, composed of one officer and 25 men, whose function it is to keep an eye on the sanitation of the divisional area, report failure on the part of units to observe the established sanitary regulations, see that the incinerators are operated, have new sources of drinking water tested, look after the bath houses, search for cases of communicable disease among the civilian population, and, in general make itself as useful as possible in protecting the army from disease.

It is not the duty of the sanitary section actually to keep the divisional area clean, but rather to see that those responsible keep it clean. In this way every man is made a responsible party, and if the officers of any unit see that the regulations are enforced by each man, the unit as a whole will be a sanitary one.

Besides the sanitary officer of each division there is a sanitary officer for each army, and a chief sanitary officer for the whole expeditionary force. These are all in touch with the sanitary adviser at the base and the authorities in England. Since, under war conditions, new developments are always taking place in this work, any knowledge gained that may be of practical value filters through to the army by these channels as well as through the scientific journals.

In the army in the field the group of intestinal diseases referred to at the beginning of this article is kept under control by the following means: (1) Inoculation of all troops against typhoid and paratyphoid fevers. (2) The destruction of all excreta by fire, or rendering it innocuous by burial. (3) The chlorination—and usually clarification or filtration—of all drinking water. (4) The protection of latrines and food supplies from insects. (5) The search for carriers in cases of suspicious outbreaks.

1. Over 97 per cent of the British army submitted voluntarily to inoculation against typhoid and paratyphoid fevers; the others usually came to it after a few weeks in the field. This, of course, constitutes the first and strongest line of defense, since when other sanitary precautions fail, as they must fail under certain periods of advance or retreat, the inoculated individual carries about with him in his own body the specific preventative. Naturally inoculation with triple vaccine rendered the diagnostic agglutination reaction for typhoid or paratyphoid fever almost useless.

2. *Destruction of Excreta.*—The incineration of fecal matter was carried out to a considerable extent in the field, where extra fuel supplies were available. To a large extent, however, the deep or shallow trench had to be utilized, deep trenching being favored, since it attracted flies less and reduced the area of ground necessary. Petroleum was usually available as a fly repellent.

Where the pail system was employed many ingenious methods were devised and used to cover the pail and make it fly proof. A collection of models of these and other sanitary devices was made by one sanitary officer and placed on exhibition in a front line town, and all medical, sanitary, and other officers in the surrounding area likely to be interested were invited to visit the exhibition. In this way the ideas of the ingenious men were handed on to others perhaps

seeking the solution of some local sanitary problem, which had already been solved by one of the methods exhibited (Fig. 6).

In the trenches the pail system was used; the latrines were established in separate trenches, the pails were carried back at night by fatigue parties and the contents buried, frequently in some convenient shell hole.

Garbage, wherever it was practicable, was burned rather than buried.

Frequently instead of collecting solid fecal matter and urine separately the solid material only was collected; the liquid in such cases where the soil was suitable would pass from the improvised urinals into deep soak pits which had been filled with stone, brick or other loose material (Fig. 7).

Sullage water was also handled in similar soak pits. As, is well known, the ground in the neighborhood of a kitchen or wash bench soon becomes impervious if soapy and greasy water is constantly thrown upon it. It is therefore absolutely necessary to arrange sullage pits in such a way that the greater part of the grease is collected on some loose combustible material before it reaches the soak pit proper. This was successfully accomplished by allowing the sullage water to trickle slowly through an elongated box stuffed full of twigs, straw, grass, or other loose fibrous substance. The grease stuck to the filling material, which was taken out daily and burned. The sullage pit could then readily handle the grease-free water, and was capable of being operated for prolonged, sometimes astonishingly long, periods, without plugging (Fig. 8).

3. *Water Supply.*—In the British army it is the custom to assume that all water supplies are contaminated—a pretty safe assumption in Europe. At the beginning of the war the British two-wheeled water carts, which are barrel-shaped and underslung, were equipped with two clarifiers, one on either side of the body and above the wheels. Each wagon was equipped with a force pump and a length of hose to be introduced into the raw water supply. When the hand-pump was operated the raw water passed through a layer of alum, some of which was dissolved, forming a flock. This flock passed into a hollow cylinder around the ribs of which was tightly wrapped a length of special canvas. The canvas was long enough to pass around the cylinder several times and was tied on with tapes.

The scheme was such that the raw water with its entangled flock had to pass from the outer cylinder through the canvas to the inner cylinder and thence into the water cart. No water was allowed to pass into the cart until the first of the clarified water issuing from a by-pass was seen to be clear. Where the water supply was reasonably clear the clarifier was not employed. In practice the pressure on the canvas frequently became so great where a water was very turbid, that the metal ribs caved in and rendered the apparatus useless. At the beginning of the war the clarifiers were attached to the pump and the body of the cart by fixed metal connections which tended to break, but this defect was readily corrected by substituting rubber pressure hose and placing a single clarifier on the front of the water cart.

Under all circumstances, whether the water was clarified or not, standing orders called for the addition of chloride of lime as a disinfectant. This was supplied in quarter-pound tins with a small spoon attached to the inside of the cover. One or more heaping spoonfuls of the chloride of lime were added to the water in the cart when partly filled: the addition of the rest of the water and the agitation that occurred as the cart was driven back to its station usually proved sufficient to mix the dry powder intimately with the

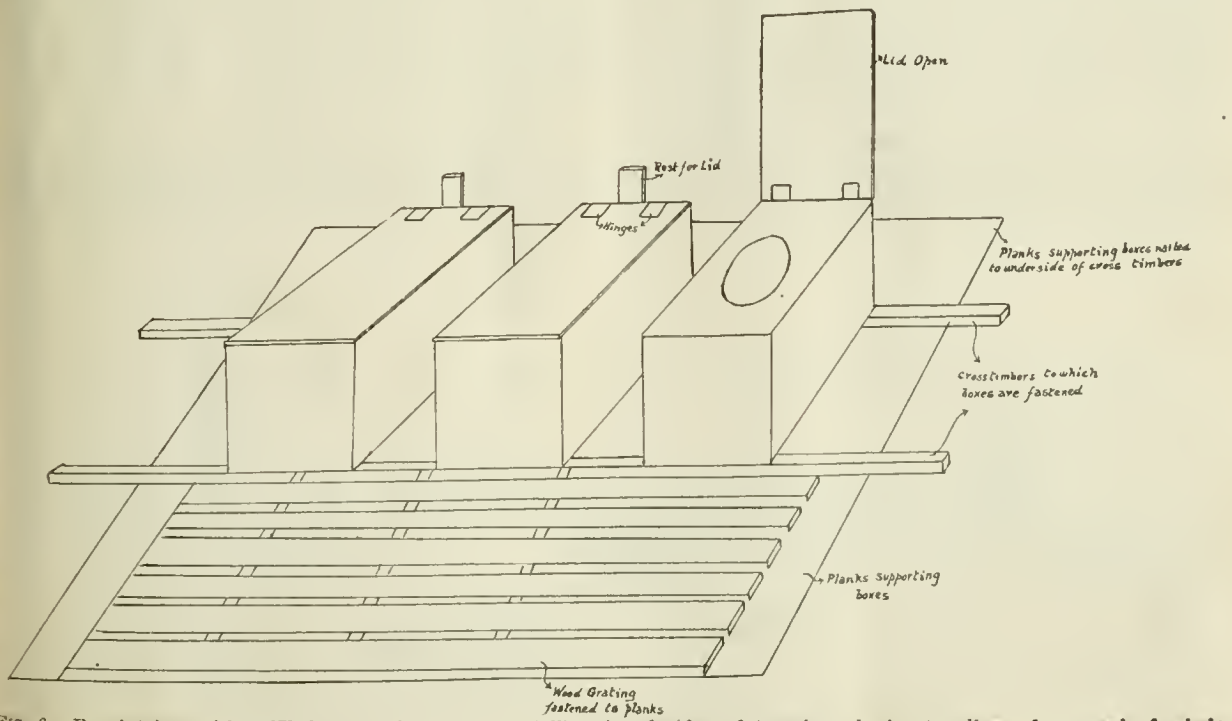

Lid Open
Rest for Lid
Hinges
Planks supporting boxes nailed to underside of cross timbers
Cross timbers to which boxes are fastened
Planks supporting boxes
Wood Grating fastened to Planks

FIG 6.—Box latrine, with solid framework to prevent falling in of sides of trench and also to allow of removal of whole latrine if necessary.

water and bring about the desired result. Frequently, of course, the water was overdosed or underdosed. In the former case the men refused to drink the water and the matter would be corrected. Failure to add a sufficient quantity was not so easy a matter to correct.

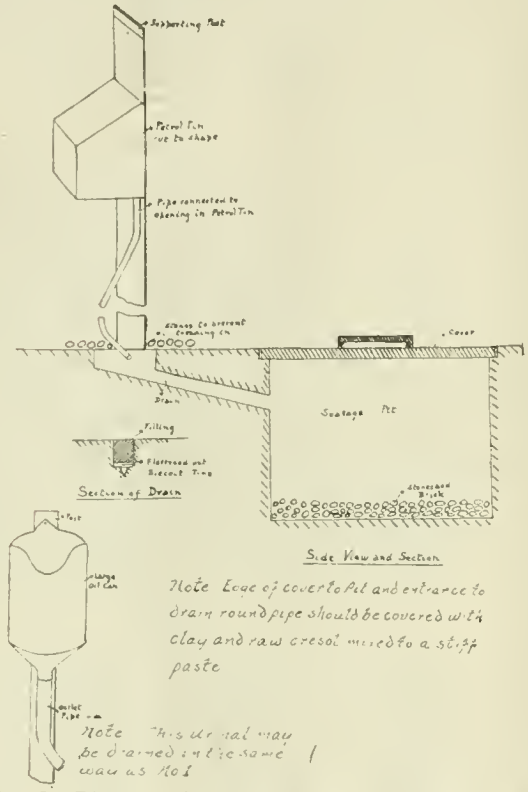

Section of Drain
Side View and Section
Note Edge of cover to Pit and entrance to drain round pipe should be covered with clay and raw cresol mixed to a stiff paste
Note This urinal may be drained in the same way as No 1

FIG. 7.—Disposal of urine when solid material only is collected.

Early in 1915 the Canadian mobile laboratory attached to the British army initiated the practice of taking samples from the water carts preferably shortly after they had been filled. Tests made on the spot with soluble starch solution and potassium iodide revealed the presence or absence of the slight excess of available chloride necessary to bring about satisfactory disinfection. Bacteriological samples taken at the same time proved conclusively whether the water had been treated with hypochlorite of lime or not. Absence of *B. coli* in one cubic centimeter and a low bacteria count was, after some preliminary work, taken as almost certain evidence of treatment; while high bacteria counts and presence of *B. coli* was found to indicate no treatment. These bacteriological findings were reported to the Director of Medical Service of the army and the Assistant Director of Medical Service of the division concerned, a procedure that proved most gratifying in improving the safety of the water supply. The failure was placed on the responsible parties, and where it was necessary every assistance was given by the laboratory to fix the amount of disinfectant to be used, without causing a taste and yet sterilize the water. This was not so difficult as might be imagined, for in any given area there was a comparatively small number of approved sources used for obtaining water. The men in charge would go only to places where the supply could be counted on as plentiful, and these finally became fixed approved sources.

In 1915 an outfit was issued by the sanitary department of the war office to go with each water cart. This outfit enabled the water "detail" to test for himself the actual amount of disinfectant to be used, but in practice it was found that only the interested, intelligent men ever took the trouble to understand the method, which was simple enough. The apparatus consisted of a series of glass tumblers arranged in a row. Each was filled with the water to be tested. To the first was added one drop of a standard solution of chloride of lime made up according to formula; to the second two drops were added, and so on to the sixth. After fifteen minutes solutions of potassium iodide, soluble starch, and sulphuric acid were added to the glasses in turn and mixed with a glass rod. The glass which just showed the blue coloration was taken to be the one desired. Thus if it happened to be the third glass, that is the one to which three drops of the hypochlorite solution had been added, it meant that three of the standard spoonfuls of dry hypochlorite of lime were to be added to the water cart. If it turned out to be glass No. 1, then one spoonful was indicated.

Control of the water supply by the laboratory proved to be a very satisfactory procedure and was adopted throughout the British army. Not infrequently a new division would come into the

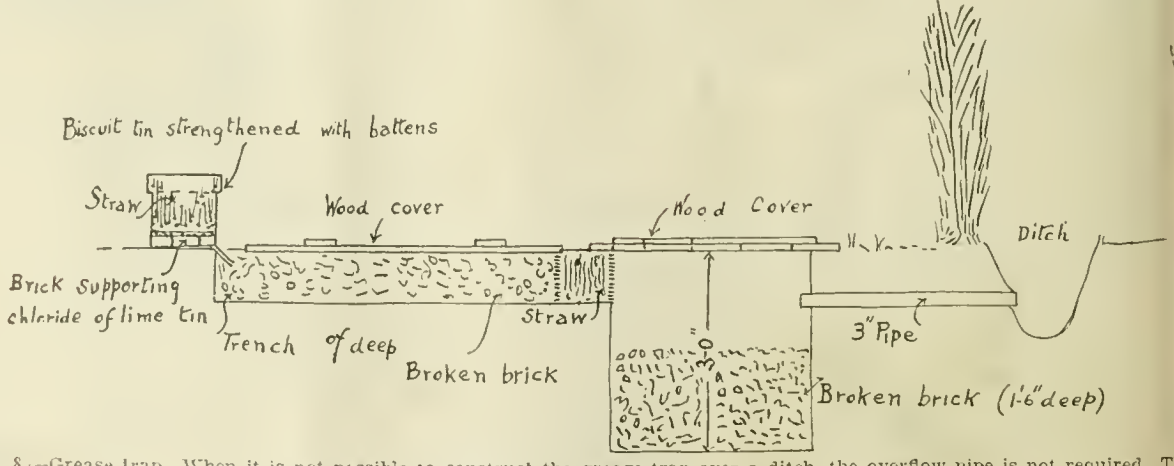


FIG. 8.—Grease trap. When it is not possible to construct the grease trap over a ditch, the overflow pipe is not required. The water in the pit should be baled out and scattered over cultivated land.

area and we would find perhaps only twenty-five per cent. of the water carts being treated by the hypochlorite solution. After two or three weeks, during which the medical and sanitary officers had had their attention drawn to their failures, we would find perhaps ninety per cent. of the water carts being treated satisfactorily. Not only so, but the men would become really interested, realizing that it was responsible work, which, if neglected, meant sickness and consequent inefficiency. When a water detail once grasped intelligently the reason why he was called upon to do his work, he never went back to his careless methods. It was only lack of knowledge and training that made these men inefficient. As an example of what I mean, the first Canadian division water details were thoroughly trained in Canada and in England. No matter where or when we happened to take samples from the water carts of that Canadian division in France, the samples were almost invariably sterile. The men had learned the why and wherefore of their job and took as much pride in it as the infantry man takes in looking after his rifle.

At some water supply centers the chlorination of the water in the carts was not left to the discretion of the individual, but he was told how much hypochlorite of lime to add. Personally, we thought this to be a mistake, for it took all responsibility from the individual and to some extent must have spoiled him for the periods when he would be thrown entirely upon his own resources.

The method of disinfecting small quantities of water by means of a solution of hypochlorite of lime was devised by Nasmith and Graham, and published in the *British Army Medical Journal* in 1911. This method, applicable to a pail, a barrel, or a cart full of water was used to a considerable extent, by the Canadians, particularly. Since the apparatus required consisted of a spoon and a cup only, the method was of universal practicability. Frequently in the trenches and close to them, casks or tubs were set up and the water in them disinfected by the process, where the employment of the dry powder would have been impossible.

The suggestion to use the dry powder was made by prof. Sims Woodhead about the same time. Tiny tablets of hypochlorite of lime, each sufficient to sterilize a pail of water, were made at the writer's suggestion and issued to Canadian units, such as cavalry which might at times be compelled to operate far afield. These were not generally employed and their issue was subsequently discontinued.

In 1914, before leaving Canada for the war zone, the writer had plans draughted of a mobile water purification filtration unit. This unit was to consist of a gasoline engine, pump, sand filter, and disinfecting apparatus, all mounted on a heavy motor lorry. Early in 1915, as a result of experience in France, a paper was published in the *British Army Medical Journal* calling attention to the necessity of such a mobile filter unit in France. The Toronto firm by whom the plans had been draughted for the writer had, meanwhile, through its London branch, drawn the attention of the War Office to duplicate plans which had been forwarded from Canada.

The principle of the water purification unit was accepted by the War Office and several makes were built and forwarded to France during the summer of 1916. Barges with the same type of equipment, but on a larger scale, were also sent to France and to Mesopotamia, where they proved particularly valuable.

The necessity of such mobile filter units was made apparent from the fact that any stream, pond, canal, or other copious supply could be employed for drinking purposes after it had gone through the purification unit. The original idea was to connect one or more of these units with tank lorries or standpipes, at which the ordinary water carts could fill with sterilized water, while the units could, if necessary, go on operating night and day. The lorry filter units worked quite satisfactorily. The barge filter units were even better. Two of these frequently examined by the writer were situated on the Lys River behind Armentières. They were connected to a tank barge into which passed the filtered sterilized water. Gasoline engines and pumps on shore drew the water from the tank barge and forced it through pipes into a series of elevated tanks situated within a radius of three miles of the filter barges. At these tanks the water carts were filled with the purified water.

It is of interest to note that this mobile filter unit was adopted by the American army after thorough investigation—a sufficient proof that the method had proved to be the last word on the subject.

The problem of getting safe water in the front line trenches was not always an easy one. At night the water carts were brought up as close as possible, and fatigue parties from the trenches went back with water bottles and dixies to be filled. In other places, again, it was possible to utilize wells in the neighborhood of the trenches and obtain a more or less precarious supply at night. One of these was responsible for a small but acute attack of pseudo-dysentery. In other places water was brought up on the light railways which came into use more and more as the war kept on. In other areas it was brought up through pipes.

While digging new trenches "springs" were constantly being discovered and were always hailed with delight locally. These "springs" were almost always badly contaminated and were usually condemned. One of these was found in the laboratory to have a bacteria count of hundreds of thousands of bacteria per cubic centimeter. It was condemned on general principles and later on was found to issue from ground in which sixty Germans had been buried. Near another section of trench a shell exploded, uncarthing a "sewer," which was really part of the ordinary subsoil drainage system of the countryside, and the water, of course, was partially filtered surface water.

During an advance in so far as possible the same system was kept up; that is, water carts followed up the advancing battalions and were so placed that fatigue parties could obtain the necessary water supply. In some cases the extension of water pipe lines followed the advance by only a few hours. Of course, many men drank water from shell holes or other convenient supply and took chances on contracting disease.

During the capture of the Messines-Wytschaete ridge by the British, many hundreds of cases of true dysentery, of both Flexner and Shiga types, developed among the attacking British soldiers, but without a single death occurring. They had the specific protection against typhoid and paratyphoid fevers, but, of course, no specific protection against dysentery. The epidemic was quickly stamped out.

To demonstrate that freedom from intestinal diseases is not due to accident, a single example will suffice. Early in the war, when the British took over from the French a section of line in the Ypres salient, the Belgian population in the little village of Vlamertinge and surrounding country was devastated with typhoid fever, and there were also many cases of the disease among the French troops. When the British troops took over the area they not only escaped contracting the typhoid fever themselves, but they succeeded in absolutely stamping it out from among the civilian population, and also in getting rid of any "carriers" of the disease. So completely was this disease eliminated that during the last six months of my stay in that area a civilian search party, composed of non-combatant Quakers, failed to discover a single case, though they carefully and persistently carried on a house-to-house campaign in that district in a search for cases of epidemic disease.

No cases of cholera occurred on the Western front, but they did occur in the Serbian, Russian, Austrian, and German armies. The methods of dissemination and control are similar to those of typhoid fever.

True bacillary dysentery was rare on the Western front and usually developed in units which had been in the Near Eastern front, Egypt or India. It rarely spread further. Amebic dysentery also occurred among the same units to a limited extent.

In the army in Gallipoli dysenteries of both types were very common and played havoc with the force. It was impossible to build fires or destroy excreta on the Gallipoli peninsula; there was no space or fuel, and the trenches were under direct observation. Flies abounded, and swarmed over everything: the connection between food, flies, and feces was too direct to merit more than passing mention. Practically everybody in the Gallipoli expeditionary force got some intestinal disorder, ranging from the mildest form of diarrhea to the types which proved rapidly fatal. Among the diseases contracted there was one which was not clearly diagnosed at the time because hospital and laboratory research facilities were not available in the area, but which was probably epidemic jaundice, or Weil's disease.

Weil's disease was diagnosed bacteriologically in the Ypres region for the first time in 1916. The Japanese had recently proved that epidemic jaundice and Weil's disease were in all probability identical: the causative agent was proved by them to be a spirochete which could multiply in water and could pass through the unbroken human skin. It is of interest to note that the spot where the half-dozen cases came from in the Ypres region in Belgium was a place where a small stream came through from the German lines.

4. *The Control of Flies.*—A great deal of effort was made to control house flies by destroying their breeding places. Manure was burned, buried, scattered on the land, covered with earth, soaked with various chemicals, and surrounded with traps, but flies persisted. In the front line a blue variety of fly, which seemed to breed everywhere outside of manure piles, caused as much or more trouble than the regulation house fly, and nothing could be done to control it.

In the areas occupied by civilian French or Belgians each farmhouse was a center for the propagation of flies, for each country house is literally built around a gigantic manure pile. Manure in France means wealth, the crops obtained depending literally on the amount of manure used as fertilizer. As a consequence every bit of household waste, as well as manure, is tossed into the gigantic manure pit occupying the courtyard, around which are assembled the house, barns, cattle and pig pens. It is little wonder then that when it came to the question of destroying these manure piles the British army found itself up against an impossible situation and had to compromise. Various sprays, which would destroy fly larvæ without affecting the fertilizing value of the manure were tried out, with but very limited success, and the control of the breeding places of flies never was realized. In the Near East and Egypt the flies were a real menace and undoubtedly responsible for much disease.

Though food supplies were usually well protected when received, many possibilities of fly contamination made protective measures sometimes seem almost hopeless. For example, one hot summer day the writer saw a unit of a famous Highland Division getting the midday meal. A rough table had been built at the end of a beautiful orchard. At the other end of the orchard were the latrines. As we chatted to the officers I noticed men going to the latrines and returning. Each one was accompanied by a considerable number of flies, and a large number of flies also hovered about the food being placed on the table. The possibilities were obvious, yet the writer believes from the wonderful record of the British Army in France in freedom from enteric diseases, as well as from personal observation, that flies played a very small part in the transmission of disease. Elsewhere the story was different.

5. *Carriers.*—Whenever there was any reason to suspect an outbreak of typhoid, dysentery, or other disease, the services of the mobile laboratory staff in the area were requisitioned and an attempt was made to discover the origin of the epidemic or possible epidemic. The cooks and immediate companions would be questioned closely and possible samples of excreta taken for examination in the laboratory in the attempt to discover "carriers." The water supply, food supply, and other possibilities would be examined also, in an endeavor to locate the trouble. A considerable number of the not numerous, epidemics of diarrhea were found to be due to a change of food and would clear up in a day or two. The Maconachie ration, which was a sort of Irish stew, was quite frequently blamed by the medical officers for this type of diarrhea.

In the British Army the use of unboiled milk and uncooked vegetables was absolutely prohibited.

The tragic death of General Maude from cholera

in the midst of his great success against the Turks, said to have been due to a single drink of unsterilized water, is a startling example of what one lapse in the usual sanitary precautions can accomplish.

Amebic dysentery caused much trouble in the armies along the Mediterranean. A great deal of research in England established the fact that in the resisting stage the *Entamœba histolytica* was capable of standing the drouth and heat of the Sahara desert for many months and yet be capable of transmitting the disease to animals. The obvious and only known method of controlling this disease at present, therefore, appears to be the incineration of all fecal matter. The cure is long, painful, and problematical at best, though emetine is said to be a specific cure. The horror of emetine by men who have taken that course of treatment is remarkable.

Hookworm disease does not seem to have developed at all in the British armies on the Mediterranean seaboard.

Diseases Conveyed by Direct Contact.—Of these diseases there is little to be said from the sanitary standpoint, the general methods of control outlined at the beginning of this article being much the same as in civilian practice.

Men returning from leave were always introducing measles, mumps, or other contagious disease, but they seldom established themselves in epidemic form. Early diagnosis and removal of the case and observation and isolation of contacts was usually sufficient to prevent their further spread. It was interesting to note that the men of the Highland divisions, recruited from the glens of Scotland, and the Maoris from New Zealand showed very little resistance to the ordinary children's diseases. These two races had evidently little specific immunity, either transmitted or acquired, and were far more liable to contract and become seriously ill from these diseases than ordinary troops. Measles made the Maori very ill indeed, while we had a very difficult time stamping out diphtheria from a Highland division. Many of the men picked out and isolated as diphtheria carriers subsequently came down with the disease; incidentally, one brigade was reinfected by men returning from hospital still carrying diphtheria bacilli.

Cerebrospinal meningitis never became epidemic in France, though isolated cases cropped up at irregular intervals. Smallpox, that curse of past centuries, was kept in absolute subjection by vaccination.

Diseases Conveyed by Biting Insects.—As far as the warring armies in Europe were concerned, the diseases transmitted through the bites of insects comprised only malaria, relapsing fever, typhus fever, trench fever, and bubonic plague. What further diseases of this group may have occurred in Egypt and Asia Minor we have little specific knowledge of, for nothing has apparently been published on the subject.

Of these diseases trench fever was responsible for the greatest number of casualties in France among the British and French armies. In the Italian and Grecian war theater, malaria exacted a heavy toll, while in Serbia and Russia typhus fever was perhaps the most devastating of the insect-borne diseases. Statistics along this line are not available and probably have not been compiled.

The story of Serbia, as the writer heard it from the Serbian representative at the meeting of the War Allies Sanitary Commission in Paris in the spring of 1916, was intensely interesting from the standpoint of the sanitarian. When the German army overran Serbia the whole of the civilian population retreated with the Serbian army. The retreat occurred in the depth of winter and any billets had to be divided between the civilians and the army. Nearly all the medical and sanitary equipment was lost. There was no hospital accommodation. Whatever diseases the civilian population happened to be infected with they gave to the army; whatever troubles the soldiers had they transmitted to the civilians. The misery and suffering was indescribable, and when the retreat finally ended the condition of the Serbian army and the people was pitiable in the extreme. From famine, exhaustion, and disease it is supposed that about half a million Serbs perished and the remnants of the army for many months, through physical exhaustion, were absolutely worthless.

It was the American commission which evolved order out of chaos and established an efficient medical and sanitary service. So bad were the conditions that hospitals endeavoring to take only typhoid fever, for example, would find cases of influenza, relapsing fever, typhus fever, and almost everything else developing in the wards. It was literally an era of famine and pestilence for the Serbs, and the damage done by disease was infinitely greater than that accomplished by the armies of the enemy.

It is a classic example of what may happen to a modern army and to a community of our own day when all sanitary precautions and equipment are swept away and disease as a consequence obtains the upper hand.

The freedom from lice-borne diseases—except trench fever—on the Western front is therefore all the more remarkable, since lice are omnipresent in all armies. The control of typhus fever, relapsing fever, and trench fever depends on the control of lice; that is, it is largely a question of personal cleanliness. People who take frequent baths with soap and water do not carry lice; those who do not bathe, sooner or later will become lousy. Since typhus fever has always been recognized as a great army scourge, steps were taken at once by the British and French authorities to insist on their armies taking regular baths. When trench warfare had once become established this was a comparatively simple matter. Bath houses were established in breweries or special shacks constructed for the purpose in every divisional area, and were sufficient in number to enable every soldier to get a bath whenever he came back into billets. If the bath houses were in breweries the large beer barrels were cut in two for baths. These were filled with cold water and live steam turned into the water to warm it.

Most of the bath houses were in shacks built upon the edge of creeks or ponds and the water was heated by some kind of boiler, frequently of the threshing machine type. One section of the

shack was usually divided off for a bathing room with a number of showers and the other rooms were devoted to the receiving of dirty clothing, washing, drying, and sterilizing. When the men in groups of twenty or thirty at a time passed into the first room they undressed and their dirty underclothes, socks, and shirts were thrown to one side to be washed. The uniforms were hung on numbered racks and hung in the disinfection chamber, where they were immediately treated with live steam, or taken into an adjoining room, where the seams were ironed with hot irons to destroy lice and their eggs.

As the men passed out from their hot bath through another room they were given clean socks, underclothes, and shirts, and by the time they were dressed in these their own uniforms, disinfected, were handed back to them. The whole operation took approximately half an hour and from 1200 to 1500 men, on an average, passed through each bath house in a day.

The discarded clothes were washed and mended by the local peasant women, paid by the army. In one of these establishments which I had occasion to visit there were 160 Belgian women constantly employed. Socks and clothing too far gone to be mended were packed in bundles and sent back to the base.

Unfortunately, the soldiers returning to the trenches or to billets clean and free from vermin soon became reinfected from lice present in the billets or dugouts, and they were soon as lousy as ever. It was difficult to keep the men supplied with disinfected blankets and consequently these were sure to be a source of infection. However, speaking broadly, the British army succeeded in destroying most of their lice at least every three weeks.

No typhus fever developed in the British army on the Western front, nor a single case of relapsing fever. Cases of relapsing fever did occur in Gallipoli and Egypt to a limited number.

Trench fever, casually proved early in 1915 to be carried by lice and confirmed by American workers recently, has been a real scourge to the Allied armies. Tens of thousands of soldiers were rendered hors de combat for from two to many weeks at a time, and although it was not a killing disease it was responsible for making ineffective the equivalent of whole army divisions at a time. More frequent baths which would destroy the period of incubation necessary in trench fever would probably eradicate the disease very quickly, but the exigencies of war did not permit of this.

The waste wash water from the baths and laundries entering the creeks and ponds naturally caused a lot of trouble. Horses will not drink soapy water and brewers objected to using it for brewing.

Consequently this waste water was usually treated in tanks with an excess of chloride of lime which precipitated the soap as a curd and carried the dirt down with it. By sedimentation and filtration through sacking, cinders and sand, the water was clarified and flowed into the creeks clean.

One bath house, situated on a pond which formed in the wet months and had no auxiliary source of supply in creeks or springs, was operated during the whole of the year on this limited supply though a thousand men were bathed a day. The wash and laundry water was collected and treated with a slight excess of acid to remove the grease, which floated to the surface with entangled dirt. This scum was filtered off through old sacking, laid over ashes and sand. Any excess of acid was neutralized with lime and any excess of lime removed by soda. The filtered water which was finally turned back into the pond was as clean as ever and yet with sufficient softness to form a lather with soap.

Bubonic plague has not existed in epidemic form among the warring nations in Europe. Fleas did not seem to be common among the men in the British army; rats were plentiful in all the trench systems of all the armies and acted as quite efficient scavengers in cleaning up odds and ends of food. A desultory warfare was maintained against them in the British army, but no organized effort to destroy them in large numbers was attempted. The French sanitary authorities made more strenuous efforts to destroy rats by means of a vegetable poison with results stated to be satisfactory. Had bubonic plague occurred there would doubtless have been thorough attempts made to eradicate the rat.

Malaria in France was comparatively unknown though the Anopheles mosquito is ubiquitous. There were, however, numerous cases of malaria recurring in soldiers from India, Egypt, and other tropical countries. We therefore had in France a fair number of infected individuals carrying the plasmodium of malaria in their blood, as well as the variety of mosquito capable of transmitting the same from man to man. Yet we had in 1915 not more than a dozen cases of malaria develop in men who had never been out of England, and were, therefore, presumably infected in France.

In the armies of the Near East and in Egypt it was quite a different story, a considerable number of cases of malaria developing in spite of attempted prophylaxis by means of quinine.

The control of the spread of Acari in the army is always difficult and the usual numbers of infected men were found. In some cases the curative treatment necessary for bad cases required several months.

In the first winter of the war "trench foot" was the cause of a great number of casualties. Trench foot was due to a combination of cold, wet, and lack of exercise, and occurred among men who had to stand immovable for hours at a stretch in the icy water and mud of the trenches. Various degrees of the trouble occurred, ranging from a sort of glorified chilblain to a condition of the feet where gangrene set in and amputation or even death resulted therefrom. It was soon discovered that a routine consisting of the periodical removal of puttees, drying and chafing the feet and legs, covering them with whale oil, and putting on dry socks was an absolute preventive, and it became a crime for a man to get trench feet or for an officer to let his men get them. With the issue of rubber "waders" and the adoption of the above routine, trench foot disappeared from the British army.

When the medical history of the war comes to be written, it will probably be found that on the Western front the incidence of and mortality from the common civilian diseases was little if at all higher than in civilian life. It will also probably be shown that trench fever, which was not taken very seriously because it was a non-killing disease, was the greatest disease factor in producing inefficiency in the army.

With the exception of those occurring in Russia and Serbia, no great epidemics have as yet followed as a result of the presence of war, similar to those which have been associated with all the other great wars of history. It is to be expected that the toll from preventable diseases which must now be devastating Russia as a result of her disorganization will prove to be of great proportions. We have to look no farther than our own country to see how terrible are the effects of a disease like influenza, for which we have no specific cure and little knowledge of how to prevent its spread. It gives us some slight conception of what would have occurred in the world had we no control of the diseases which formerly scourged humanity and which particularly during and after war wiped out millions of people.

The record of the western world to-day in its comparative freedom from pestilence is a magnificent tribute to the work of the medical profession and an extraordinary indication of the advances which have been made in preventive medicine during the past few decades. The work of the medical profession in the armies of the Allies has been marvelously efficient in controlling the spread of communicable disease. No less efficient has been the wonderful work of the quarantine services of the allied countries, particularly on the Mediterranean seaboard—work performed so efficiently that none of the diseases common to the countries of the Near East ever gained a foothold in France. No pen at the present time can do adequate justice to a theme of this sort. Only the medical historian of the future with the complete facts at his disposal will be able to tell the story of how disease was conquered—a story which will be scarcely less interesting than that of the war itself.

41 Oriole Road.

Military Medical News.

Men in Army Hospitals.—According to statistics published by the War Department there were 56,979 military patients under treatment in army hospitals in this country on April 8. Of this total, 38,214 were men from overseas.

Deaths of Dental Officers.—Casualties in the Dental Corps of the army, tabulated by the Surgeon General's office, show that six dental officers of the corps were killed in action and 47 others died of disease while in the service.

Concentrating Army Hospitals.—Surgeon General Ireland has issued an order that the patients of all army hospitals be concentrated in as few wards as possible. The object of this order is that the personnel of the army hospitals may be reduced to the minimum consistent with efficient operation.

Health of the United States Troops.—The Surgeon General's office announces a continued decline in the prevalence of serious diseases among the United States troops, both at home and abroad, for the week ended April 4. The death rate from disease for this week dropped from 7.9 a thousand for the previous week to 7.5, and in the overseas forces from 7 to 5.

German Dead in War.—Official figures of German losses during the war have been published by Dr. Rubner Privy Councillor of Prussia, according to which the number of soldiers killed outright or who died of wounds was 1,486,952 and those dying of sickness numbered 134,081. The total number of civilians who died from sickness said to be due to malnutrition is placed at 562,769.

Col. George Crile, M.C., U. S. Army has received a medal from the United States Government in recognition of his services and leadership in medicine and surgery during the war.

Capt. Joseph Rosenfeld of Brooklyn, N. Y., has been decorated with the Croix de Guerre by the French for valor in the Kadish Sector while caring for the wounded.

Lieut. Walter J. O'Connel, M. C., U. S. Army, has received the Croix de Guerre for attending French wounded at Caen and Chateau Roux.

Deaths in the Service.—Lieut. George Washington Goins, M. C., U. S. Army, of Tooele, Utah, a graduate of Marion Sims College of Medicine, St. Louis, 1898, who was stationed at Jefferson Barracks, Mo., died at that place on March 14, aged 47 years.

Lieut. Lionel Andrius Anderson, M. C., U. S. Army, of St. Paul, a graduate of Washington University, St. Louis, in 1916, assigned to duty with the British Army Medical Corps, died from pneumonia, following influenza, at Namur, Belgium, on February 17, aged 31 years.

Capt. Robert Goldthwaite, M. C., U. S. Army, of Montgomery, Ala., a graduate of Bellevue Hospital Medical College, in 1893, on duty with the American Expeditionary Forces in France, died from meningococcus meningitis, in Base Hospital No. 26, Allery, France, on September 30, aged 46 years.

Lieut. Bennie Logan Englerth, M. C., U. S. Army, of Anna, Ohio, a graduate of the Eclectic Medical Institute, Cincinnati, Ohio, in 1915, aged 25 years, died from pneumonia while on duty with the American Expeditionary Forces in France, on December 16.

Lieut. Karl Cleveland Smith, M. C., U. S. Army, of Akron, Ohio, a graduate of the Ohio State University, Columbus, in 1911, on duty with the American Expeditionary Forces, died in France on February 27, aged 32 years.

Act. Asst Surg. William J. S. Stewart, U. S. P. H. S., a graduate of the University of Virginia, Charlottesville, in 1891, a surgeon in the Army Transport Service during the war with Spain, died in Caracas on March 11, aged 52 years.

Capt. Harold Montgomery Craig, M. C., U. S. Army, a graduate of the Detroit College of Medicine and Surgery, in 1911, died while on duty at Fort Stevens, Ore., from pneumonia, following influenza, on October 8, aged 30 years.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, April 19, 1919.

SOME LESSONS OF THE WAR.

IT would be a pity if beneath all the reek and welter of this worst of wars some slight benefit to humanity should not have been found, and indeed, speaking of medicine, we believe much good has already come out of it as some slight compensation for all the suffering and wretchedness. We are perhaps too near to it yet to be able to say what and how much we are to learn through the experiences of medical men in the war, but that something new, something valuable will be taught us we cannot doubt. Some day there will be published in Washington, in London, in Paris, and in Rome—perhaps even in Berlin and Vienna—ponderous tomes containing the medical history of the war as seen by the men of the medical corps of the several belligerent countries, and from them the student may dig out interesting facts and compare the experiences of many men and make useful deductions therefrom. But medicine cannot wait for these records, invaluable as they will be; what advantages are to accrue from the experiences of the war must be gathered from the literature of the present time, from the writings of those who tell what they saw and what they did while the facts are fresh in their minds, and perhaps, even before they are thoroughly digested—the digestion may be left in part to others to whom the facts are fed out.

It is with the object of collecting these facts that the MEDICAL RECORD has begun in this issue a series of papers from first hand sources, entitled "Medical and Surgical Lessons of the War." These papers will describe what has been done in the way of sanitation, medical organization, treatment of wounds and of disease, prophylaxis, discovery of new diseases, etc., noting especially the modifications in methods and procedures which experience has shown to be necessary—in short, the lessons which the war has taught us. The articles have been prepared by those who have had personal experience in the subjects of which they treat. They have been written by men in the Allied Armies as well as by Americans, the former being in many cases better qualified to speak authoritatively by the fact that they were in the war three years before us, and some of the lessons had been learned by them and applied before our own men appeared on the scene. In many cases, however, American surgeons struck out on fresh paths or effected notable improvements in technique and made new discoveries of great value. Such will also be fully described in this series of articles.

It will hardly be possible to present these articles in any orderly sequence, such as one would expect to find in a medical history of the war, but when the series is completed we shall have covered the entire ground of medical, surgical, and sanitary experiences, no lessons of importance and no facts of interest to the medical reader being omitted. The opening article, on page 639 of this issue, is by Colonel Nasmith of the Canadian forces who was among the first to offer himself in the struggle of right against might. Being among the first on the field he naturally could not rely upon the experiences of predecessors but had to strike out in many original lines for himself. His experiences, so far as they were of interest to the general public, have already been entertainingly told in his book, "On the Fringe of the Great Fight"; in the present article he deals with the practical details of sanitary work on the front. Col. Nasmith was a witness of the gas attack at Ypres and devised the first means of protection against it. He has also prepared an article on gassing which will appear in a later issue of this series.

LAPAROTOMY THROUGH THE AGES.

FOR many centuries, according to Durodié in the *Gazette hebdomadaire des sciences médicales de Bordeaux* for January 26, laparotomy was an operation limited to the castration of female animals for the purpose principally of fattening them, the sow being the one most in demand. The subject was well known to Aristotle and Galen. Female camels were also castrated to improve their powers for military uses; cows were sterilized for purposes not stated and bitches to increase their fleetness in coursing. There is a fable, or perhaps there was some truth in the legend, that ancient Lydian women were castrated as well as men for service as eunuchs. It was said to conserve their beauty, health and happiness. Similar rumors were in circulation concerning women in Egypt and Arabia. In comparatively recent times, accounts have been given of women in Hindustan who were castrated in childhood so they might grow up in possession of great strength and endurance and thus be useful as porters. If this account is true, and it seems well authenticated, the custom was doubtless very ancient and so may have obtained in the countries mentioned above. The author does not mention the sow gelder who was said to have castrated his lascivious daughter during the sixteenth century and who is usually referred to in histories of ovariotomy, but passes to the earliest writers on ovariotomy for cysts in the first quarter of the eighteenth century. The early articles were speculative only. Punctures of enor

mous cysts were made as early as 1710, and the number of punctures in individual cases went as high as 45. In 1746 Ledran substituted incision and this led in turn to extirpation, the first success being obtained by Laumonnier about thirty years later. Before his time there were several incomplete extirpations on record. Despite this and another success by Laugier the operation fell into disrepute until independently revived by MacDowell and others. In the early successes the cysts were probably small, but the growth removed by MacDowell was of such a size that its extirpation constituted an epoch in surgery.

But the history of laparotomy is something more than the history of ovariotomy, for, according to a contemporary document, during a mysterious epidemic in Paris in 1474, the belly of a living man was opened in the hope of saving his life; the symptoms were what would today be called "acute abdomen." It is said that the man recovered. This isolated episode is worthy of mention only as a curiosity of medical history, for it does not seem authenticated.

An account of laparotomy would not, of course, be complete without mention of cesarean section, but in antiquity this operation was performed only on the dead or dying and hardly belongs under surgical procedures. The first actual cases with intention of saving the mother and fortunate termination go back to the early part of the sixteenth century, one apparently in the year 1500. Before 1600 one woman is said to have been operated on successfully six times, dying under the seventh intervention. Paré knew of one success, but pronounced a favorable outcome almost a miracle. Nevertheless during the entire sixteenth century quite a few successes have since been placed on record. The operation did not encounter the violent opposition seen in most innovations, and the continuous success soon made it a recognized resource in obstetrics. Finally hints here and there, together with *a priori* reasoning, make it probable that abdominal section may have been occasionally carried out in antiquity under peculiar circumstances even if the fact escaped the treatises of the time. Otherwise a citation in Pliny is hard to understand. Two celebrated personages are said to have been subjected to an operation which could hardly have been cesarean section.

CLUBBED FINGERS IN CHILDHOOD.

THERE exists a type of clubbed fingers in childhood which differs from that met with in adults and to which the term of *acute* may very properly be applied. The digital hypertrophy undergoes its evolution at the same time as the affection upon which it depends and three quite distinct forms are met with in practice according to the nature of the affection giving rise to them. Hypertrophy of the ungual phalanx in tuberculosis develops very slowly, the extremity of the finger becoming broad and thick, but this process requires several years to attain a marked development so that the skin has time to keep in pace with the evolution and, therefore, does not become thin but remains normal. The nails widen but have not the same tendency to extend over onto the surrounding soft structures as in osteoarthropathy. Neither do they become thin as in the latter process, the hypertrophy is distinctly limited to the ungual phalanges and is painless. The process has no tendency to retrogression, on the contrary, it continues to increase. Congenital cyanosis is also slow in evolution; the fingers have the same drum-stick appearance as in tuberculosis but the greater rapidity in the development of the digital hypertrophy explains the thinness of the skin and nails frequently observed.

In osteoarthropathy, the hypertrophy also commences in the ungual phalanx, which hangs on the finger like an olive. The hypertrophied portion is separated from the second phalanx by a rather deep furrow. There is an enormous hypertrophy with thinness of the nails which tend to overlap the ungual margin and occasionally offer longitudinal striæ. The skin of the ungual phalanx is thin, smooth, rosy and transparent, looking as if it would burst from the distension resulting from the bone hypertrophy. At a more advanced phase of the affection the bone deformaties will be found extending upward on the limbs. . The lower ends of the two bones of the forearm become considerably hypertrophied, likewise the tibiotarsal joint. At the elbow and knee the bone changes are less evident but can be usually detected by careful palpation and always by radiography.

The ribs are sometimes slightly hypertrophied near the sternum, while the spine, in the dorsolumbar region, may be the seat of a kyphosis, a fact which distinguishes it from that arising in acromegalia which always takes place in the cervical region. Urticuria or eczema is met with over the diseased joints but pain is usually absent. It should also be remarked that clubbed fingers in childhood may likewise accompany pleural empyema of the chronic type, a clinical fact of considerable diagnostic value and which has not been sufficiently dwelt upon by writers on pediatrics.

PREVENTION OF MALARIA.

MALARIA is one of the diseases chiefly responsible for incapacitating the human machine physically, mentally, and economically. Wherever malaria is rife there the population is generally considerably subnormal. The war has crystallized attention on malaria, as a good deal of the fighting took place in lands notoriously malarious. The armies in Mesopotamia, Macedonia, and Palestine have at times been crippled by malaria, and, in fact, until preventive measures were brought into full sway, military offensives had to be delayed.

During 1917 one hundred and seventy-eight cases of locally acquired malaria were recorded in England. The areas affected were mostly those in which ague had been very prevalent up to the middle of the last century, and it is probable that in

these and other areas a considerable risk arises of the reestablishment of endemic centers of malaria owing to the return from abroad of men who are carriers of the parasite of malaria. It may be recalled that until the marshes in the eastern counties of England had been drained malaria was quite frequent in that part of the kingdom.

In this country the problem is different, and, as is stated in Public Health Reports, March 21, 1919, the public generally has no conception of the seriousness of malaria as a health problem. Seeing that competent authorities estimate the number of cases of malaria occurring annually in the United States at about six or seven million, the influence of this disease on the health and welfare of the nation certainly demands wider recognition. As for the South, there need be little hesitation in saying that typhoid fever, dysentery, pellagra, and tuberculosis all together are not as perniciously important as malaria.

Theoretically, the control of malaria is comparatively easy, as the control of malaria is bound up with the destruction and control of the anopheles mosquito. It is known with scientific exactitude how to destroy and control this species. But the financial aspect of the situation must be considered. Malaria is seven times more prevalent in rural communities than in urban districts, and the country sections, as a rule, have only limited resources with which to fight the enemy. A feature of malarial infection of the utmost consequence is that it is most injurious to children; it affects them when they are growing and tends permanently to sap their vitality. A great deal of the laziness which is inherent in the poorer classes of the swampy Southern lands is constitutional and induced by malarial infection. The malarial problem is also as important economically as it is hygienically, for one involves the other. A man or woman with so devitalizing an infection as malaria cannot work properly, and therefore a district in which malaria is present is an economic loss to the nation.

PSEUDOINFLUENZA.

It is hardly necessary to emphasize the necessity of keeping separate the two affections, pandemic influenza and false influenza. The latter usually means endemic grippe, winter catarrhal fever, etc. The former is enormously diffusible and spreads from man to man and country to country with great rapidity, and occurs without reference to season of year. The latter occurs only in the winter months and is never imported, but develops autochthonously, but may show epidemic qualities in institutions and barracks. Before the recent pandemic true influenza was ascribed to Pfeiffer's bacillus, while the false form could be due to any one of several ordinary pathogenic organisms, notably the pneumococcus and streptococcus. At the present time the exact causation of true influenza is unknown. A striking difference between the two types is seen in the development of acquired immunity, for in true influenza such immunity may result from a previous attack, even of remote date, but in false influenza relapses occur with each winter. A problem for future discussion will be the relationship between false influenza and tuberculosis, for annual recurrent winter grippe often carries with it a suspicion of latent tuberculosis.

But the term spurious influenza is associated with other conditions still, and in last summer's pandemic in Europe it became apparent that there were spurious cases which were in no sense grippal. Keyser relates a number of these in the *Norsk Magazin for Laegevidenskaben* for January. This affection appears to have been isolated for the first time in Germany, where it passed for months as malaria. The cases in reality long antedated the pandemic and were evidently first seen in the summer of 1917. Keyser himself had treated over 300 cases since June 17, 1918, most of them occurring side by side with pandemic influenza. In the Norwegian cases no typical eruptions appeared. The resemblance to influenza was so marked that the diagnosis must have been difficult. Rare complications were seen. In one patient with conjunctivitis and angina and severe pains a lumbosacral herpes zoster broke out, while in another a critical rash of urticaria appeared. A third patient presented a general lymphadenopathy and a fourth tuberculous epididymitis, both with catarrhal fever. Two other patients had mild croupous pneumonia. Isolated conjunctivitis was seen fifteen times. These cases, or at least those seen after the pandemic appeared, were at first set down as "Spanish" influenza, and it is by no means apparent how the author succeeded in excluding the latter, for he says nothing of differential diagnosis. Apparently he bases his opinion on the similarity of the cases to pseudoinfluenza as visualized by the German authors.

A Unified Health Service.

If experience has taught mankind anything, it has taught with most convincing clearness that good sanitary and hygienic conditions are essential to the maintenance of health, and that by the expenditure of brains, energy, and money, such conditions can be established. But it must be borne in mind that in order to obtain the best results in any human endeavor cooperation and organization are necessary, and consequently to bring about nation-wide good results in health affairs the same rules must be applied to federal problems as were applied during construction of the Panama Canal and in the camps in Europe and this country during the war. In Public Health Reports of February 28, 1919, is published a paper by Assistant Surgeon General B. S. Warren on a Unified Health Service, in which the writer points out that the Federal Government has at least three definite responsibilities in the field of public health, namely, international control of disease, interstate control of disease, and a general interest in the health of all the people from the general welfare point of view. It is shown that Federal, State, and local health authorities in some degree have identical responsibilities, and that for these reasons, if we are to have a "unified health service," there should be very close cooperation on

account of the community of interest. With regard to the question of cost, it is pointed out that at the present time the people in the United States are paying out money sufficient for the maintenance of an adequate medical service, but fail to receive it. The money is spent in such a haphazard manner that the service is not only often inadequate or worthless, but at times actually harmful. For drugs alone the United States spends $500,000,000 a year. This sum, if properly expended, would buy all necessary drugs and leave a balance sufficient to add $2,000 a year to the income of each of the 125,000 physicians in active practice in the country. In short, with a proper organization, distribution, and training of the medical and sanitary personnel of the country, and a proper expenditure of the funds now being spent for medical purposes, there would be available for every needy person adequate medical and hospital services and supplies. With such service closely coordinated with or forming part of the health department, it needs no argument to show that disease prevention would begin at the source. A list of recommendations compiled from reports made by Surgeon Carroll Fox of the U. S. Public Health Service, which, in the opinion of the writer, should form the basic principle upon which to build a State health department, is given; however, the main point insisted upon is that a health department, whether urban or rural, and whether organized on part time or on all time service basis, should be correlated with the State Health Department, so that a unified health service would be the result.

News of the Week.

Grip Epidemic at Sidney.—According to a special cablegram received in Vancouver on April 8, hundreds of new cases of influenza are reported at Sidney, N. S. W. The Government has closed schools, theaters and motion picture houses and prohibited other public gatherings.

Grenfell Association Asks Help for Labrador.—The Grenfell Association has received a letter from Dr. Wilfred T. Grenfell, medical missionary to Labrador and northern Newfoundland, telling of the ravages of the recent epidemic of influenza in that country. In the Sandwich Bay region according to this communication 20 per cent. of the population perished, and similar numbers died in other localities. The letter emphasizes the need of additional buildings for the Brick Orphanage maintained by the Grenfel Association in order to care for the children whose fathers and mothers died during the epidemic.

Addition to Memphis Hospital.—The Trustees of the Baptist Memorial Hospital, Memphis, Tenn., plan to erect an addition to the present building at a cost of approximately $250,000. After its completion this hospital will be one of the most complete in that section of the country. The plans also include provision for a nurse's training school.

Foundling Hospital in Need of Funds.—A campaign was opened on April 7 by the advisory committee of the New York Foundling Hospital to raise $250,000 with which to pay off the debts of the institution and give it a fresh start in the care of foundling children. During the fifty years of its existence the institution has cared for more than 70,000 foundlings, and has under its supervision at the present time more than 5,000 children.

Medical Conference at Cannes.—A conference of medical experts is in progress in Cannes, France, in preparation for the convention of the Red Cross Societies of the World. The subject under discussion during the week of April 7 was a specific program for a plan to establish an international bureau of health, where the latest scientific discoveries may be collected and the means of their application discussed. Dr. Hermann M. Biggs, who has been given a six-weeks' leave of absence from his duties as Health Commissioner of the State of New York in order to attend the conference, presided at the opening session.

Conference of Baby Welfare Workers.—The sixth annual conference of the Babies' Welfare Association of New York City was held at the Russell Sage Foundation on April 8, under the chairmanship of Dr. Henry Dwight Chapin. Dr. S. Josephine Baker was the principal speaker.

New York Health Department Plans Baby Show.—It is announced that the New York City Health Department will conduct a children's department in connection with the Milk Exposition to be held in the 71st Street Armory during the week of April 21. Elimination baby contests will be held in the five boroughs and a final contest will then be conducted at the Milk Exposition. The Health Department is using this as an opportunity of impressing on parents the food value of milk.

Clinic for Drug Addicts.—The New York City Health Department recently opened a clinic in the Health Department Building, 139 Center Street, where it is supplying drug addicts who come to it with prescriptions enabling them to obtain at cost the small dose of the drug to which they have become accustomed and which is necessary to prevent them from becoming seriously ill. The plan is to encourage drug users to obtain their drug in this way in order to help break up the trade in narcotic drugs which has grown to such alarming proportion during the past few years. About 75 addicts availed themselves of the clinic the first day it was opened and the number ran up to 200 and over on subsequent days of the week. It then became evident that larger quarters would be needed and the clinic was moved to 145 Worth Street, and will be kept open evenings. Here, 132 addicts applied for narcotics within ninety minutes after the doors were opened. Several conferences have been called to consider ways and means of controlling the drug evil which were attended by Federal, State and city authorities, and representatives of the county medical societies of the five boroughs of the Greater City. At one of these conferences Senator Whitney reported that within the last month certain physicians, whom he named, had made application for 160,000 drug prescription blanks. Other figures were submitted showing that three physicians within the last six months had issued 1,500,000 prescriptions. The sale of drugs at price is the means which the Health Department relies on to offset this traffic in narcotic drugs by doctors and druggists. Internal revenue officers have been rounding up physicians and druggists, a number of

whom have been arrested and held in bail for various sums ranging from $2,000 to $5,000. The Physicians Protective Association has passed resolutions against these raids. The resolutions declare that the clause in the Federal drug act which requires the physician to reduce each day that quantity of a drug administered to a patient is based on a fallacy, and uphold the right of the physician to prescribe for the drug habit as for other diseases.

Mr. Walter R. Herrick has been appointed Commissioner of the Department of Narcotic Drug Control of New York State.

Typhus Fever Spreads in East.—Reports received at the Red Cross Conference at Cannes, France, from representatives of the Red Cross in Eastern Poland, Russia, Serbia, and Macedonia announce the progress of typhus fever in these countries to an extent that is extremely serious. A committee of experts was appointed at the conference to advise the organization as to means for combating the spread of the disease so as to prevent its introduction into Italy, France, and England.

Red Cross Work in Greece.—The American Red Cross is now maintaining a commission in Greece which is cooperating with the Greek Government and rapidly extending its activities. The commission spent $68,860 in Greece up to January 21 last and estimates that it will need $1,305,000 to carry on the work planned for the first six months of this year.

United States Training Corps for Women.—During the war the various governmental departments at Washington, recognizing the need of some system of physical training which would keep women employees in fit physical condition, organized under the direction of Miss Susanna Cocroft the United States Training Corps for Women. Military drill and setting up exercises were adapted to the needs of the women and several thousand Government employees joined the corps. The results of this training were so marked that they suggested a profound need for recreational camps where health giving instruction and entertainment could be given to women who need conditioning, and to meet this need it is planned to make the organization national in scope. These plans provide for the establishment of large recreational camps for women to be located in the west, in the north central States, in the south, and in the east. These cantonments are to be under proper medical and nursing supervision. They will be open to all women who need a wholesome, constructive vacation. The activities of these camps will include ordinary setting up exercises, drill in the school of the soldier, directions in deep breathing, correct posture, and wholesome recreation. Recreational camps will be arranged outside of large industrial centers where women employees may live during the summer and go back and forth to their work. Plans are also being developed to extend the plan so that a semi-military drill may be given to all children in our public schools. The work of the United States Training Corps for Women is to be supported by voluntary contributions.

Lieut.-Col. Stuart McGuire has been elected president of the Medical College of Virginia, and will assume his new duties at once.

Harvey Society Lecture.—The seventh and last of the present course of Harvey Society lectures was delivered at the New York Academy of Medicine on April 12, at 8.30 P. M., by Dr. Stewart Paton. The subject of the lecture is "Human Behavior in Peace and War."

Law to Limit Medical Fees.—It is reported that a measure has been introduced into the Missouri Legislature prohibiting medical men from charging a fee of more than $10 for any treatment, and imposing a fine of $10 to $100 for violations.

Traffic Accidents.—The toll of traffic accidents in New York City for the month of March was 53 persons killed by automobiles, nine by trolleys, and two by wagons, according to the report of the National Highways Protective Association. In New Jersey 14 were killed by automobiles and four by surface cars. For the first three months of the year 192 persons have been killed by motor cars in New York State, 21 by trolleys, and 12 by wagons.

New York Neurological Society.—The next regular meeting of the New York Neurological Society will be held at the New York Academy of Medicine, on May 6, 1919, at 8.30 p. m.

The Medical Association of the Greater City of New York.—The twentieth anniversary meeting of the association will be held in Hosack Hall, New York Academy of Medicine, 17 West Forty-third Street, Manhattan, on Monday, April 21, 1919, at 8.30 P. M. A paper will be read by Major Charles A. Mix of Chicago on "Neurocirculatory Asthenia," and one by Dr. John B. Deaver of Philadelphia, on "The Possibilities of Gallstone Pathology."

Gifts and Bequests.—The will of Emil Schweinburg of New York, provides for the following bequests: German (Lenox Hill) Hospital and Dispensary, Home for Aged and Infirm Hebrews, Montefiore Home for Chronic Diseases, Charity Organization of New York, and National Jewish Hospital for Consumptives, Denver, each $2,500; Lebanon Hospital, St. Marks Hospital, Hospital for Deformitives and Joint Diseases, and Mount Sinai Hospital Training School for Nurses, each $1,000; United Hebrew Charities, $5,000.

The Late Dr. Emmet.—At a recent meeting of the Surgical Board of the Woman's Hospital of New York, the following preamble and resolutions were adopted:

Dr. Thomas Addis Emmet died on March 1, 1919, in New York City. His career was so closely linked to the history of the Woman's Hospital in the State of New York that we, the Surgical Board, deem it proper and fitting to register our sense of loss and regret. Dr. Emmet was born at Charlotteville, Va., on May 29, 1828. His father was at that time a member of the faculty of the University of Virginia, having been appointed to the position by Thomas Jefferson. He was appointed in 1856 assistant to Dr. J. Marion Sims in the recently founded Woman's Hospital, and was surgeon from 1862 to 1900. During this period he developed the methods and enunciated the teachings that made him known to the entire medical world. Resigning from the hospital and active practice in 1900, he passed the last years of his life surrounded by his beloved books and documents, and living in dignified and respected retirement. As a writer and author of many textbooks and articles he became widely known. His works were translated into several languages, and brought many to study and learn his methods, for it

as recognized that only by seeing him at work could ie detail of his methods be thoroughly comprehended. was thus he preferred to teach. As a surgeon he ood pre-eminent, and, in the opinion of many, his astic work has never been equalled. Those of us, nong the older alumni of the hospital, who have orked and served under him, cannot fail to remember ith a deep sense of gratitude the training he gave. ı our anxieties and troubles there was none to whom e turned for advice and council as readily as to him. ountless instances of his kindness to the younger ırgeons might be told, and his invitations to meet ıe prominent physicians of the day at his home and his table won for him in our hearts and minds a ace that will never be forgotten.

Whereas, We who have followed him in the service the hospital as its medical officers, now learn of his ath, be it

Resolved, That we officially recognize our deep sense regret and sorrow, together with our profound spect, admiration and love for his memory. Be it rther

Resolved, That a copy of these resolutions be sent his family, and to the medical journals.

T. H. L. McGINNIS.
LEROY BROUN,
Committee.

Obituary Notes.—Dr. EDWARD M. HYLAND of tica, N. Y., died after a prolonged illness, on pril 11, aged 60 years. He was a graduate of ellevue Hospital Medical College, in 1883, and ırgeon in charge of St. Elizabeths and St. Jo-ph's Hospital and Home of Utica.

Dr. GALUSHA BURCHARD BALCH of Yonkers, a raduate of the College of Physicians and Sur-ons, in 1860, died at his farm in Richmond, Mass., April 8, aged 80 years.

Dr. CYRUS HENRY PENDLETON, at the time of his ath the oldest active physician in the State of onnecticut, died at his home in Hebron, Conn., re-ntly, at the age of 89 years. He was a descendant Mayor Bryan Pendleton, who came to America in 30, as the first Governor of Maine. Dr. Pendle-n was a graduate of the Western Reserve Univer-ty Medical Department, Ohio, in 1860, held many tate and county offices, and was presidential elector the Cleveland ticket in 1892.

Dr. JEFFERSON SCALES of New Brighton, Staten land, N. Y., a graduate of Jefferson Medical Col-ge, in 1867, died on April 14, aged 71 years. He ught in the Confederate Army during the Civil ar, was former president of the Richmond County edical Society, and a member of the Medical Asso-ation of the Greater City of New York. He was nsulting physician to the S. R. Smith Infirmary, t. Vincent's and the Sea View Hospitals.

Dr. FRANK FINNEY, a graduate of Bellevue Hos-ital Medical College, in 1885, died at his home in a Junta, Col., on March 23, aged 61 years. He was hief surgeon of the Santa Fe Hospital and largely nterested in financial affairs in Colorado.

Dr. EDWARD STILES ALLEN, a graduate of Belle-ue Hospital Medical College in 1876, died suddenly heart disease at his home in Providence, R. I., n March 28, aged 63 years.

Dr. JAMES A. HUTCHESON, a graduate of the Long sland College Hospital, died at his home in Lyn-rook, L. I., from complications following an attack f influenza, on March 30, aged 62 years. He served or some years as health officer of the town of Hemp-tead.

Dr. PAUL H. TRACY, a ship surgeon, 53 years of ge, died suddenly in New York City on March 28.

Correspondence.

POSSIBLE BENEFITS OF RESPIRATORY NARCOSIS IN PREVENTING INFLUENZAL PNEUMONIA.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Notwithstanding the natural medical antipathy to advocating anything new in the way of treatment that is not backed by accepted theory, I venture to offer a suggestion in view of the widespread acknowledged helplessness in preventing pneumonia complicating influenza.

I studied medicine because of an inherited tendency to many repetitions of attacks of bronchitis. I probably have had at least two attacks a year ever since I can remember, many of which have been of influenzal origin; and innumerable threatening congestions. When I was a very young man, the late Professor Loomis wrote me a prescription containing opium and Hoffman's anodyne. In the course of years I have modified the excipient with an apparent energizing influence in the sum-total effects secured. I have never had my pharmacist make up the prescription given below, preferring to produce the effect of my own compounding. I have all the constituents made for me separately, and I do the compounding. It requires a period of holding and blending to secure the best result. There is no question that my life has been prolonged by this medicine.

The most attractive theory I have read as to the causation of pneumonia complicating influenza is that the intensity of action in the larger air passages and the character and amount of the mucoid product act, through gravitation downward, to clog the air cells, and hence incite the pneumonic process. If this is so, why not do as I personally have done hundreds of times to myself, and secure sufficient sedation of the respiratory tract to moderate at least the intensity of the morbid action, and frequently entirely stop it? It seems probable that the same influence which relieves pain and discomfort also depresses vital activity in the invading bacteria, as well as in the cells of the mucosa. Hoffman's anodyne of the best makes is soothing, and is nearly all exhaled through the respiratory structures. In some cases it is the only agent that will go directly to and favorably affect the smaller air passages. In my bad attacks I also use active counterirritation. Camphorated oil on the nose externally is the best "cold in the head" remedy that can be used. Mustard pushed to even a blistering effect, applied at various areas of the chest, is vastly helpful. Breathing cool air, but not so cold as to be irritating, is also helpful. Usually if enough of the sedative is given, circulatory activity is sufficiently repressed, without requiring rest in bed. The late Dr. Alonzo Clark used to commend to the consideration of his classes the maxim that "God shall be feared and the intestinal tract be kept patent." He also used opium for peritonitis with beneficial results.

I submit the suggestion for what it may be worth. Light attacks may not kill when severe ones would. It may be worth trying somewhat extensively. The prescription follows:

℞	Grams
Tinct. opii	4
Spts. ætheris comp	17
Glycerini	32
Syr. pruni virg	32
Syr. tolutani	21
Syr. picis	10
Syr. glycyrizæ	10

M. Sig.: Teaspoonful every three or four hours.

This formula costs too much to permit its being used as an advertised nostrum; but if some manufacturing pharmacist could hit the knack of compounding it so as to secure the right effect, it could be dispensed under medical direction. After all, the profession will ultimately be called on to direct the consumption of all narcotics and stimulants.

J. M. W. KITCHEN, M.D.

EAST ORANGE, N. J.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, March 20, 1919.

An Important Amendment to the Ministry of Health Bill by the Standing Committee.—The Standing Committee of the House of Commons which is now considering the clauses of the Ministry of Health Bill, have adopted an important amendment without discussion and in the face of protests from Dr. Addison, the President of the Local Government Board, and Mr. H. A. L. Fisher, the President of the Board of Education, these being the two cabinet ministers whose departments are immediately concerned. The bill, it will be remembered, proposes to combine under one State Department the existing responsibilities of the Local Government Board so far as health is concerned, and all the functions of the National Insurance Commissions for England and Wales, and also to include the duties of the Board of Education in respect of the health of expectant and nursing mothers and children under five years of age. With regard to the medical inspection or treatment of children of school age and young persons, which now appertains to the Board of Education, on the introduction of the bill it was understood that that board would not resign without real regret its functions in these directions, and it was believed that no such step would be found immediately necessary. Mr. Locker Lampson, however, proposed an amendment to provide that *all* the powers and duties of the Board of Education with respect to the medical inspection and treatment of children and young persons should be transferred immediately to the new Ministry of Health. The amendment was put and carried without a division and in deference to the clear feeling that the committee was strongly in its favor. In the view of the committee, as the object of the bill was to take over the health services from the various departments of the State, with the intention to prevent overlapping, medical inspection and treatment of school children should not be left outside the scope of the bill. Dr. Addison pointed out that under the bill there were two categories of services; first, those to be transferred forthwith, and secondly, those for whose transference opportunity would be made later on; and it is fair to him to point out that, while the bill provided for the immediate combination of certain existing activities, it also proposed to give the new Ministry power to bring within its scope other considerable health duties to be directed under intelligent guidance toward the maintenance of the national health on higher planes. But to leave the medical inspection out of the first category was an error in tactics. It was felt by many medical men at the time of the first reading of the bill four months ago, that the medical inspection of school children and young persons was an important part of the duties of any Ministry of Health, and that there would be a protest against this omission from the immediate scope of the bill. When the bill was drafted there is no doubt that those in charge of the task found that to attempt to concentrate within one act the general administration of all things relating to the health of the nation was beyond their ingenuity. With such a gigantic charge any administrative machine would run a great chance of breaking down. While medical men welcome the amendment as taking in the present a most important step which it was intended to take in the early future, it is impossible not to see the force of Dr. Addison's protest that if every responsibility indicated in the two categories were to be thrown upon the Ministry of Health at once, failure might follow. The amendment will probably be considered on the report stage from this point of view, but the probability is that the strongly expressed opinion of the Standing Committee will have its outcome in legislation. It will be very unfair if the amendment seems in any way to cast a reflection upon the admirable work done in the inspection and treatment of school children by the medical officers of the Board of Education. Their energies have been most wisely and sympathetically employed, and have been rewarded by much improvement in many of the children attacked. There seems, however, no reason why similar success should not follow similar tactics when employed under a Ministry of Health.

The Demobilization of Medical Men is at last proceeding apace, and the scandal of keeping some 9,000 doctors with the colors when the home community is starved for want of medical service is abating. And with the doctors nurses are also returning home.

An Experiment in Hospital Administration.—A few days ago the authorities of the London Hospital, the largest voluntary hospital in the metropolis, decided to fill the vacancies on the honorary medical staff of the institution created by the retirement of Dr. Frederick J. Smith and Dr. Henry Head, by the appointment of whole-time paid medical officers, consisting in each case of a director, three clinical assistants, and a laboratory and clerical staff. This of course is a tremendous revolution in connection with the English system of voluntary hospitals, under which the duties of the medical staff are and have been always rendered gratuitously, the reward for their services being supposed to emerge indirectly from the following two things: first, the

unrivalled clinical experience must elevate them in the eyes of the public to the position of distinguished medical men; and, secondly, in their rôle of consultant they would be supported by their pupils from the medical school affiliated to their hospital. No one can say that so simple a plan of obtaining the best medical service for a charity at no expense to the charity has not much to commend it; as a matter of fact it has so much to be said in its favor that it may be a long time before the example given by the London Hospital is followed by any other large metropolitan hospitals having schools attached. On the other hand there is no doubt that the cause of medical education may be found to be better served under the new plan. It must be remembered that the medical school of the British pattern was not invented as a whole but is the result of reconstruction, time, change of public thought and public standards of education, and a crowd of other circumstances. At the present moment, as has been lately said in these letters, medical education has become a very expensive affair in this country. Students concerned in the instruction for a medical career are not drawn from the wealthy class by any means, and are often hard set to find the necessary fees and living expenses of a curriculum extended nominally over five years and really over six. There is extraordinarily little margin left with these lads to pay their teachers, and in the meantime the work of teaching, given cheerfully by the medical staff when it was infinitely briefer and to some extent paid, is now very onerous, with the risk that many of those to whom it falls to deliver the lectures and organize the demonstrations are by temperament unfitted to discharge the task. Moreover many of them can ill afford the time in which to carry on the systematic work of medical education if much of their day is already occupied by their purely clinical and unpaid services. It is true, as I have said, that these services are supposed indirectly to command a professional income outside the walls of the hospital, but it is not much good to a physician or surgeon to say that he can take unlimited patients in private practice, if he has no leisure to see such patients in either his consulting room or house. Again medical education has become a highly specialized affair, particularly as regards the preliminary scientific training. It may be no trouble, and on the contrary it may be a very useful pleasure, to a young physician, a young surgeon to review for a discriminating class of his juniors the cause, treatment, diagnosis, incidence, and so on of a disease with which he is in professional touch. That is bringing the theory and practice of medicine together in the most valuable manner for teacher and taught. But it is a totally different thing if the same young practitioner is asked to lecture on the biology and physics which underlie his rational attitude toward his patients. To ask such a man to keep in touch with the developments of pure science when his daily work is to keep track of pathological variations from these scientific phenomena is to ask too much. When anatomy meant osteology, and not comparative morphology; when physiology meant the mechanism of cardiac motion and respiration with no regard to general biology, and when physics meant the mechanism of the common pump, the ancillary sciences could be imparted by any clear headed young man three years ahead in his studies of the classes which he was addressing. But to-day the teaching rôle becomes at the same time a sacrifice on the part of the honorary staff, possibly a distasteful occupation, and certainly one for which proper emolument should be forthcoming. The move of the London Hospital is therefore progressive; it is toward the institution of a medical staff whose duties, while ministering to their patients, would also be to instruct the students on scientific lines, fitting them for future research work. But it is not easy to see where adequate salaries can be found to recompense such whole-time officers unless the public comes to the rescue. Medical education cannot be paid for out of money given directly for the needs of patients. The action of the London Hospital must, therefore, be regarded as an experiment, but it is a particularly valuable one, as shaping the education of medical students upon a university pattern. The metropolitan medical schools are already integral institutions in the University of London. These new medical officers will really be university teachers of medicine along lines analogous to those pursued in other faculties. The medical officer directing medical studies will be in intimate touch with the purely scientific education of his students, with their clinical training in the wards, and with their further work in the laboratories. A medical school conducted on those lines would be a proper part of the university faculty, and those interested in medical education will view this experiment with anxious attention.

The Medical Parliamentary Committee.—This committee has been steadily at work drawing up a scheme which it is proposed to submit at an early date for the opinion of the medical profession. The purpose of the scheme is to institute some central body representative of all classes of medical opinion which shall hold a watching brief, in the interest of the public, over all legislation of a medical nature. The interests of the medical profession, it is obvious, are bound up in a good administration of medical service from the public point of view.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

PARIS, March 7, 1919.

Sanitary Aviation on the Edge of the Sahara.—Professor Tuffier, having been called to see a general who had been seriously wounded at Tafilet, an oasis on the border of the Great Sahara, by a shell splinter, which passed through the lower end of the sternum and lodged behind the heart, points out how aviation may be made serviceable in the desert to both physicians and patients. This officer had been wounded at a distance of 945 kilometers from Oran, 275 kilometers (172 miles) from a railroad, equivalent to a nine-days' march, and had been carried back a distance of 25 kilometers on a stretcher. Two surgeons were dispatched per air-

ship. One, starting from Fez (300 kilometers, or 187 miles) reached the patient in three hours and ten minutes, after passing across the mountains at a height of 4,000 meters. This is the minimum time required for wounded soldiers to reach a field hospital at the front. The surgeon coming from Bou-Denib (100 kilometers, or 62½ miles) arrived at the same time. As the aid post of Ksar-Es-Souk was altogether too primitive, buried in the desert without any instrumental outfit, while the patient's condition was a serious one, he was transported in an ordinary fighting aeroplane to Bou-Denib, accompanied by the two surgeons. There the position of the projectile and the condition of the lung could be ascertained by means of radiography; and Tuffier was enabled to apply the necessary treatment. He found the patient in very bad shape, with a large, bloody extravasation behind the heart and the root of the lung. An operation was performed, and for the time being all danger was averted. Later the patient was operated upon for pleural empyema.

Availing himself of this opportunity, Tuffier investigated the conditions of evacuation of the wounded during the engagements on the Sahara positions. An experiment made with the aeroplane of Dr. Chassaing, the first to carry out sanitary aviation, showed that soldiers with the most serious wounds (fractures of the thigh, fractures of the arm) could be easily transported a distance of 65 kilometers in three-quarters of an hour, after a flight over the insurgent regions. The wounded arrived in excellent condition, without having been subjected to any suffering. Of 60 wounded in September, 1918, 15 had already been carried by aeroplane, in less than an hour and ten minutes, a distance of 110 kilometers (65 miles).

In the South Algerian posts, an aeroplane route has been organized which insures the evacuation of the wounded and the transportation of surgeons. It extends as far as the Sahara center of In-Salah, more than 370 kilometers from all railroad connections. Camel or mule convoys require 26 days to carry the wounded from In-Salah to Ouargla; the best available routes permit no shorter journey than seven days. French air pilots traverse this distance in two relays, either the same day, or on two successive days, in about seven hours. The same organization exists in southern Tunis.

The advantages of aeroplanes for the evacuation of the wounded consists not only in this economy of time, but in the possibility of penetrating into posts which are practically all invested. In Morocco, of 37 Sahara posts, 14 are completely blockaded, and can be supplied with rations only two or three times yearly. The same is true regarding troops on the march; the wounded must follow the column on stretchers, as otherwise they would be killed by the enemy, who closes the way behind the marching troops.

For this evacuation, special improved sanitary aeroplanes should be provided, opening on the side; these are needed for cases of severe wounds of the head, chest, and abdomen. However, the number of such planes may be limited, since any observation or bombing aeroplane can transport men with slight or moderately severe wounds in the place of the observer. This plan was followed in many cases.

A fixed and determined air route, with landing stations every 200 kilometers, guarantees perfect security.

The only obstacles to aviation in the Sahara Desert are the temperature and the resulting atmospheric disturbances, which force the pilots to remain at an altitude of 1,500 or 2,000 meters during the summer time. The most serious enemy of sanitary aviation, however, is the sirocco, with its dust clouds, which render landing so dangerous that the air route remains closed for about one out of every four days during the heated term.

In spite of these drawbacks, sanitary aviation is an accomplished fact, and recourse to it will become more general for the relief of civilians and natives as well as for the troops. Undoubtedly it will provide a means of penetration and pacification of insurgent territories.

Le Fort's Work in Surgery of the Heart.—In the last three years, Prof. René Le Fort of Lille has published a considerable number of papers on the surgery of the heart and mediastinum. In 1916 he advocated in a paper read before the Paris Academy of Medicine the extraction of foreign bodies from the posterior or anterior mediastinum through a wide anterior transpleural route, reporting the results in his practice of 12 cures in 12 cases. The opening of the pleura to reach the mediastinum was a new idea, which was accepted without objection by the majority of operators. In his later articles Le Fort points out the slight gravity of surgical pneumothorax, which is readily tolerated by patients whose myocardium is not seriously affected, and the advantages of primary wide and complete opening of the pleura. This is not to be dreaded; it relieves the respiration, and its performance serves to make thoracotomy as easy and quick an operation as laparotomy.

Le Fort endeavored to formulate the rules for these operations. He carried out a thorough radiological investigation of projectiles in the mediastinum and of the physiological movements in the mediastinum, and especially in the heart. His findings, which are often contrary to the accepted views have been published in the communications to the Academy of Medicine and in various contributions to medical periodicals. In a book published in 1918 on projectiles in the mediastinum, and in an article in the *Revue de Chirurgie* for 1917, the author discusses at length the pathological anatomy, symptomatology, diagnosis, course, prognosis, and treatment of foreign bodies in the mediastinum.

He is opposed to all operations which permanently mutilate the thorax. Resections of cartilages or of portions of ribs should always be avoided, in his opinion, the remote results yielded by those procedures being uncertain and often unsatisfactory. While very discriminating in his choice of procedures, and accepting for certain special cases the transsternal route, and even exceptionally the posterior route, the author advocates for all really complicated and difficult cases the wide anterior route and in particular the large flap with external hinge of Delorme, which he has improved upon. This route provides the most space. Among new procedures recommended by Le Fort must be mentioned in the first place simple incision of an intercostal space combined with division of one or several

costal cartilages, above or below the line of incision. This procedure gives free access to the lower portion of the mediastinum and to the hilus of the lung. For the region of the cervicomediastinal "crossroads" Le Fort has devised the sternocleido-costal flap, which permits the temporary turning outward of the clavicle and the first rib, with the corresponding sternal segment, without dividing the clavicle or the first rib, and without opening the sternoclavicular or costal articulations.

With the assistance of these various methods, Le Fort, at the time of the present writing, had performed over 100 extractions of projectiles from the mediastinum or its immediate vicinity. Eleven bullets or shell splinters have been removed from the walls or the cavities of the heart, and so far as we know he appears to be the only operator who has extracted projectiles from the wall of the left auricle and from the cavity of the left ventricle. A large number of his operations were upon wounded soldiers who had been repeatedly advised against surgical intervention, and who passed from one service to another looking for a surgeon willing to operate. Many others had probably undergone one or more unsuccessful attempts at extraction; of these men, many were sent to the author, in conformity with his request, by colleagues who kindly entrusted him with their bad cases. The results continued to improve in the course of years. In 1916 and 1917, 82.3 per cent. of the projectiles sought for were extracted; in 1918 and the beginning of 1919, 100 per cent. of the projectiles sought for were extracted. In 1916 and 1917 the post-operative mortality was 8.7 per cent.; in 1918 and 1919 it was nil. These improved results are due to the more and more complete abandonment of narrow routes of access, but especially to the choice of the posterior route and investigation of improved technical methods.

146, Avenue des Champs Elysées.

Progress of Medical Science.

New York Medical Journal.

April 5, 1919.

1. Alkali Treatment Applied to the Acidosis of Epidemic Influenza. Thomas C. Ely.
2. Encephalitis in an Infant, Following Influenza. Z. Sharfin.
3. "Dear Brutus": The Dramatist's Use of the Dream. Smith Ely Jelliffe and Louise Brink.
4. Report of a Case of Sarcoma in an Infant. H. Brooker Mills.
5. Influenza Pneumonias as Studied with the Aid of the Roentgen Ray. Joseph S. Dimond.
6. Illuminated Trap for Night Flying Insects. William O. Owen.
7. Artificial Pneumothorax in Pulmonary Tuberculosis. LeRoy S. Peters.
8. Hospital Trains for the Sick and Wounded in the U. S. Army. Caswell A. Mayo.

I. Alkali Treatment Applied to the Acidosis of Epidemic Influenza.—Thomas C. Ely is of opinion that the chief cause of death in the influenza epidemic has been the overwhelming acidosis. He points out that it is an established fact that acidosis is a constant factor in all infectious fevers. As a clinical sign in the recent epidemic he cites the peculiar acetone odor of the breath which was so characteristic that in some cases a tentative diagnosis was made on this alone. His treatment has been to combat the chief cause of death and prevent the acidosis by administering the essential alkalies, and in his practice he has had only one death that could be attributed directly to the influenza. Three other fatal cases he attributes to preexisting conditions. The method of treatment followed was: Immediate elimination by means of profuse sweating induced by large bowls of hot boneset tea, and divided doses of calomel, one-tenth grain every half hour until a grain or more had been given. Water was given exclusively for the first twenty-four or forty-eight hours, and freely throughout the attack. Hot mustard foot baths were used, the patient being kept in bed covered with blankets and surrounded with hot water bottles. A teaspoonful of sodium bicarbonate to a pint of lukewarm water was given every four hours by enema. The alkalies were given as follows: sodium bicarbonate one-half ounce, peppermint water four ounces, teaspoonful every two hours, alternating with the same dose of potassium citrate one-half ounce, peppermint water four ounces. Calcium salts were given in the form of lime water one-third, milk two-thirds. In some cases the potassium salts could not be tolerated. The usual cardiac and respiratory stimulants were also administered; oil of terebinth was found of use, particularly after crises. The author states that physiology, pathology, and physiological chemistry all show that acid poisons if not neutralized become dangerous and often fatal and that in high states of toxemia the body bases are soon used up. By the treatment indicated the body bases are supplied from without and remedies are avoided which contain an element of danger, such as opium, atropine and belladonna which check secretions and lock up poisons which should be eliminated. To the contention that the chief cause of death has been pneumonia, Ely replies that the fatal lung condition might not have developed had the body bases not been exhausted in Nature's effort to combat acidosis, and that the same acidosis may explain death by nephritis. Moreover, the claim that death was due to cardiac involvement may be answered by the statement that the heart might have been better equal to its task if the body bases had remained in normal condition. Finally, the use of alkalies is founded on the laws of Nature and should prove of value not only in the profound toxemia of epidemic influenza but in other severe infectious diseases and in all critical toxic conditions.

The Journal of the American Medical Association.

April 5, 1919.

1. Epidemic Encephalitis (Nona). Peter Bassoe.
2. Influenza Occurring in Pregnant Women: A Statistical Study of Thirteen Hundred and Fifty Cases. John W. Harris.
3. Influenza in a Newly Born Infant. Report of a Case. Isaac A. Abt.
4. Pandemic Influenza in Korea, with Special Reference to Its Etiology. Frank W. Schofield and H. C. Cynn.
5. Pulmonary Tuberculosis at Camp Cody, New Mexico. J. F. Studebaker.
6. Lethargic Encephalitis: Preliminary Report. Frank A. Ely.
7. Physical Signs and Their Mechanism in Acute Pulmonary Inflammation. Roy D. Adams and Charles M. Montgomery.
8. Epidemics After Wars. George A. Soper.
9. Cardiac Hypertrophy in Pernicious Anemia: Note on Nineteen Necropsies. Richard C. Cabot and Oscar Richardson.
10. Dichloramine-T and Petrolatum Dressing for Burns. Torald Sollmann.

8. Epidemics After Wars.—George A. Soper draws attention to the possibility of epidemic diseases being spread by returning soldiers. He points out that after the Franco-Prussian war a pandemic of smallpox spread through Europe. In Germany alone, the disease is estimated to have caused the death of 170,000 persons. In England, where smallpox was conveyed by French refugees in 1870, the death rate increased from 0.7 per 10,000 inhabitants in 1869 to 1.2 in 1870, and 10.1 in 1871. It then declined to 8.3 in 1872 and 10 in 1873. From Germany smallpox spread into Austria and Bohemia. In Vienna the incidence rose per 10,000 inhabitants from 7.6 in 1871 to 52.7 in 1872; in Prague from 1.5 in 1870 to 39.7 in 1872. In the Crimean war the French Army carried cholera from Toulon and Marseilles to Gallipoli, and sporadic cases occurred at Nagra, Varna, and Adrianople. During the expedition to Dobrudja cholera broke out in explosive form, compelling the army to return. When the scene of war was transferred to the Crimea, cholera broke out violently. The total number of deaths in the French army during the campaign was 12,457, in the English army 4,531, and in the Piedmontese army 1,230. The total

combined strength of the troops is believed to have been about 262,000. From the Crimea cholera spread through Turkey, around the Black Sea, Greece, Smyrna, the Dardanelles, Constantinople and the Danube principalities. Typhus was also prevalent in the French army in 1855-56, and was epidemic in the Russian army and in southern Russia. It was also carried to England by troops and was epidemic there in 1856-57. The American Civil War was followed by an unusual prevalence of typhoid, dysentery, and smallpox. In the absence of reliable statistics, the extent of disease in the civil population cannot be stated. However, in Connecticut the death rate rose from 1.0 in 1863 to 19.0 in 1864, and declined to 16.0 in 1865. In Massachusetts it was 18.5 in 1862, 22.1 in 1863, 22.8 in 1864, and 20.6 in 1865. In Massachusetts it is estimated that 10,000 people contracted typhoid, dysentery or smallpox during the years 1863-65. After the Spanish-American War an unmistakable wave of typhoid fever spread over the United States. Some of the epidemics were of an explosive and highly sensational nature; for instance, at Ithaca in 1903 there were some 1,300 cases, or one in ten of the population, and about one in a hundred died. The following year there was an epidemic of 600 cases at Watertown, N. Y. At Butler, Pa., there were approximately 6,000 cases. Other epidemics occurred at Augusta, Me., in 1903, at Cleveland in 1903-4, at Columbus, Ohio, in 1904, at Lowell, Mass., in 1903, and at New Haven, Conn., in 1901. Moreover, the number of cases of typhoid increased throughout the country, and the death rate from this disease remained high for several years. The efficacy of precautionary measures against infection of the civil population was shown by the French after the Crimean War, who only allowed those soldiers to land from transports who had been entirely free from typhus for some weeks and placed suspected divisions of troops in detention camps, where the men were inspected, bathed, and reclothed, with the result that the disease was not communicated to the civil population. After the Russo-Japanese War of 1894-5 the Japanese employed a two-fold system for the elimination of infectious disease among returning troops. First, infected men were not allowed to join the transports bound for home. Second, quarantine stations were established. When the transports reached their destinations the men were divided into groups of sixty and sent to disinfection establishments, where they were bathed and their effects disinfected. Major Soper points out that such diseases as trench fever, typhus, relapsing fever, cholera, and plague, if once started, might produce great havoc. Most of them are transmitted by vermin, usually the louse, which certainly exists in America in congested districts and particularly among foreigners, and although its extermination among troops may be practicable, in the case of the great civil populations it is quite another matter. Cholera has been known to exist for some time in western Russia, Sweden, Spain, and Austria-Hungary, and it has recently been reported in Germany and France. It is also at Archangel, or near there. It is probable, therefore, that some of our troops are now exposed to infection, and although under present political and social conditions this disease should not gain a footing in this country, it must be remembered that the etiology of cholera and typhoid are practically identical, and in some parts of the United States typhoid is a very common disease. This, coupled with the fact that nobody is immune to the disease, would favor the spread of cholera, if once introduced. Local and unrecognized epidemics would occur at first and the disease would thus obtain a footing. It is well to remember that in spite of the attention paid to personal and domestic hygiene in this country, infantile paralysis and influenza have spread, typhoid is always with us, and pneumonia is on the increase. The safe attitude of mind to hold is one of caution, and it is most important that only persons well trained in public health work should adminster and teach the principles of sanitation and epidemiology. Boards of health should be soundly constituted as to their personnel and should be given sufficient funds to do their work; politics should be rigidly excluded from the administration of the public health. The young men returning from abroad have received a certain amount of instruction in personal hygiene and have learned many useful, and some painful, lessons during the war. They are capable of arousing considerable interest in public health work, and these possibilities should be utilized. Finally, efforts should be made looking to the prevention of unnecessary sickness and the promotion of health and efficiency on a higher plane than ever before.

The Lancet.

March 15, 1919.

1. An Experiemental Investigation on Rickets. Two Lectures Delivered at the Royal College of Surgeons of England. Edward Mellanby.
2. Chemotherapy in Cutaneous Tuberculosis, with Report on Two Cases Treated with Ellis's Picric-brass Paste. H. J. Gauvain.
3. Picric-brass Preparations in the Treatment of Lupus and Other Forms of Tuberculosis. Henry A. Ellis.
4. The Hysterical Perpetuation of Symptoms. Captain C. H. L. Rixon.
5. An Investigation of Cases of Influenza Occurring in the Woolwich District During September, October, November, 1918. J. A. Braxton Hicks and Elizabeth Gray.
6. The Influenza Epidemic in British Guiana. F. G. Rose.
7. Influenzal Intraabdominal Catastrophes. Reginald Eccles Smith.

7. Influenzal Intraabdominal Catastrophes.—Reginald Eccles Smith points out that during the recent epidemic of influenza several important abdominal complications have been observed. These may be divided into three classes, comprising those directly due to a specific bacillus, those due to associated toxemia, and those which are coincident and noted as a warning to the surgeon. In the early days cases were constantly sent in to the surgical section with the diagnosis of perforated gastric or duodenal ulcer, or less frequently acute appendicitis, or even empyema of the gall bladder. In almost all cases the onset was sudden; there was usually a history of malaise, followed by acute generalized pain in the abdomen, associated with generalized rigidity, often vomiting, a temperature two or three points above normal, and a running pulse. In a number of such cases there were no clinical signs in the chest to lead to a definite diagnosis. Careful observation showed that the rigidity and pain were not absolute, but in most cases was referred to the upper zone of the abdomen and in a minority to the lower zone, including the right iliac fossa. Pain and rigidity in the upper zone are referred along the eighth, ninth, and tenth intercostal nerves and are much more severe on that side of the abdomen which corresponds to the chest lesion either definitely present or appearing later. On two occasions Smith blocked the eighth and ninth intercostal nerves and symptoms disappeared. Less frequently the eleventh and twelfth intercostal nerves have caused the pain, and a perforated appendix has been closely simulated. Although they may not hold good in a superimposed surgical lesion due to and grafted on to the original influenzal infection, the following three points are of value in making a diagnosis: (a) The movement of the alae nasi. In cases of influenza with acute abdominal pain, even when no physical signs have appeared in the lungs and respirations are only slightly increased, if the alae nasi are working the condition is never abdominal. It only occurs in late true abdominal lesions when general peritonitis is well advanced. The movement of the alae nasi may not be very marked when the patient is recumbent, but can be elicited with a little exertion. (b) Dullness in the flanks is never present in influenzal pseudocatastrophes, except in class A, when it is an early sign. (c) The facies of the influenzal victim dominates the scene. The anxious, terror-stricken look of the true abdominal lesion is not present as a rule. The anxiety is more lethargic and resigned, and of the medical rather than the surgical type. The writer divides the true cases of acute abdominal catastrophes associated with influenza that have come under his notice into three classes: Class A includes infections of the general peritoneal cavity by organisms associated with the influenza epidemic. The infecting agent has always been the streptococcus, and, as far as can be stated, it is a blood-borne or embolic lesion and takes the form of an acute streptococcic general peritonitis. Class B includes cases of acute toxemic dilatation of the stomach. Class C, in which are placed coincident acute abdominal lesions occurring in the influenzal attack or during convalescence. Smith concludes with the following observations: (1) That

during the present epidemic of influenza the chest should become more the province of the surgeon than is usual and should be minutely searched for any physical signs when a suspected abdominal lesion arises. (2) The three points already put forward will be found of great assistance in such cases, and may save a laparotomy in a patient who is already not in good condition. (3) The infection of the peritoneum is blood-borne and is not due to direct extension through the diaphragmatic lymphatics. Streptococcic endocarditis is a jumping off ground for peritoneal infection, but is not necessarily always present. (4) Surgical interference so far has been of no avail, but it is not surprising when one studies the mortality in the present epidemic, in which as yet intra-abdominal lesions have not been recorded. (5) Discretion in dietary is very necessary in the toxemic types, as an overloaded stomach may become a danger. (6) Persistent vomiting in cases of influenzal toxemia should be regarded with suspicion. Although the evidence is as yet small, the condition of acute dilatation is proved, hence early stomach washing and the use of pituitrin may save a patient when a *laissez faire* attitude will certainly end in death. (7) The incidence of true abdominal catastrophes in a patient with influenza must always be kept in mind and suitable measures promptly undertaken.

British Medical Journal.

March 15, 1919.

1. The Milroy Lectures on Half a Century of Smallpox and Vaccination. John C. McVail.
2. Functional Paralysis of the Diaphragm in Two Cases with Acceleration of Respiration. Alexander Watson and J. S. Meighan.
3. A Pneumothorax Paradox. Frederic C. Coley.
4. A Case of Artificial Double Pneumothorax. Archie McCallum.
5. Epidemic Pneumonic Influenza as Seen in Malaya. G. Waugh Scott.
6. The Occurrence of Morgan's Bacillus in Chronic Discharging Wounds. Major Harold E. Whittingham.

2. Functional Paralysis of the Diaphragm in Two Cases with Acceleration of Respiration.—Alexander Watson and J. S. Meighan point out that attention has been directed recently to the rapid, shallow type of breathing in late cases of gassing, and that Haldane has associated the condition with an exaggeration of the Hering-Breuer reflex. The condition has also been observed in cases in which nervous symptoms have developed as the result of shell shock or other disturbance. Observations made by the authors upon two cases at Oakbank Military Hospital seem to indicate that a paresis or paralysis of the diaphragm, the result of functional disturbance of the center of the phrenic nerves, may account for the acceleration in breathing in some cases. In these cases graphic records of the chest and abdominal movements were taken. The tracings showed extensive and rapid movements of the chest, but only a very slight movement, a mere tremor, of the abdomen, which subsequent investigation clearly demonstrated was propagated from the chest. The authors consider it probable that the acceleration in rate was due to failure in the action of the diaphragm. No discomfort was caused by breathing at 75 a minute, but when the rate was increased to about 170 a minute it could not be maintained for any length of time. So long as it was maintained it showed no decrease in the abdominal movements. They refer to the cases reported by Gerhardt as having paralysis of the diaphragm. In one of these cases the patient breathed shortly and insufficiently for the needs of the voice. Faradic or galvanic treatment of the phrenic nerves was followed in some cases by improvement or cure. From a case reported by Cowan, however, and diagnosed as peripheral neuritis, it would seem that paralysis of the diaphragm is not necessarily accompanied by any marked increase in the rate of breathing.

6. The Occurrence of Morgan's Bacillus in Chronic Discharging Wounds.—Major Harold E. Whittingham draws attention to the fact that the dysentery group of the bacilli, including Morgan's No. 1 bacillus, has been repeatedly found associated with cases of asylum or institutional dysentery in England and that, therefore, a Poor Law infirmary is a likely habitat of these organisms. He points out that should this prove to be the case, institutions of this kind should not be used as general hospitals for troops, at least until they have been thoroughly cleansed and disinfected throughout. In a number of wound infections occurring in a Poor Law infirmary it was noticed that certain deep wounds, which were moderately clean on admission—*Streptococcus viridans* and *Staphylococcus aureus* and *albus* being found, and in one case *B. pyocyaneus*, and in another *B. perfringens*—gradually went from bad to worse in spite of careful treatment. These cases ultimately developed chronic discharging sinuses, the discharge having a peculiar odor like that of a bacillary dysentery stool. Blood cultures were negative. In six cases an organism was isolated from cultures made from wound discharges which was identical with Morgan's No. 1 bacillus. Twenty cases were then examined on admission, in none of which Morgan's bacillus could be isolated. The presence of this organism, however, was revealed later in five of these cases, the infection evidently being superimposed on the wounds. The pathogenic action of this bacillus in wounds was evidenced by the toxic condition of the patient and the chronicity of the suppuration as compared with similar wounds from which this organism was not recovered; also from the fact that under treatment with an autogenous vaccine prepared from this virus the general and local conditions markedly improved. The odor perceptibly diminished from the wound in three days, and within ten days a dull and apathetic patient would be up and cheerily smoking with his wound comparatively "clean." The source of the infection is uncertain, but it is probable that it may have occurred from the dust of the place. The question of non-sterile dressings was considered. Bacteriological tests all proved negative, and since cases occurred in surgical wards widely separated and attended by different medical officers and members of the staff, "carrier" infection was eliminated.

The Practitioner.

March, 1919.

1. The Clinical Symptoms of Chronic Intestinal Stasis. Arbuthnot Lane.
2. Venereal Disease. (a) The prevention of venereal disease and the abortive treatment of gonorrhea. L. W. Harrison. (b) The prophylaxis of venereal disease. C. F. Marshall. (c) Venereal diseases as we see them to-day. T. E. R. McDonagh. (d) Treatment of 100 cases of gonorrhea by ionization at a stationary hospital, B. E. F. F. W. Baker Young.
3. Extensive Shell Wound of Shoulder Girdle with Operation Notes on Conservative Surgery. H. C. Orrin.
4. A Case of Tetanis of Long Incubation Treated by Antitetanic Serum: Severe Anaphylaxis: Recovery, but with Death Later from Gangrene of the Lung. P. R. Cooper.
5. Dreams and Their Value in Treatment. M. Culpin.

1. The Clinical Symptoms of Chronic Intestinal Stasis.—Arbuthnot Lane, after describing the mechanical aspect of chronic intestinal stasis, says that dealing with the toxic effects of the delay, beginning with the large bowel they may cause infective processes in its mucous membrane which are classified under the term "colitis." They begin in and about the iliac segment of the colon and tend to extend along its length. Cancerous ulcers develop more frequently in the portions of the colon where the feces are hardest. The infection of the mucous membrane may involve the appendix, which is often anchored and its lumen constricted by acquired bands securing it to the abdominal wall or to the mesentery of the ileum. The material that stagnates in the small intestine becomes infected with organisms which effect an entry into it from the cecum. The infection may extend up to the duodenum, and thence to the liver and pancreas along the ducts of these organs and produce inflammatory changes in their walls. Calculi may form which, besides producing obstructive symptoms, may by their irritative impact result in the development of cancer. It is obvious that any operations performed upon the gall bladder or on the ducts of the liver and pancreas are for conditions that are of the nature of end results, and by such a procedure alone no means are taken to deal with the primary cause of the trouble. In other words, the patient is not cured of the disease, though he is relieved from some of the symptoms to the extent of the surgical interference. The main points with reference to the radiographic aspect of chronic intestinal stasis are:

(1) The length of period that the meal remains in the stomach, the behavior of the stomach, the mode of emptying. (2) The size and shape of the duodenum, the mode in which it evacuates its contents, the form of the duodenojejunal junction. (3) The length of time the meal remains in the ileum, the mode of its evacuation, the degree of thickening of the walls of the terminal coil, the relation of the appendix to the end of the ileum, the evidence of the presence of an ileal kink. (4) The size and position of the cecum, with possible indication of its rotation. (5) The mode of passage of the meal through the large intestine, the limitation by a band of the caliber of the bowel about the junction of the cecum and ascending colon in the transverse colon, just below the gall bladder where the acquired ligament is attached, which connects the gall bladder to the pylorus duodenum, transverse colon at the splenic flexure, and at the last kink at the left pelvic brim. The form of the bowel must be examined with a view to determine the presence of inflammation of its wall or of diverticulitis. The shape and size of the pelvic colon should also be carefully observed both in the case of the meal and in that of the enema, since this is a factor of the greatest importance. The presence or absence of gall stones should be noted. In order to meet the prolapse of the viscera and the consequent angulation of the bowel at the several points at which it is fixed, great benefit may be obtained by pressure exerted on the lower abdomen in such a manner as to tend to keep the viscera up. An encircling belt does not do this effectually, since it serves to increase the intraabdominal tension by its lateral pressure. A stay increases still further this defect. On the other hand, the greatest advantage can be obtained from a support which acts on the lower abdomen only. The best form of support is that called the Curtis belt, which has been constructed for the purpose. It is of the nature of a truss, with a counter pressure behind and springs which control a central V plate. If paraffin is taken at a suitable interval before a meal, it precedes it in the way through the tract. It facilitates the passage of the intestinal contents through the several points where they are likely to be held up by a mechanical obstruction or by spasm of a reflex or inflammatory origin. It, therefore, tends to overcome the delay of the material in the small intestine and also to hasten the passage of feces through the large bowel.

Canadian Medical Association Journal.

March, 1919.

1. Clinical Observations on the Early Stages of Trench Nephritis. G. S. Strathy.
2. The Economic Effects of Disablements. T. L. Biggar
3. The Rôle of the Thymus Gland in Exophthalmic Goiter. Nathan B Eddy.
4. Man's Place in Nature. James Third.
5. The Return of the Army Medical Officer. E. J. Williams.
6. Prostatic Massage. W. I. Lockhart.
7. Influenza and Vaccination. J. J. Heagerty.
8. Tuberculosis as a Causative Factor in Disordered Action of the Heart. Horace R. MacIntyre.
9. The Use of *X*-rays in Gastrointestinal Diagnosis. Hill H. Cheney.
10. Hospital Treatment of Summer Diarrhea. Lionel M. Lindsay.
11. Hypernephroma and Renal Cancers. C T. Crowdy.

1. Clinical Observations on the Early Stages of Trench Nephritis.—G. S. Strathy holds that although microbic infection is almost certainly the *sine qua non* of the disease, predisposing causes probably play an almost essential part. The disease was not existent in troops before landing in France or other theaters of war, and is not present in the civilian population in England, nor has it been heard of among the civilians in France and Belgium. It would therefore appear as if there is some great predisposing factor in the life of the army abroad which prepares the way for infection. It is striking that cases have not broken out in England due to infection from returned soldiers. The problem of the predisposing cause has given rise to many theories and suppositions. The epidemic was more prevalent on the western European front than on the other fronts, but occurred to some extent on all fronts. It was more common among the British than the French troops. It occurred among all arms of the service at the front and was not unknown among troops at the base. McLeod and Ameuille found that albuminuria occurred in a high percentage of troops in training in England. They found that the percentage of men having albuminuria was higher among British than French troops. The urea excretion was also higher among the British. Various theories have been advanced to explain these facts. Exposure and fatigue due to army life were suggested as the cause of so many men having albuminuria. Chlorinated water and immature beer were said to damage the kidneys. The author has found nothing to suggest that they were predisposing causes of epidemic nephritis. Several men were affected who were sleeping in warm, dry billets, and who had not done any heavy manual labor. Possibly the high protein diet of the British soldier predisposed him to attack. Records do not show age as a predisposing factor. Very few men were attacked during their first three months in France. Several Australians developed their first symptoms while on board ship coming from Egypt. While there is probably some relationship between epidemic nephritis and the high percentage of albuminuria found in healthy troops both in France and England, it is almost certain these cases of unexplained albuminuria were not mild cases of epidemic nephritis. It would seem likely that there was an extra strain thrown on the kidneys of the British troops which predisposed them to attack by a microorganism which was prevalent in the army abroad. The symptoms divide the disease into three main clinical types, namely: (*a*) Mild cases with albuminuria and few subjective symptoms; (*b*) hematuria cases with symptoms pointing to affection of the lower part of the urinary tract, and (*c*) nephritic cases with edema. These three main types cannot always be sharply differentiated, for mild or albuminuria cases may go on to the more marked type with edema, or hematuria and edema may be present in the same patient. With rest in bed and a simple diet of milk and milk puddings, the large majority of cases improved rapidly. The symptoms calling for active treatment are cough, dyspnea, decrease in urine, headache, and convulsions. If a patient was markedly edematous or his blood pressure high, a hot air bath was given. In nearly all cases this produced free sweating, relieved the cough and headache and decreased the edema. The patients' bowels were kept fairly free with Epsom salts, hut patients were not severely purged. If the dyspnea did not then subside and was severe, oxygen inhalations almost invariably gave considerable relief. Opium in any form for the relief of cough or sleeplessness the author abandoned after some unhappy results from its use. It appeared to increase the patient's cyanosis. For convulsions, spinal puncture and withdrawal of fluid was done in three out of four cases.

5. The Return of the Army Medical Officer.—E. J. Williams thinks that life in the army has not been an entire loss to the army officer concerned. His travel experience and sacrifice have broadened his vision in a way that will be of great value to him, although it cannot be measured in dollars and cents. His training in army work will benefit him directly in several ways. The necessity for recording the many details in connection with each case, both from the medical and military viewpoint, has given him an insight into the value of keeping accurate records. This training will assist him materially in connection with the business side of the profession and will insure greater satisfaction to the patients as well as himself. His experiences in the military hospitals have taught him the great benefits to be derived from the co-operation of the different services in the unit. This is possible owing to the commanding officer being supreme and the workers all full timed men pledged to fulfill his orders. This allows for a development of efficiency in a hospital never seen in civil life, where a medical superintendent always occupies a minor position. A host of medical officers have been carefully trained in *x*-ray work and sanitation so that the benefits of their knowledge might be spread over the country to places where at present they are unknown. The health officers should be of great assistance in the years to come if public health is given the attention that now seems probable. The esprit de corps developed among the men in the Medical Corps should be of great benefit to the profession on the absorption of the officers into civil life. They have been so long free from the petty jeal-

ousies that have always marred our esteem in the public eye that the foolishness of them all is only too apparent to them. Let us hope that they will use their influence to rejuvenate all our medical societies. The county, provincial and Dominion associations all have functions of equal importance. Until the county association reaches that point of efficiency which is required of every successful organization, the larger associations will be so much the weaker. The questions which concern the profession in the smaller towns and cities should be considered by the county associations, and then in turn brought before the larger associations. The futility of submitting local questions to the larger associations has been amply demonstrated.

Berliner klinische Wochenschrift.

February 3, 1919.

Deep Radiotherapy in the Gynecological Clinic at Erlangen, Particularly from the Viewpoint of the Dosage of the Rays in the Treatment of Cancer.—H. Wintz exposes the principles of and facts obtained in very precise radiotherapy. Starting with the notion of "practical homogeneity" (that is to say, that the quality of the rays when sufficiently filtered can cause them to penetrate the tissues to the depth of ten centimeters without any waste of radiation along the tract), the writer has been able to estimate as follows the relative quantities of required irradiation:

Cutaneous unit (An arbitrary figure, corresponding to an erythema occurring within eight to ten days and to a mild brown pigmentation at the end of four to five weeks.)	100
Dose for sterilization	34
Dose for sarcomata	60-70
Dose for carcinomata	100-110
Dose supported by the rectum	135
Dose supported by the muscles	180

This dosage of precision has been established by experimental research work in which irradiation, after a filtration necessary for obtaining the "practical homogeneity," has been measured in depth (vagina, rectum) by an electrometer having an ionization chamber (Elektrometer mit Ionisationskammer). From the writer's figures it results that the ovarian tissue is three times more sensitive to the *x*-rays than the skin, and he has also been able to observe that the differences of the sensibility between the skin of one subject and another are much less marked than is generally supposed. The sensibility of different subjects only varies within the limits of from 10 to 15 per cent. (an exception is to be made in cases of nephritis, the skin in subjects with this affection being from 30 to 40 per cent. more sensible than in a normal person). The tolerance of the rectum is highly favorable for the treatment of carcinoma of this region, since the gut supports 130 per cent. of the quantity necessary for killing the neoplasm. The clinical results both in the treatment of pelvic tumors or amenorrhea have confirmed the justness of the writer's technical principles. Sterility can be brought about with absolute certainty with the irradiation of four fields (two for each ovary), the total duration of the séances being from 120 to 130 minutes. The writer also describes his methods of treating cancer. In cancer localized to the cervix uteri the process is killed with certainty with 110 units. More extensive neoplasms, such as gastric carcinoma, require larger quantities, not because the cells resist the rays, but because it is necessary to extend the zone of irradiation over the entire tumor. It must not be forgotten that an insufficient dose of the rays over a small portion of the neoplasm may have an effect contrary to the one desired, producing a more acute growth of the neoplasm.

Münchener medizinische Wochenschrift.

January 31, 1919.

A Note on Personal Experience in Radium Treatment.—I. Fabry has treated a total of 145 cases of cutaneous cancer, 185 cases of lupus, 70 cases of naevus, 37 cheloids, 7 cases of plastic induration of the penis and one case of Dupuytren's contracture with radium. In cancer it is better to first treat the lesion by galvanic cauterization and afterward use the radium. The results are far superior to any other form of treatment, not excepting radiotherapy. This curative action is not, however, evident in cancers having extended in depth and involving the periosteum or bone, but even in these circumstances the process may offer a certain remission while pain is controlled. In lupus many perfect cures are obtained in the early phases of the process, while some success is obtained in serpiginous lupus. Lupus of the nasal mucosa is more easily accessible to radium than to light and *x*-rays. In naevi the results are all the more rapid the younger the subject, while when the lesion is extensive years of treatment may be necessary. The results of radium treatment in cheloid have been good, and in the case of Dupuytren's contracture the outcome was really astonishing. In the cases of plastic induration of the penis the results were not so remarkable.

The Treatment of Peritonitis with Ether.—E. Seifert has experimentally produced peritonitis in cats by injecting the intestinal contents or pus derived from abscesses into the peritoneum. Intraperitoneal injections of ether had no influence on the peritonitis either as a prophylactic or curative measure.

Deutsche medizinische Wochenschrift.

January 30, 1919.

Visceral Analgesia in Tabes Dorsalis.—A. Hanser relates the history of a patient who died from a generalized peritonitis resulting from a duodenal ulcer. The clinical symptoms, which were evidently insufficient for making a diagnosis, consisted in signs of general intoxication, while the abdomen offered few functional signs, all pain and rigidity of the walls being absent on palpation. The diagnosis went astray in the first place on account of the possibility of an intoxication (the patient was a chemist), and it was when it was known that the subject was tabetic that some visceral lesion was suspected. The writer particularly insists on the fact that the patient had never offered gastric crises, and discusses the indications that similar cases may give relative to the sensitive innervation of the abdominal viscera. The case also has a practical importance, since it shows that in a tabetic subject the most typical symptoms of an acute abdominal surgical case may be wanting, a fact not referred to in the textbooks.

Digestive Disturbances Due to Breast Milk Too Rich in Fat.—E. Slawik, basing his remarks on a large number of analyses of woman's milk, concludes that the fat content may attain a considerable amount (7 to 8 per cent.) in some women. The resulting disturbances in the infant are, above all, vomiting and anorexia and therefore interfere with the general nutrition. Constipation is often severe.

Bilious Peritonitis with Apparent Integrity of the Biliary System.—E. Koenig recalls the obscurity which reigns in the interpretation of this phenomenon. The three cases which he reports would seem to uphold the theory invoked, namely, a kind of filtration and diapedesis arising in the biliary tract. From the viewpoint of bacteriology the intra-abdominal exudate was found sterile in one instance, while in the two other cases the colon bacillus was found. As to treatment, cholecystectomy is the only rational means for overcoming the pathological process.

Wiener medizinische Wochenschrift.

November 30, 1918.

Wounds of the Joints.—F. Demmer, after giving some statistical data, is of the opinion that conservative treatment is not to be carried too far. Payer's method seems to the writer to be the best, namely, the prophylactic removal of the missile and other foreign matter, followed by drainage and injections of camphorated phenol.

Wiener medizinische Wochenschrift.

February 1, 1919.

Perforation of the Macula Lutea.—M. Salzmann studies the destructive atrophy occasionally occurring

(although very rarely) in the fovea following various forms of traumata. The diagnosis is made with a direct ophthalmoscope. The lesion is not due to a primary action of the trauma but to a slowly progressive process requiring a year or more to undergo its evolution. From his pathologic findings the writer invokes, in order to explain the phenomenon, an atrophic process involving only the retina, leaving the other ocular structures and pigment layer of the retina intact. It is a commotional phenomenon which brings about a necrobiosis of the most labile ocular tissue and the least capable of regeneration, viz.: the macular retina.

Extraction of a Shrapnel Bullet from the Internal Auditory Canal.—O. Beck reports the case of fracture of the petrous portion of the temporal bone, resulting in the unilateral loss of hearing, with vestibular reflexes and a complete facial paralysis. Localization of the bullet with the *x*-rays. Operation three months after receipt of the injury, by the mastoid route. Removal of the missile, recovery (naturally without a return of the functions).

La Presse Médicale.

February 24, 1919.

Remarks on Influenza.—Tremolières and Rafinesque in the study of the grippe epidemic in a certain sector of the West Front saw at least three phases which were quite distinct. In May-June, 1918, they saw what might be termed a three or five day fever, beginning abruptly with slight chills, intense headache and general myalgia and lumbalgia, and fever up to 40 C., with in addition a certain measles-like syndrome of congestion of the face, conjunctival injection, lacrymation, coryza, and angina. In the great majority of such cases there was a quick turn for the better but in a minority there was a special syndrome suggestive of tuberculosis. Only in a small minority was there a complication of bronchopneumonia or pleurisy. Summing up this early outbreak the authors lay stress on the predominance of nervous symptoms, referring evidently to the element of pain and of asthenia. From the middle of June to the end of August a new phase of the malady asserted itself. The grippe had become less frequent but more deadly. Benign types were still in evidence but along with these were seen intense pulmonary congestion and pseudolobar bronchopneumonia. These two conditions were associated at times with pulmonary edema on the one hand and purulent pleurisy on the other. The third phase prevailed from the end of August to the middle of December. The virus had become increasingly virulent with passage. Bronchopneumonia increased in frequency and septicemia became more common. The author describes half a dozen clinical types encountered. In addition septicemia per se is separately discussed. The authors date the epidemic from May 1 or several weeks before the Madrid outbreak and trace it to December 10. During this period 1086 soldiers were interned for this malady. Of this number 100 succumbed to bronchopneumonia and septicemia, which is less than 10 per cent.

Hygiea.

December 31, 1918.

A New Form of Radiation from the Human Organism.—Alrutz has investigated on two hysterical men the possibility that the hypnotist gives off from his person some unknown form of radiation when he makes passes over the bare hands and forearms of his subjects without actual contact. In these passes the finger tips are presumably involved, and especially when subjects are placed under hypnotic sleep it is known that both analgesia and contraction of muscles are at times developed incidentally. In general, however, all such phenomena have been attributed to suggestion or autosuggestion. In order to eliminate not only suggestion but any accidental influence due to heat or mechanical stimulation the author blindfolded his hypnotized subjects and fixed a pane of glass over one of the bared arms. The subject was in mild hypnosis and both hyperesthetic and hyperalgetic. Downward passes were now made above the glass, whereupon analgesia developed. These were followed by upward passes, whereupon sensibility became at first normal but with further action hyperesthesia and hyperalgesia reappeared. The same phenomena were obtained when metal was substituted for glass, but if cardboard or wood was used the phenomena were more or less in abeyance. The experiments were varied by placing a disk of wood over part of the glass in such a way that the hand was protected by both substances. Downward passes now showed that while the protected hand retained its sensibility the forearm became analgetic. Now other individuals who were substituted for the author obtained the same results with passes of the downward type, although they were unacquainted with the subject. If the subjects were in deep hypnosis and both anesthetic and analgetic, downward passes were without effect, but upward passes restored sensibility wholly or in part. The author also learned that if he pointed his finger or a glass rod toward a muscle, tendon or nerve, a contraction of the corresponding muscle occurred. The same result was obtained through a sheet of glass or metal. But few subjects tested refused to respond in a standard way to the above tests, so that the author believes that he has discovered a new form of emanation from the human body. He has also found that this form of radiation can be reflected and conducted like other forms. The experiments, while conducted at first on two hysterical subjects who could be readily hypnotized, have been successfully repeated on many others and even during wakefulness.

Norsk Magazin for Laegevidenskaben.

January, 1919.

Influenza in Norway.—Ustvedt gives an account of this subject beginning with the earliest records. While Hirsch mentions 125 epidemics between the years 1173 and 1875, he has little to say of Norway, and our knowledge of the latter appears to be due to the account of the disease in that state in the nineteenth century by Hold. The oldest mentioned outbreak was in the winter of 1837, and then came outbreaks in 1847, 1857 and 1863. Nothing further is heard until 1889. In December of this year the pandemic reached Christiania and lasted until February of 1890. Of 10,461 victims but 24 succumbed to the disease. In 1891 the pandemic played a return date in April-May, and of 8,506 victims 118 died. In 1892, from New Year's to March, came the third visitation now having endemic qualities and claimed 4,000 victims with 62 deaths. In 1893 there were two "epidemics," one in the winter months and the other at the close of the year which apparently coincided with the cold period of the latter. The second episode lasted until February, 1894. The mortality was low. The affection had now settled down to ordinary winter grippe which apparently recurred annually with varying virulence. In 1906 the deaths numbered 138, which was considerably more than the average. It had become absurd to call this annual winter catarrhal fever by a name which was equivalent to the pandemic expression of the disease. It was now purely a domestic affair, one not brought in from without. True influenza does not require the winter for its development, for of Hirsh's 125 epidemics but 50 began in the winter months. However there is a parallelism which is difficult to explain away—for example the pseudo-cholera seen in both forms. The pandemic of 1918 reached Christiania on July 2 in a very mild form. In the epidemic hospital up to August 1, 128 cases were interned and 25 died. The author carefully analyzes this small material but gives no information as to the general outbreak nor in regard to the subsequent severe return of the plague.

Tannin and the Grippe Toxin.—Doulcet calls attention to the use of large doses of tannin in conditions due to bacterial toxins. The sole explanation is an affinity between this acid and the poisons referred to. Originally employed with benefit in tuberculosis, it has been tested in the Italian Army for influenza. The only result claimed is lessened virulence and a more favorable course. The dose, which is repeated at intervals, begins at 7 or 8 grams. By using this remedy one is able to avoid the abuse of antithermics.—*La Presse Médicale.*

Book Reviews.

THE PRACTICE OF PEDIATRICS. By CHARLES GILMORE KERLEY, Professor of Diseases of Children in the New York Polyclinic Medical School and Hospital; Attending Physician to the New York Nursery and Child's Hospital; Consulting Physician to the Babies' Hospital; Consulting Physician to the Sevilla Home for Girls and to the New York Home for Destitute and Crippled Children; Consulting Pediatrist to the Greenwich (Conn.) Hospital, to the Tarrytown (N. Y.) Hospital, to the Englewood (N. J.) Hospital, and to the Lawrence (Bronxville) Hospital; Ex-President American Pediatric Society; Ex-President New York County Medical Society. Second Edition, Revised and Reset. Price, $6.00 net. Philadelphia and London: W. B. Saunders Company, 1917.

THE position of Kerley in pediatrics is sufficiently well established to make welcome any contribution from his pen. The chief value of this work is characteristic of this writer; that is, it is intensely practical. He does not content himself with theorizing or generalities, but is always definite and exclusive. A valuable feature of the book is an appendix, which is in reality a handbook of materia medica and therapeutics for children. Kerley's book is probably the best single book on the subject for the general practitioner and will no doubt find a place in every pediatrist's library.

TRAITEMENT DES PSYCHONÉUROSES DE GUERRE. Par G. ROUSSY, J. BOISSEAU, et M. D'OELSNITZ. Collection Horizon. Prix, 4 francs. Paris: Masson et Cie., 1919.

THE six chapters of this work are devoted respectively to clinical aspects, causal factors, prophylaxis, treatment, nature and prognosis of the psychoneuroses of war. The types of disease encountered are chiefly psychomotor, including tremor and tics, the others comprising psychosensory, sphincteric and visceral disorders, and nervous crises. Psychomotor troubles may be general or located at different levels of the extremities, or in the head, neck, and trunk. The chief topics, as far as space is concerned, are treatment and speculation as to the intimate nature of these affections. The illustrations show the great predominance in the clinic of contractures, including clubfoot.

THE DIAGNOSTICS AND TREATMENT OF TROPICAL DISEASES. By E. R. STITT, A.B., Ph.G., M.D., LL.D., Rear Admiral, Medical Corps, U. S. Navy; Commanding Officer and Head of Department of Tropical Medicine, U. S. Naval Medical School; Graduate, London School of Tropical Medicine; Professor of Tropical Medicine, Georgetown University; Professor of Tropical Medicine, George Washington University; Lecturer in Tropical Medicine, Jefferson Medical College; Member, National Board of Medical Examiners; Member, Advisory Board, Hygienic Laboratory; Formerly Associate Professor of Medical Zoology, University of Philippines. Third Edition. Revised. With 119 Illustrations. Price, $2.00. Philadelphia: P. Blakiston's Son and Co.

THE previous edition of this capital little book was noticed in these columns less than a year ago. That edition was subjected to a very thorough revision, so the changes in this edition are but few. The subject of Trench Fever has been rewritten, and changes have been made in paragraphs of various sections. In many respects this book is a model of what such a work should be. It deals with its subject in a thorough yet concise manner; it is up to date; there is a pleasing absence of unnecessary padding; and the size and price of the book commend it to all students.

QUARTERLY MEDICAL CLINICS. A Series of Consecutive Clinical Demonstrations and Lectures. By FRANK SMITHIES, M.D., F.A.C.P., Associate Professor of Medicine, School of Medicine, University of Illinois; Gastro-enterologist to Augustana Hospital, Chicago. Volume I, Number 1, January, 1919. Annual subscription, $5.00. St. Louis: Medicine and Surgery Publishing Company, Inc.

THIS new periodical presents the bulk of the material shown before students at Dr. Smithies' clinic at the Augustana Hospital during the previous three months. Naturally some of the work is rather elementary, but that is to be commended rather than otherwise. One attractive feature is a section of Notes on Clinical and Laboratory Procedures which is appended to many of the case discussions. These are not only informing in themselves but show what methods were used in the cases presented. The cases are for the most part interesting and instructive and many physicians would benefit by a study of them. On page 68, in a note on the method of searching the stools for amœbæ, stress is laid on the method of obtaining the stool. It is probable that more satisfactory material may be obtained by the use of the proctoscope, and when the first specimen of stool shows no amebas the proctoscope should always be used. On page 62 there is a misprint. What is meant, of course, is "For a group III recipient, donors in either group *III* or IV may be used." If one may judge from the initial volume this new series of clinical lectures will be a welcome addition to current medical literature.

PHYSIOLOGY AND BIOCHEMISTRY IN MODERN MEDICINE. By J. J. R. MACLEOD, M.B., Professor of Physiology in the University of Toronto, Canada; formerly Professor of Physiology in the Western Reserve University, Cleveland, Ohio; assisted by ROY G. PEARCE, B.A., M.D., Director of the Cardiorespiratory Laboratory of Lakeside Hospital, Cleveland, Ohio; and by others. With 233 illustrations, including 11 plates in colors. Price, $7.50. St. Louis: C. V. Mosby Co., 1918.

THE object of this book is to bring into correlation the laboratory work of the medical student with his clinical work. Too frequently these are kept apart; the blame for this rests largely (but not entirely) on the teachers. Many of the standard text-books err in thus keeping apart what ought to be brought together. In this volume the authors have brought together such parts of the physiology and chemistry as are likely to be of value to the clinical investigator. The book is not a text-book on physiology, although a large part of its contents will be found in any modern work on that subject. At the same time, much that finds proper place in a work on physiology is omitted; hence the reader will find little or no mention of the muscle and nerve physiology, the physiology of the special senses and of reproduction. If the reader will take this volume as the authors intend it to be taken he will find in it much that will aid him in understanding the diseased conditions presented in the clinics, and also the modern methods employed in their diagnosis. The chapters are very short, and are also very readable; the book is well printed and contains a number of useful illustrations. Several of the borderland topics between the theoretical and practical aspects of modern medicine are discussed in detail; and such subjects as shock, starvation, hunger, control of body temperature and fever have special chapters devoted to them. There are also important sections dealing with the clinical applications of certain physiological methods, which show the value of some of the modern methods used in diagnosis and at the same time explain the principles involved in their use. The general practitioner who can find nothing instructive in this work is an unusually well equipped man.

BEVERAGES AND THEIR ADULTERATION, ORIGIN, COMPOSITION, MANUFACTURE. NATURAL, ARTIFICIAL, FERMENTED, DISTILLED, ALKALOIDAL AND FRUIT JUICES. By HARVEY W. WILEY, M.D., Author of "Foods and Their Adulteration." With 42 Illustrations. Price, $3.50. Philadelphia: P. Blakiston's Son and Co.

THIS book purports to give definite information concerning not only alcoholic beverages but also those forms of drink which will be to a large extent their substitutes, fruit juices and so on. Such beverages as coffee, tea, cocoa, and chocolate are likewise adequately dealt with, and much space is given to a consideration of water, which Dr. Wiley hopes will come into more general use. It is a fact that a great deal of adulteration of beverages takes place, and it is equally obvious that it is against the public weal in every way that this should happen. This work may serve the purpose of ending these practices somewhat and, in any event, knowledge of this kind is of great value.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held February 6, 1919.

THE PRESIDENT, DR. GEORGE DAVID STEWART, IN THE CHAIR.

THE program of the evening was arranged by the Committee on Public Health of the Academy.

Program of the United Public Health Service, with Relation to Venereal Control Among the Seamen of the Merchant Marine, New York Harbor.—Dr. W. A. WILSON, Acting Assistant Surgeon of the United States Public Health Service, spoke on this subject. He explained that under the Public Health Service there were a number of bureaus, such as the Quarantine and Marine Hospital, and that recently the Bureau of Venereal Diseases had been established. Under the Chambers-Channing bill $1,000,000 had been appropriated for the work of this bureau, which was to be apportioned among different States, where subsidiary divisions of this bureau were being established which would cooperate with the various State health departments. Of this fund the share of New York State was $99,090.89. Before the war the Marine Hospitals were prepared to care for the men in the United States Merchant Marine, but then many of them were on the deep seas; since the declaration of war many of these seamen were in the harbors and hospital accommodations for them were inadequate. The speaker had been sent by the Public Health Service to make a survey of hospital conditions and to see what could be done in the way of providing for the care of merchant marine seamen at this port. The verified figures of the survey which he made showed that the week of the survey 10,000 merchant marine seamen were shipped at this port; 499 transports were docked with an average crew of thirty men, and twelve passenger steamships with an average crew of 400 men were docked. It was found that there were also operating in the harbor 360 tugboats, the crews of which averaged five men, and 1,000 barges with one man to each barge. Thus it might be seen that there were some 25,000 men coming and going about the waterfront of this port, and in addition the Longshoremen's Union showed a membership of 15,000 and the Stewards' Union a membership of 1,000. In connection with these figures there were certain peculiar features that had to be taken into consideration in working with these men who lived on the sea and about the waterfront. The deep water seaman was a peculiar individual in that very often he would not go more than a few blocks from the dock, and even if not sleeping on the boat would return to it several times during the day or evening. In these localities about the only places open to him were the saloons and bawdy-houses. Of the 10,000 merchant marine seamen in this port every night it was estimated that at least 5,000 were infected with venereal disease, and as many as 800 were in the active infectious stage and should be in bed, but were on the streets of the city with possibly a temperature of 103° or 104° F. The Marine Hospital Service took care of American Merchant Marine seamen only, and these constituted only about 21 per cent. of the 10,000 seamen shipping at this port. These men could not be properly cared for because there were insufficient hospital accommodations for them. The Marine Hospital on Staten Island had accommodations for about 200 and was planning for an addition at the time the influenza epidemic broke out. The urgent demand for accommodations at that time so overtaxed the hospital that many venereal cases were turned out; not a great deal had been done since that time in the way of providing increased hospital accommodations for this class of cases. At the Barge Office, 313 East Nineteenth Street, they were caring for cases of venereal disease, but the work was a great burden, as they were already overworked by the duties imposed in connection with the War Risk Insurance. Another institution operating in this port was the Seamen's Church Institute, the only institution of its kind in the United States. This organization cared not only for the seamen of the American Merchant Marine, but of those of other nations as well. It had a capacity of fifty beds. The first day this organization opened its clinic there were 145 patients and of these 105 were coming back for continuous treatment. The worst part of venereal diseases came from the Spanish firemen and seamen in general. These men had been requested by the President to remain in the Merchant Marine, but were not allowed to enlist. It was also to be remembered that these men of the Merchant Marine had done great service for the country, there being perhaps no class of men in the service who had seen more periscopes than the seamen of the Merchant Marine. It might also be mentioned that there were 1,000 young Russians who struck this port and many of them had syphilis. In Russia syphilis was a family disease, the morals of the Russian people being about as high as the morale of their army. It was probably a rather broad statement to make, but it was the speaker's belief that 7 per cent. of syphilitic infections were accidental and if they could prevent accidental civilian infections they would have done a wonderful work. The first survey which the speaker had made revealed the fact that only four clinics in New York City were conforming to the regulations of the Sanitary Code in regard to the care and treatment of venereal cases. A later survey showed that there were ninety clinics in New York that were treating venereal diseases and that possibly an increased proportion were conforming with the sanitary regulations, but the facilities they offered were still entirely inadequate to care for those afflicted with venereal disease. Facilities of the outpatient department should be backed by beds in order to make it possible to detain those men in the active infectious period until danger of communicating the disease had passed. It was expecting a great deal of the War Department that it should hold and treat all these cases of venereal disease. The problem was a local one when looked at from the broad point of view. The records of the War Department showed that in the first draft in the State of New York 47,000 men were found to be infected with venereal disease. Between April, 1917, and September, 1918, those drafted into the army and found to be infected numbered at least 2,295,000. Since these men had brought this infection into the army from civil life, it scarcely seemed just that the War Department should have to detain and treat them. The problem was one that concerned the civil population, and would be a tremendously important one during the reconstruction period, since it involved the entire industrial efficiency of the nation. Much would depend upon the advertising policy of the newspapers, magazines, and medical journals. As the campaign against venereal diseases which was now being launched gradually progressed, the public would turn to the medical profession for advice and guidance, hence it was incumbent upon physicians to familiarize themselves with the program of the United States Public Health Service. They should avail themselves of the splendid volume of literature issued by the Bureau of Venereal Disease Control in Washington and with that issued by the local bureaus connected with the State health departments. This literature included not only matter intended for the profession, but much intended for the education of the public, including pamphlets for boys for girls, for expectant mothers, for parents, etc.

The Venereal Disease Problem from the Public Health Standpoint.—Dr. LOUIS I. HARRIS, Director of the Bureau of Preventable Diseases of the New York City Department of Health, presented this communication in which he stated that the venereal disease problem was one of the oldest in the history of mankind. Its only new feature was that it was no longer the exclusive subject of interest and study of the religious the ethical, and the medical leaders, and of a scattered few who were looked upon as violating the canons of good taste and polite breeding by public discussions of the problem. This publicity was not only an index of progress, but it might be regarded as prophetic of a profound and far-reaching influence in bringing about an acceleration in measures for the reduction in prevalence of venereal diseases. The awakening of the interest of the medical profession was a significant and important sign of the change in the attitude of society

as a whole toward this problem, a change which might in a large measure be attributed to the facts revealed by the condition of our army in the war, and by measures which were elaborated by our medical officers for their protection. The signal achievement of the medical guardians of our army and navy must not and would not end with the war. The public health service of the community had a distinctive place in the program for the prevention and supervision of cases of venereal diseases. We had now come to understand it. In so far as the general public was concerned the prime duty of a health department was to lead an unrelenting and vigorous campaign of education which, so far as was practicable, should begin with the young and be carried into every division or group of the community which might be benefited by proper instruction. The health department should combine with social agencies in the city to provide for wholesome and well planned recreation that would give an outlet to turbulent emotions and thought and furnish healthful distraction to the young, and, being advised of the viewpoint of the best informed and most progressive leaders among educators and physicians, it should direct and counsel or stimulate our high school authorities, parents, and others in proper methods of sex instruction. The public authorities should require the reporting of all cases of venereal disease, so as to make possible an intelligent and sane plan of action to safeguard the community from sources of infection that would otherwise be uncontrolled. The veiled diagnosis made by physicians out of solicitude for the feelings of the patient was out of date and a menace to many in the community. The provision of laboratory facilities by health authorities for the diagnosis of venereal diseases was not only an aid to those who could not afford to pay for such work, but while it assisted the private physician materially in his work among those of limited means, it was an oblique method of obtaining reports of venereal disease cases. The fact that all reports of venereal diseases were held confidential by the health authorities and, further, the growing tendency toward that cordial, cooperative, and necessary relationship between private physicians and health officers, should make in increasing measure for the full reporting of venereal disease cases. The health officer should stand in especially close relationship to those who were affected with venereal disease, and to persons who suspected they were affected, or who desired information and who would resort to the advertising "specialist" so-called, or develop various neuroses for lack of an authoritative guide and adviser. The Health Department of the City in 1914 established a medical advisory station to meet this need. In its brief career this Medical Advisory Service, conducted by Dr. Barringer, had advised 14,953 persons up to the beginning of this year. From 1914 to 1918, inclusive, 3277 persons presented themselves who were suffering from non-venereal diseases such as psoriasis, sycosis baræ, scabies, acne, various forms of eczema, furunculosis, purpura, vaginitis, and cystitis. Many of these undoubtedly were prevented from falling into the hands of advertising quacks and so-called "specialists" and directed to their family physicians and well conducted clinics according to their means. In fact, 861 of these persons had previously been under the care of quacks and were attracted to the Health Department clinics by the advertisement placed next to those of advertising quacks in newspapers which carried such matter. The information which the health authorities might glean from the full reporting of venereal diseases should lead to a program which would enable those authorities to give physicians help for those patients who needed special hospital care, or to follow up in a judicious manner those cases which drifted from under the care of private physicians or dispensaries after inadequate courses of treatment and which constituted a source of community danger. Dr. Harris showed that the number of hospital beds for venereal disease cases now available in this city was negligible. This lamentable condition called urgently for correction. At present, by virtue of the newly enacted State laws, in this city they had provided hospital beds at Riverside Hospital only for those who were convicted on the technical charge of vagrancy, which was really defined as prostitution or immoral practice punishable by law. The law-abiding citizen who might be in most urgent need of hospital care was practically offered no relief. The general hospitals and the infectious disease hospitals, should, it seemed to him, amply provide for the care of those in need of such accommodation. There was also a broad field for follow-up work which was now being recognized as a fundamental feature of dispensary service and of public health work in connection with the work of the venereal clinics. Although regulations establishing standards for the proper conduct of venereal clinics were enacted in December, 1917, there were at present scarcely more than a dozen of the nearly eighty in this city which conformed to these standards in all essentials. The strict enforcement of proper standards for the conduct of genito-urinary clinics, under penalty of closure when they failed to respond to good counsel and persuasion, should be insisted upon by health authorities. The provision of an adequate number of night clinics for the treatment of the venereally diseased was also urgently needed. Chapter 264 of the State Law of 1918 required that treatment be furnished free of charge by the local health agency to all persons suffering from venereal disease subject to subsequent investigation as to their financial status. This requirement would, it was to be hoped, be met by public health authorities throughout the State. Dr. Harris said it seemed to him that we might profit by the excellent results obtained by the army through its prophylactic stations where preventive treatment was administered to all applicants within a few hours after exposure. It seemed to him incumbent upon health authorities to maintain such prophylactic stations as a routine part of their work for those who could not secure this treatment promptly at the hands of a private physician. The Health Department in connection with its periodic examination of food handlers had laid the foundation possibly of a type of periodical examination which not only served to protect the public from food handlers in an actively infectious condition, but might also be the means of educating a considerable number of persons in relation to the prevention of venereal diseases. If this work could be logically extended through occupational clinics, conducted for the benefit of industrial groups, signal achievements in the prevention of disease, and of venereal infections particularly, might follow. Dr. Harris also made a preliminary report of their work in connection with the enforcement of Chapter 264 of the Laws of 1918. In a period of seven and one-half months, ending December 31, 1918, the Venereal Disease Division of the Bureau of Preventable Diseases examined a total of 2,070 women who were classed as convicted or suspected persons. Among these they found a positive Wassermann in about 37 per cent. About 12 per cent. of the women gave a positive gonorrhea complement fixation test, and in 9 per cent. the smear was positive for the gonococcus. Of 182 women who have definite evidence of clinical gonorrhea a positive gonococcus smear was obtained in only 25 per cent. The total number who gave evidence of gonorrhea or syphilis or both was approximately 58 per cent. A number of these women received a vigorous course of treatment and a considerable number were now in the care of Riverside Hospital.

Recent Legislation in New York State, Relating to the Control of Venereal Disease.—Dr. J. S. LAWRENCE, Chief of the Bureau of Venereal Disease of the New York State Department of Health and Assistant to the Surgeon-General of the United States Public Health Service presented this subject. After expressing regret that Dr. Biggs could not be present, he said he would tell of the legislation that they had been able to use. In the first place, they now called these diseases syphilis and gonorrhea and not venereal diseases. The State Department of Health was following up these diseases throughout the State and giving them no quarter whatever. The first law directed toward the control of these diseases was passed May 16, 1917, and was a part of the Domestic Relations Law, Chapter 205. It provided that applicants for license to marry must make affidavit to the effect that: "I have not to my knowledge been infected with any venereal disease, or if I have been so infected within five years

I have had a laboratory test within that period which shows that I am now free from infection from any such disease." That was the beginning of legislation for the control of syphilis and gonorrhea and appeared to be a very innocent law. In application it had proved to be just as innocent, as it had in a large measure miscarried. The reason for this was that most of the applicants for marriage license did not know what the diseases were; this was true also of some of the county clerks. The next measure was Regulation 29-A of the Sanitary Code, which spoke of chancre, gonorrhea, and syphilis as dangerous diseases, and made provision for furnishing circulars of information which instructed persons as to the precautions to be taken to prevent the spread of these diseases. It urged upon physicians the necessity of telling patients affected with these diseases the nature of their ailment and how to prevent its communication. This was the most delicate and difficult part of the problem. The department received many letters asking for a description of the diseases, what the symptoms were, or describing symptoms and asking whether the writer of the letter had a venereal disease. The provisions of this regulation could be carried out more fully in the future than they had been in the past. In the future the physician would have to speak more frankly to the patient in reference to these diseases for two reasons, first, because that was the best way to attack the problem and, second, because the patient would demand it. On September 1, 1917, another measure was enacted, known as the Avertising Law, Section II, 42-A, which aimed to prevent the treatment of venereal diseases by any but licensed practitioners of medicine. This measure was evaded by so wording advertisements that they did not come under the law and yet their meaning was perfectly clear. One advertisement carried the picture of a man receiving a salvarsan injection. The druggists of the State were not treating these diseases and the drugs formerly sold by them for the treatment of these diseases were gradually disappearing. A representative of the Druggists' Association came to the speaker and discussed this law, stating that they could be depended upon to a man to enforce it. The next regulation affecting the control of venereal diseases was in the form of an amendment to the Public Health Law, in relation to the reports of communicable diseases, which went into effect April 10, 1918. This amendment was a part of Chapter 177, Paragraph 25, and read as follows: "Whenever an examination for diagnosis by a laboratory or by any person other than the physician in charge of the person from which the specimen is taken discloses the existence of a case of infectious and contagious or communicable disease, the person in charge of such laboratory or the person making such examination shall immediately report the same, together with all the facts in connection therewith, to the Health Officer of the city, town or village from which such specimen came, and shall keep a permanent record of all the facts in connection with such examination, including the identity of the person from whom the specimen is taken and the name of the physician, if any, sending such specimen." In commenting on this measure, Dr. Lawrence said that venereal diseases were not reportable in the State of New York except where the people had made them reportable. In some communities they were reported by number and in others just as diphtheria or typhoid fever would be reported. An amendment to the Sanitary Code, which became effective on August 1, 1918, Chapter II, Regulation 2-A, provided for reporting cases of communicable disease by physicians and for submitting specimens for laboratory examination in cases of syphilis, gonorrhea, and chancroid. Regulation 2-A, entitled "Submitting Specimens for Laboratory Examination in Cases of Syphilis, Gonorrhea, and Chancroid," read: "It shall be the duty of every physician to submit promptly to the laboratory of the State Department of Health, or to a laboratory approved by the State Commissioner of Health for this purpose, such specimens for laboratory examination and such data relating thereto as may be prescribed in the special rules and regulations issued by the State Commissioner of Health from every person affected with any one of the communicable diseases mentioned in Regulation 1, Group B, or from any person in whom suspicion of such disease exists." Regulations 29-A, 29-B, 29-C, 29-D, and 29-E of Amendments and Additions to the Sanitary Code, which became effective on August 1, treated of the instruction of persons affected with syphilis, gonorrhea, or chancroid; records of cases of syphilis, gonorrhea, and chancroid not to be disclosed; occupations forbidden to persons affected with syphilis or gonorrhea in the infective stage; reporting persons violating laws and regulations concerning syphilis, gonorrhea, and chancroid; duties of physicians and others under the public health law concerning syphilis, gonorrhea, and chancroid. Chapter 264 of Health Legislation added two new sections, 343-M and 343-T, which gave to health authorities the power to examine any person reasonably suspected of being infected with venereal disease and provided for the isolation and treatment of such persons. There had been some question as to how the Department of Health could legally enforce this measure, but a magistrate showed how it could be done by reversing the order of procedure. If a Health Officer had reasonable grounds for suspecting an individual to be affected with a venereal disease, he could submit his reasons to the magistrate, who after looking them over and finding them satisfactory could issue an order requiring the individual to submit to examination. If the affected person did not comply, he could then be arrested and brought into court, but they had little need to resort to this procedure, as most persons were perfectly willing to undergo treatment. Another of these new laws in Health Legislation was Chapter 342, which was passed on April 30, 1918, and provided for the creation of a Bureau of Venereal Diseases in the State Department of Health. The bureau was authorized by this measure to buy, manufacture, and dispense remedies for the treatment of venereal diseases, to examine specimens submitted to it, to make all necessary tests, to provide and distribute literature, and to use such other means as might seem desirable for the instruction of the public. Attention was also directed to Article 17-B of Chapter 264, 343-O, which related to the treament required for those found to be infected with venereal disease. This section required that any person suffering from any infectious venereal disease should be required by the Board of Health or the Health Officer of the district in which such person resided to conform to all the rules and regulations made and approved by such Board of Health or Health Officer for persons so diseased, such rules and regulations, except for the City of New York, to be first approved by the State Department of Health. This section made provision for carrying out further details of isolation and treatment. In closing Dr. Lawrence spoke of a measure which was to be introduced into the present Legislature, asking that Valatia State Farm might be used as a sanatorium for girls who had for the first time been brought into court; here they might be exposed to social service influences, instead of being committed to a reformatory for a first offense.

Dispensary Treatment of Syphilis in New York City.—Dr. JOHN A. FORDYCE presented this phase of the subject, in which he stated that our modern accurate knowledge of syphilis had been made possible by diagnostic and therapeutic methods developed during the past ten years, supplementing the accumulated clinical experience of previous generations. Syphilis was a problem of even greater importance than tuberculosis. It caused more race deterioration, shortened life and produced incurable imbeciles and helpless cripples In cities it was estimated that 25 per cent. of individuals affected with it died of heart disease and that in all necropsies performed from 6 to 10 per cent showed residua of syphilis. Insurance statistics gave the mortality among the victims of the infection as 68 per cent. higher than among those who escaped it The relation of syphilis to all branches of medicine was so intimate and for its mastery such highly technical knowledge was required that a new specialty was rapidly springing up to meet the requirements of our public institutions to do justice to this unfortunate class. As a result of such specialized teaching we now had in charge of many of our outdoor clinics men well versed in the required technical knowledge, who employed more or less uniform and standardized method

in the diagnosis and treatment of the disease. The medical profession as a whole and the public had yet to learn that early efficient treatment, accurately controlled by serological tests, could cure a large percentage of cases of syphilis in the early period of the infection and prevent the late high mortality from cardiovascular disease and the numerous cases of neurosyphilis, many of which became a charge to the community or the State. It was in the early florid stage that foci were established in the heart and aorta, the viscera, and the nervous system, which only after years produced incurable degenerations. Some syphilographers of reputation refused to recognize the significance of a persistent positive Wassermann reaction unless some clinical evidence of the disease was present. They overlooked or were ignorant of the fact that organs might harbor the spirochetes for years before showing functional impairment. It could not be too strongly emphasized that a positive Wassermann reaction meant the presence in the body of active or potentially active spirochetes. An outdoor clinic which did not control its treatment of syphilis by repeated tests of this kind was a failure in its duty to the patient and to the community. In cases of mixed infection, intraurethral chancres and others of uncertain character, a dark field examination or proper staining method for demonstrating the organisms was imperative. Every modern dispensary should be provided with a dark ground microscope and the services of an assistant capable of making the necessary examinations and interpreting the findings. A diagnosis made when the initial sore appeared followed by energetic treatment along modern lines insured a cure in perhaps 75 per cent. of such patients within the first year with a minimum amount of treatment. The physician in charge of a syphilitic clinic should be a dermatologist or at least have sufficient training in that branch of medicine to diagnose doubtful eruptions. The often disputed question as to which department in an outdoor clinic should treat syphilis would best be answered by the statement that syphilis should be under the care of one who had the necessary knowledge to grasp the problem. He must attack the disease from many angles and visualize it in its relation to medicine, surgery, neurology, ophthalmology, and, in fact, to all the branches of the healing art. Syphilis should be treated in one department in our outdoor clinics, provided with the necessary equipment for diagnosis and therapy. The department should work in close cooperation with other departments in the clinic so that early diagnoses might be made of complications in the heart, nervous system, and the eye. A number of beds should be available in the clinic or a nearby hospital, where lumbar puncture might be performed and intraspinal treatment carried out in cases which called for it. Syphilitic or cardiovascular disease required at times hospital treatment and rest. Few syphilitics, however, required prolonged hospital care. Special hospitals, except for the treatment of neurosyphilis, might only exceptionally be required. It would be difficult to persuade patients with fresh infections to frequent such institutions because of the stigma that would be attached to them. A modern institution, well endowed and equipped for research work in syphilis, would be of distinct aid in training men to perform subsequent clinical work along the lines indicated. It was difficult to retain men in our clinics after they had acquired a working knowledge of the disease unless facilities were afforded them to work on some of the problems of the disease. Scientific investigation should therefore go hand in hand with clinical work so that the interest of the staff personnel might be kept alive. Cooperation on the part of the patient was equally important and could best be secured by informing him of the possible consequences of his infection. Delinquents should be visited by a social worker. At the Vanderbilt Clinic patients with syphilis were first seen in the skin department and then transferred to the syphilis division, where blood for the Wassermann was taken and various clinical investigations carried out. Patients with demonstrable manifestations or a positive Wassermann were treated on the day of the first visit with mercury or, if contagious lesions were present, with salvarsan; others awaited the results of the various examinations. Every patient received an ophthalmic examination, heart examination, uranalysis, neurological examination, and before, during, or after treatment a lumbar puncture. Treatment was carried out systematically in courses of salvarsan and mercury, at weekly or shorter intervals, with mixed treatment or iodide of potassium as indicated, and was controlled by the Wassermann reaction. The patient was discharged as cured if his Wassermann was negative for a year and remained so after a provocative injection of salvarsan, and his spinal fluid was negative. Where involvement of the central nervous system was present intraspinal medical treatment was administered. In the annual report of the clinic from May, 1916, to May, 1917, the new patients numbered 2,895, of whom 34 per cent. were treated for syphilis; 1,893 Wassermann examinations were made; 3,229 intravenous injections of salvarsan were administered; 6,706 intramuscular injections of mercury, and 245 intraspinal treatments were given. In addition there were 224 lumbar punctures for diagnosis. Dr. Fordyce also presented the statistics of the clinic for the past year. He said he had investigated twelve of the best known outdoor clinics in New York and Brooklyn and found that the treatment employed by all consisted in courses of mercury and salvarsan or its equivalents. In only one of these was lumbar puncture performed; nine were equipped with a dark field; ten had access to Wassermann laboratories; six had a special social service worker; all charged the patient the actual cost of the salvarsan, or a slight excess to establish a fund for free salvarsan for patients who could not afford to pay for it, and to cover part of the cost of maintaining the clinic. Changes in the personnel of the dispensary staffs not infrequently interfered with continuous good work. The solution of this difficulty might be brought about by a salaried medical director of the clinic responsible to the trustees or medical staff. Dr. Fordyce also emphasized the importance of keeping accurate records and thought a plan for the standardization of treatment should be worked out. The men in charge of syphilis clinics should meet to discuss the problem and attempts should be made to have methods of therapy more uniform. In clinics where proper equipment was lacking and skilled physicians were not available patients should be referred to dispensaries where they could receive adequate treatment instead of being retained and given mercury or salvarsan in a haphazard fashion.

Dispensary Treatment of Gonorrhea in New York City.—Dr. B. S. BARRINGER read this paper, in which he reviewed briefly the history of the Associated Out-Patient Clinic of the City of New York. This body held its first meeting in February, 1912, and shortly after that meeting the Executive Committee of the Section on Genito-Urinary Diseases, Skin Diseases, and Syphilis drew up certain uniform standards for the treatment of both gonorrhea and syphilis in the out-patient clinics of New York City. In 1913 a survey was undertaken to see how many clinics in Manhattan had come up to the requirements set by the Associated Out-Patient Clinics of New York. At that time all the clinics in New York in which syphilis and venereal diseases were treated were visited. There were twenty-seven clinics where syphilis was treated, and of these seven were approved and twenty disapproved. Of twenty-six venereal clinics, but four came up to the requirements. Following this survey, it was thought advisable to add a few further recommendations to those of the Associated Clinics. These were: that clinics be opened at least three days a week; that a simple method of filing be adopted which would make readily available such important information as the number of patients, number of visits per patient, number of patients discharged as cured, and the number receiving treatment unimproved; that recommendations of the section of the Associated Out-Patient Clinics be framed in clinic rooms, and, that a uniform method of discharging gonorrheics be adopted which should include a complement fixation test. From 1913 to 1916 not much was done. Another survey was made in 1917, when it was found that there were still many clinics that were not up to the standard. On July 31, 1917, the Board of Health added to the Sanitary Code "certain regulations governing the conduct and maintenance of dispensaries wherein human beings infected

with gonorrhea or syphilis are treated or cared for." These regulations were in the main those of the Associated Out-Patient Clinics with some changes made by the Advisory Committee on Venereal Diseases of the Department of Health. At that time the opinion was given that the Department of Health had plenty of authority to close up any clinics which they considered did not come up to these regulations. As to the conditions at the present time, all that they knew was that many of the clinics were very bad. Dr. Barringer declared that the time for recommendations and surveys was past and the time for action was or should be at hand. He offered the following suggestions as to the methods which might bring all the Venereal and Syphilis Clinics of New York City up to the standard set by the Sanitary Code: (1) The matter of the inspection of clinics should be taken out of the hands of the regular Department of Health inspectors and put into the hands of men specially trained in that work. The Department of Health had such men on its staff. (2) Greater publicity should be given to the regulations of the Sanitary Code, so that every doctor of a clinic knew them by heart. Publicity should be given to the clinics complying with the regulations of the Sanitary Code and finally to clinics which did not comply. The Department of health had a medium in its *Weekly Bulletin* to further this. (3) There should be means of intercommunication between the Department of Health and physicians in charge of clinics. This might be best met by a committee similar to the old Advisory Committee on Venereal Diseases to the Department of Health. The old committee did excellent service in carrying the ideals and wishes of the clinics to the Department of Health, but failed somewhat in not carrying the point of view of the Department of Health to the various clinics. Such a committee could aid in the interpretation and carrying out of the regulations of the Sanitary Code. Dr. Barringer believed that the Department of Health and an Advisory Committee, working together with the Chiefs of Clinics, would make for a more ideal interpretation of the regulations of the Sanitary Code and for more efficient venereal clinics.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

TEXT-BOOK OF PATHOLOGY. By FRANCIS DELAFIELD, M.D., and T. MITCHELL PRUDDEN, M.D. Revised by FRANCIS CARTER WOOD, M.D. 1243 pages. Illustrated. Price, $7.50. Published by William Wood & Company, New York.

ESSENTIALS OF SURGERY. By ARCHIBALD L. MCDONALD, M.D. 254 pages. Illustrated. Published by J. B. Lippincott Company, Philadelphia.

SPEECH TRAINING FOR CHILDREN. By MARGARET F. BLANTON and SMILEY BLANTON, B.S., M.D. 256 pages. Published by The Century Company, New York.

THE EARLY TREATMENT OF WAR WOUNDS. By H. M. W. GRAY 275 pages. Illustrated. Published by the Oxford University Press, American Branch, New York.

THE OPERATIVE TREATMENT OF CHRONIC INTESTINAL STASIS. By Sir W. ARBUTHNOT LANE, Bart., C.B. 328 pages. Illustrated. Published by the Oxford University Press, American Branch, New York.

ELECTRICITY IN MEDICINE. By GEORGE W. JACOBY, M.D., and J. RALPH JACOBY, A.B., M.D., 580 pages. Illustrated. Price $5.00. Published by P. Blakiston's Son & Company, Philadelphia, Pa.

SIXTH ANNUAL REPORT OF THE COLLIS P. HUNTINGTON MEMORIAL HOSPITAL FOR CANCER RESEARCH. 56 pages. Published by the Harvard University Press, Boston, Mass.

THE SURGICAL CLINICS OF CHICAGO. February, 1919. Vol. III, No. 1. 236 pages. Illustrated. Price $10.00 and $14.00 per year. Published by the W. B. Saunders Co., Philadelphia, Pa.

Miscellany.

Sanitary Condition of Lille During the German Occupation.—Calmette states that the sanitary condition of this city as a result of the German occupation was deplorable. Privation and subalimentation have been maintained over a long period. Before the war the population was 220,000. This figure has shrunk one half, largely as a result of the exodus of many people—about 60,000—and of the conscription of 25,000 of the young people. The mortality before the war was about 20 per 1,000 while at the present it is two fold that figure. This increase is attributable to the increase in tuberculosis, heart disease, dysentery, scurvy, and other states due to underfeeding. Only the infant mortality escaped this increase because the mothers did not work in the factories during the war and were also forced to nurse the babies because cow's milk could not be obtained. Adolescents show stunting and youths of 15 and 16 have the appearance of boys and girls of 12 and 13. The girls show retarded menstruation.—*Gazette des hôpitaux.*

Death of Miguel Pereira.—Nearly the entire issue of the *Brazil-Medico* for December 28 is devoted to obituary notices and appreciations of the recently deceased professor of clinical medicine in the University of Rio de Janeiro. He was born in 1871. When but 23, and still a medical student, he was one of a commission to investigate an outbreak of cholera morbus in the Parahyba Valley. He did not graduate in medicine until 1897. He filled several minor chairs until 1910 when he became professor of clinical medicine. During 1909-1910 he studied in various European capitals. Knowing himself in the grip of a fatal malady he continued his activities and worked upon his forthcoming treatise on the practice of medicine. Death overtook him in the midst of his labors from asphyxia consequent upon the escape of pus from a great cavity in the lung. He had a military record, having taken part in the warfare of the army revolt in 1893 and was also prominent in civics. Both the Senate and House of Deputies honored his memory in special exercises.

Oil of Chenopodium.—In a recent study of chenopodium and its volatile oil, made by Mr. Elmer H. Wirth of Sandusky, Ohio, the holder of the Frederick Stearns & Company fellowship in pharmaceutical research at the College of Pharmacy, University of Michigan, some interesting facts were brought to light regarding the plant itself, as well as the presence of the oil in the fruits and leaves. Perhaps the most interesting is the pharmacognosy of the fruit. Some of the authors on the subject seem to believe that the oil is contained in the seed itself. Mr. Wirth's investigations have shown that this is not the case. but that the oil is present only in the glandular hairs attached to the exterior of the pericarp. Recent pharmacological investigations have brought forth an available method for the determination of anthelmintic properties, which will serve to check results. If sufficient time is available, it is intended to make a study of the relationship between chemical constitution and anthelmintic action.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 95, No. 17.
Whole No. 2529.

New York, April 26, 1919.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

PNEUMONIA AND EMPYEMA IN THE LATE WINTER OF 1917-1918.

By

EDWIN HENRY SCHORER, Major, M. C., U. S. Army.
F. D. CLARK, Captain, M. C., U. S. Army,
RAYMOND SANDERSON, Captain, M. C., U. S. Army.
JOHN D. DICKSON, First Lieut., M. C., U. S. Army,
FRANK M. HUNTOON, M.D., Contract Surgeon, U. S. Army.

Port of Embarkation, Hoboken, N. J.

THESE studies were made in the laboratories of the Base Hospital at Camp Merritt. The hospital was opened for patients early in January, 1918. It was the receiving hospital for soldiers who became ill just before they were ready for embarkation and because of this we had relatively few soldiers permanently stationed here and had relatively few of the epidemic diseases met with in the training cantonments. The pneumonias and empyemas we had have therefore seldom been associated with measles.

The laboratory has been well established since February 25, but it was not until March 28, that we were organized sufficiently to have a bacteriological study of every case of pneumonia and empyema occurring in the hospital.

This report, purely from the bacteriological laboratory, includes all cases of clinically diagnosed pneumonia and empyema in the hospital from March 28 to May 15, 1918, and such other cases of pneumonia and empyema as were studied from February 25 to March 28, 1918. We will refer to "bronchopneumonia" and "lobar pneumonia" as they were diagnosed clinically. Few cases followed measles, some were associated with diphtheria bacillus infection, some of the cases developed in the hospital and some in the camp but as the stay of troops here was short, most of the cases began in the camp of training or on the way to Camp Merritt. Every effort was made to make the laboratory study as complete as is possible. By hospital orders sputum from every patient as soon as diagnosed clinically as having pneumonia was sent to the laboratory and then without special request the white blood cells were counted on the first and tenth days of the disease. Every fluid withdrawn from the chest was sent to the laboratory for examination and again without request the white blood cells were determined on that day, the first, second, third and tenth days after operation. Throat cultures were taken on all patients admitted to the measles wards. All cultures obtained were studied and a number of patients with measles, pneumonia and empyema received repeated injections of autogenous vaccine made from their respective cultures.

1. *Types of Pneumonia and Empyema as They Occurred at Autopsy.*—The type of pneumonia and empyema prevailing at this hospital probably represents the types found at the various camps, as troops have come here from practically all of the camps.

In analyzing the results of our observations it would be somewhat misleading and of no special value to state figures or give percentages since the material for pathological study was derived from a very small number of necropsies performed at this Base Hospital. In this series of cases we have paid particular attention to the two chief varieties of the disease, namely, lobar and bronchopneumonia.

While there have been many predisposing or contributing factors, the chief exciting causes appear to have been pneumococci and hemolytic streptococci as will be shown more fully later. Other organisms have been present such as nonhemolytic streptococcus, influenza bacillus, and a gram negative bacillus. It is with the *Diplococcus pneumoniæ* and the *Streptococcus hæmolyticus* that we are chiefly concerned, for we believe that the former produces most of the acute lobar pneumonias, such as are seen in civil life, and the later a special variety of "bronchopneumonia" sometimes called interstitial bronchopneumonia. We have also found at necropsy a few cases where a combination of the two types of the disease occurred with a mixed infection of pneumococcus and streptococcus. It is more than likely that one or the other of the diseases was primary, producing its type, followed later by a secondary infection and subsequently developing another variety. The clinical features of these combined pneumonias seem to bear out this contention, and probably this is the only means whereby an early diagnosis as to which variety was primary can be determined.

In considering the pathology of lobar pneumonia, certain fundamental facts should be kept in mind: First, that the infection presents three phases: a phase of incubation with an explosive onset of the disease; a clinical phase in which the anatomical and functional manifestations are most marked, and an immunization phase characterized by the crisis. Each of these phases presents its own pathological phenomena. Second, that the avenue of invasion in the majority of cases is hematogenic and that the inflammation makes its beginning by a perivascular round cell infiltration in the interalveolar septa with exudation into the alveoli. Third, that one or more

lobes are uniformly and simultaneously involved in a process that is more or less self limited. There are also good reasons for regarding these changes that lead to lobar consolidation as local defensive reactions. As stated above the most marked anatomical changes and functional disturbances are presented during the clinical phase of this infection. The well-known anatomical picture recognized by pathologists since the days of Laennec still holds. The inflamed lung presents the stages of engorgement, red hepatization, gray hepatization and resolution. The more minute description of the histological changes of these stages is so familiar to all that there is no need for repetition or further elaboration.

The lobular type of the disease from a pathological standpoint divides itself into three groups of cases. (1) Those with a marked bronchitis and bronchiolitis with very little consolidation. Microscopic examination will show the alveolar passages and a few contiguous air cells filled with the products of inflammation. This is sometimes called capillary bronchitis. (2) This is by far the most common and presents a disseminated bronchopneumonia. There are scattered areas of peribronchial hepatization with patches of collapse of lung tissues. Much of the lobe is still crepitant. When this type is produced by an overwhelming infection with a virulent organism there is more marked interstitial change with hemorrhagic foci scattered throughout the lung. This has been called "interstitial bronchopneumonia," a term seemingly better expressing the more salient features of the lesion. (3) The pseudolobar form. Here we find the greatest part of the lobe is consolidated, though not uniformly. There are intervening areas or strands of congested lung tissue between the hepatized lobules.

The microscopical picture in a lobular pneumonia is quite different from that of a lobar pneumonia. The exudate is less fibrinous and not as a rule hemorrhagic. It consists of mucus, leucocytes, and swollen epithelium. The walls of the bronchi are swollen and present marked round cell infiltration. The avenue of infection is bronchiogenic, the inflammation begins in the tubes and works downward and outward, the continuous and contiguous alveoli next to the bronchi are densely filled.

Macroscopically, in the frequently occurring interstitial or organizing bronchopneumonia the lung presents in the early stages a smooth and glistening pleural surface. It is also found to contain considerable air while at the same time may be noted the beginning formation of patches of atelectasis. Small nodular masses may be felt throughout the lungs. On section the surface is studded with gray peribronchial nodules which protrude. These nodules are surrounded by a red or grayish halo, and have been many times mistaken for miliary tubercles. On close inspection the lumen of the bronchiole may be seen as a crater-like opening or it may be filled with an opaque material. The exudate in this stage is like that in the earlier stage showing very little fibrin, but with detached and disintegrated bronchial epithelium. The walls are hyperemic and much thickened, due to the process of infiltration. Large numbers of mononuclear cells have seemed to replace many leucocytes that were found in the earlier stage of the disease. The exudate in the contiguous and continuous alveoli appears less hemorrhagic. The interlobular septa are markedly thickened and stand out very prominently as grayish yellow lines. Empyema was present in all our cases of bronchopneumonia that came to autopsy. In all these cases the *Streptococcus hæmolyticus* was demonstrated. In the early stages the exudate was thin, turbid and greenish in color, containing shreds of fibrin, and a thin fibrinous coating covered the lungs' surface. This in the early cases could be easily wiped off, but later by reason of organization it became very adherent. In many of our cases there was a very large amount of fluid accumulated, both between the parietal and visceral pleuræ, and between the lobes of the lungs themselves, giving rise to what at times appeared as lung abscesses.

II. *Results of Pneumonia Sputum Examinations.*—From February 22, 1918, to May 15, 1918, there were made 219 examinations of sputum for type of pneumococcus and the presence of hemolytic and non-hemolytic streptococci. At times other organisms, especially *Bacterium influenzæ*, were noted on the records, but inasmuch as the other organisms found were not noted carefully, reports on these are excluded from this report.

Technique of Sputum Examination for Type Determination: Specimens from deep down in the lungs were requested sent to the laboratory in wide-mouth sterile bottles as soon as the diagnosis of pneumonia was made. Care in obtaining a proper specimen is of prime importance. A lump of the sputum was washed in three changes of salt solution and ground with sterile sand in a small mortar. After mixing with a small amount of salt solution one half of a blood agar plate was stroked and a smear for Gram stain made. From 1 to 2 c.c. of this emulsified sputum was placed in dextrose (6 per cent.) blood (5 per cent. defibrinated) broth tubes and incubated at 37° C. for five hours or longer according to the degree of growth produced. When specimens came in too late to be finished the same night a small amount of calcium carbonate was added to the dextrose blood broth as a "buffer" and the incubation continued until the next morning. This was found to work very satisfactorily. The high percentage of dextrose was used on account of the dilution of the media by the large amount of sputum emulsion necessary in poorly obtained specimens.

When sufficient growth was obtained in the dextrose blood a culture was made on the other half of the blood plate and a smear taken for the Gram stain. The upper part of the tube was pipetted into another tube, centrifuged at low speed to throw down the débris, after which bile solubility was tested. Bacto-Oxgall (10 per cent.) was used in testing for bile solubility. The bile treated suspension was then centrifuged at high speed until a perfectly clear fluid was obtained for the precipitin tests. The usual technique and dilution were used. Capillary droppers were used in measuring diluted serum and fluid to conserve serum. The pipettes were washed in sterile water between use in different fluids.

On the clinical records the 219 specimens of sputum examined were classified as being from the following types: lobar pneumonia, 151 cases; bronchopneumonia, 28 cases; combined lobar and bronchopneumonia, 2 cases; not pneumonia, 38 cases. This leaves 181 cases of clinical pneumonia to be considered. The results of the sputum examined are shown in Table I.

Table I.—Showing Type of Pneumonia, Bacteriological Findings on Examination of Sputum, and Final Results of Cases.

Bacteriological Findings.	Clinical Diagnosis.				Disposition of Pneumonias.			
	Lobar.	Broncho.	Both Lobar and Broncho.	Not Pneu	Well.	Died.	Remaining.	Total.
Type I alone	8	0	0	2	5	2	1	8
Type I and hem. strept	15	2	0	0	7	4	6	17
Type I and non-hem. strept	6	0	0	0	2	0	4	6
Type II alone	3	1	0	0	1	1	2	4
Type II and hem. strept	6	0	0	0	3	2	1	6
Type II and non-hem. strept	5	0	0	1	1	1	3	5
Type III alone	6	0	0	1	4	2	0	6
Type III and hem. strept	6	3	0	1	3	4	2	9
Type III and non-hem. strept	3	0	0	0	0	1	2	3
Type IV alone	6	1	0	4	2	2	3	7
Type IV and hem. strept	14	3	2	5	6	4	9	19
Type IV and non-hem. strept	10	1	0	1	5	1	5	11
Not type or strept	12	1	0	1	7	2	4	13
Hem. strept. alone	31	12	0	16	15	12	16	43
Non-hem. strept. alone	20	4	0	6	8	4	12	24
Totals	151	28	2	38	69	42	70	181

From the table it will be seen that of the 181 pneumonia cases 101, or 55 per cent., showed one of the four types of pneumococci as follows: Type I, 31 cases; Type II, 15 cases; Type III, 18 cases; Type IV, 37 cases. Of the sputa in which type pneumococci were demonstrated only 25, or approximately 25 per cent, contained pneumococci alone, as follows: Type I, 8 cases; Type II, 4 cases; Type III, 6 cases; Type IV, 7 cases, and approximately 75 per cent. of the sputa contained type pneumococci and hemolytic or non-hemolytic streptococci. Of the 181 clinical cases of pneumonia 13.81 per cent. were pure pneumococcus, 94 cases or 51.93 per cent. showed hemolytic streptococci alone or in combination with type pneumococci, 43 cases or 23.7 per cent. hemolytic streptococci alone, 49 cases or 27.07 per cent. non-hemolytic streptococci alone or in combination with type pneumococci, 24 cases or 13.2 per cent. non-hemolytic streptococci alone, and 13 cases or 7.18 per cent. showed neither type pneumococci nor streptococci.

Of the 38 "not pneumonia" cases from which sputum was examined fifteen showed precipitin reactions with fixed pneumococcus type sera; two of Type I alone, one of Type III alone, and four Type IV alone, while one showed Type II and non-hemolytic streptococci, one Type III and hemolytic streptococci, five Type IV and hemolytic streptococci and four Type IV and non-hemolytic streptococci. In the sputum of one, neither type pneumomocci nor streptococci were found, while in 16 only hemolytic streptococci were found.

The results obtained from sputum examination are not very different from those obtained at the laboratories at the Base Hospital, Fort Riley, Kansas, where many of the cases of pneumonia and empyema followed measles.

Clinical Result of Clinical Pneumonias from which Sputum was Examined (181 cases): Of these 181 cases 42 died, 69 were sent to their Regimental Infirmaries or were transferred to other Port of Embarkation Hospitals presumably cured, and on May 15 there were still in the Base Hospital 70 of these cases. (The empyema complications will be considered in another portion of this report.)

Of the 42 deaths, 7 were in cases of "pure" pneumococcus cases (17.39 per cent.), 16 were cases complicated with hemolytic streptococci (23.18 per cent.), 34 were cases complicated with non-hemolytic streptococci (49.27 per cent.), and 7 cases showed neither pneumococci nor streptococci (10.14 per cent.).

III. *Empyema.*—Empyema has been the most frequent and important complication of pneumonia. As has been indicated above, purulent fluid was found free and encapsulated between the parietal and visceral pleura, between the lobes, in the pericardium, the peritoneum, the mediastinum and between the layers of fascia.

During the time of our investigation there are known to the laboratory to have occurred 81 cases of empyema. These were recognized from the examination of the exudate obtained at the aspiration, the operation or at the autopsy.

Operations were done on 7 patients the fluids of which were not sent to the laboratory.

Sterile chest fluids were sent in from 25 patients. Cultures obtained were studied from the fluids of 66 patients. From 56 or 84.8 per cent. of these fluids hemolytic streptococci alone were obtained, pneumococci Type I were obtained three times, Type II two times, Type IV four times and Type IV and hemolytic streptococci together one time. The disposition and results obtained as far as the cases in which the laboratory played a part are indicated in Table II.

Table II.—Table Showing Laboratory Findings in Empyema, Disposition and Results.

	Operated on.			Not Operated on.		
	No.	No. Died.	Per Cent Died.	No.	No. Died.	Per Cent Died.
No fluid examined	7	2	28.6	0	0	.....
Hem. strept. in fluid	48	20	41.7	8	7	87.5*
Strept. not studied	2	2	100.0	5	5	100.0
Pneumococci Type I	3	1	33.3	0	0	.....
Pneumococci Type II	1	1	100.0	1	0	0.0
Pneumococci Type IV	1	1	100.0	3	2	66.6
Pneumococci and hem. strept	1	1	100.0	0	0	.....
Sterile	2	0	0 0	25	0	0.0

*One patient was tapped repeatedly, he still had purulent fluid in the chest when transferred from this hospital.

Results of Sputum Examinations in Relation to Empyema: According to hospital orders sputum was to be sent to the laboratory as soon as pneumonia was diagnosed. What really happened is shown in Table III.

It will be observed that sputum was sent to the laboratory from less than 60 per cent. of the patients having pleural fluids. Undoubtedly sputum was not sent from all patients diagnosed as having pneumonia, and undoubtedly not all

pneumonias were diagnosed, but it seems probable that pleural exudate and empyema often occurred as early as it was possible to diagnose pneumonia. The autopsy on one patient showed marked empyema over quite normal lung.

TABLE III.—SHOWING MATERIALS AVAILABLE FOR LABORATORY EXAMINATIONS IN DIAGNOSED CASES OF PNEUMONIAS AND EMPYEMA.

		Sputum Sent to Laboratory.		Sputum Not Sent to Laboratory.	
Total fluids in chest	106	61	57.5%	45	42.5%
Empyemas	81	46	56.8%	35	43.2%
No chest fluid sent	8	0	0.0%	8	100.0%
Sterile fluid	25	13	52.0%	12	48.0%
Empyema fluids examined	66	46	69.6%	20	31.4%

The type of chest fluid developed after pneumonia as it corresponds to the organisms causing the pneumonia, determined by examination of the sputum, is shown in Table IV.

TABLE IV.—SHOWING RELATION OF SPUTUM FINDINGS TO CHEST FLUID FINDINGS.

ORGANISMS IN SPUTUM.		ORGANISMS IN CHEST FLUID.				
Type.	No. of Cases.	Hem. Strept., No. of Cases.	Pneumococci, No. of Cases.	Sterile Fluid. No. of Cases.	No Fluid Sent.	Strept. Not Studied.
Pneu. I	3	2	0	1	0	0
Pneu. II	2	0	Type II-1, IV-1	0	0	0
Pneu. III	3	2	0	0	0	0
Pneu. IV	3	2	Type I-1	0	0	0
Pneu. I and hem. strept	4	3	Type I-1	0	0	0
Pneu. II and hem. strept	1	1	0	0	0	0
Pneu. III and hem. strept	2	2	0	0	0	0
Pneu. IV and hem. strept.	8	7	0	1	0	0
Type I and non-hem. strept.	0	0	0	0	0	0
Type II and non-hem. strept.	1	1	0	0	0	0
Type III and non-hem. strept.	2	1	0	1	0	0
Type IV and non-hem. strept	1	0	0	1	0	0
Hem. strept.	22	12	Type II-1, IV-1	7	0	0
Non-hem. strept.	5	3	0	2	0	0
No sputum	45	19	Type IV-1	12	7	7
Negative	3	2	Type IV-1	0	0	0
Total	106	57	9	25	7	7

From the table it will be seen that the empyema complicating type pneumococcus pneumonia was more frequently caused by hemolytic streptococci than by pneumococci. In four cases the empyema was caused by type pneumococci when no pneumococci were found in the sputum. Of 22 cases of pneumonia in the sputum of which no pneumococci but hemolytic streptococci were found, three had empyema caused by type pneumococci. In all but four of the empyemas complicating pneumonia, in the sputum of which hemolytic streptococci alone or together with type pneumococci were found, the empyema was caused by hemolytic streptococci. Of the chest fluids obtained from cases of hemolytic streptococcus pneumonia seven or nearly one-third were sterile. The frequency with which the various pneumonias caused chest fluid and empyema is shown in the next table.

Table V shows the frequency of occurrence of chest fluid with the various bacteriological observations of the sputa examined. From the table it will be seen that type pneumococcus pneumonia was complicated by fluid in 35.5 per cent. of the cases; hemolytic streptococcus pneumonia in 37.2 per cent of the cases; hemolytic streptococcus and type pneumococcus pneumonia in 26.8 per cent. of the cases; non-hemolytic streptococcus pneumonia in 16.6 per cent. of the cases and mixed non-hemolytic streptococcus and type pneumococcus pneumonia in 13.8 per cent. of the cases. Twenty-five of the pleural fluids were sterile, 28 per cent. of these complicated hemolytic streptococcus pneumonia.

TABLE V.—SHOWING FREQUENCY WITH WHICH THE VARIOUS ORGANISMS IN PNEUMONIC SPUTUM PRODUCES CHEST FLUID, THE TYPE OF FLUID AND THE INFECTING ORGANISM.

ORGANISMS IN SPUTUM.	CHEST FLUID.									
		EMPYEMA.								
	Total.	Total Chest Fluid.	Per Cent Having Chest Fluid.	Sterile.		Total.		Hem. Strept.		Type Pneu
				No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Type I	10	3	30.0	1	10.0	2	20.0	2	20.0	0	0.0
Type II	4	2	50.0	0	0.0	2	5.0	0	0.0	2	50.0
Type III	7	3	41.8	0	0.0	3	41.8	3	41.8	0	0.0
Type IV	11	3	28.2	0	0.0	3	28.2	2	18.1	1	9.9
Type I and hem. strept	17	4	23.5	0	0.0	4	23.5	3	17.6	1	5.9
Type II and hem. strept.	6	1	16.6	0	0.0	1	16.6	1	16.6	...	0.0
Type III and hem. strept.	10	2	20.0	0	0.0	2	20.0	2	20.0	...	0.0
Type IV and hem. strept.	24	8	33.33	1	4.1	7	29.5	7	29.1	...	0.0
Type I and non-hem. strept.	6	0	....	0	0.0	0	0.0	0	0.0	...	0.0
Type II and non-hem. strept.	6	1	10.6	0	0.0	1	16.5	1	16.6	...	0.0
Type III and non-hem. strept.	3	2	66.6	1	33.3	1	33.3	1	33.3	...	0.0
Type IV and non-hem. strept.	12	1	8.3	1	8.3	0	0.0	0	0.0	...	0.0
Hem. strept.	59	22	37.3	7	11.7	15	25.4	12	20.3	3	5.08
Non-hem. strept.	30	5	16.6	2	6.67	3	10.0	3	10.0	...	0.0
No sputum	..	45	....	12	...	20	...	19	...	1	...
Negative	14	3	21.4	0	0.0	3	21.4	2	14.3	1	7.1
Total	219	106	48.4	25	0.0	66	...	57	...	9	...

IV. *Strains of Hemolytic Streptococci.*—A critical study of the hemolytic streptococci was made. In all we had 85 separate isolations of which 40 were from pleural fluids drawn during life, 26 were from pneumonic sputa, 7 from tonsil swabbings of measles patients, 6 obtained at autopsy, and 2 from blood cultures and 4 from other sources. We attempted to differentiate these on appearance and size of colonies; amount and rapidity of hemolysis of human blood, both on plates and in liquid medium; microscopic appearance; length of chains; presence or absence of the capsule; bile solubility; fermentation of sugars; and production of immune substances.

On most of these lines of study we could get no differentiation; but by hemolysis, presence or absence of the capsule, bile solubility and fermentation of the sugars we were able to differentiate certain definite types. In some instances we obtained separate isolations of hemolytic streptococci from the same case. All findings were verified at least once and in many instances a number of times. Fermentation tests were made in peptone water with 1 per cent. of the sugar, using Andradi indicator. The reaction was read in 24 and 48 hours. Our findings are indicated in the tables on page 677.

It will be noted that the amount of hemolysis varied some and that some of the streptococci isolated from empyema cases had a capsule and were bile soluble. On the basis of fermentation of sugars there are four main groups of hemolytic streptococci.

TABLE VI.—SHOWING BIOLOGICAL REACTIONS OF HEMOLYTIC STREPTOCOCCI ISOLATED.

PLEURAL FLUID.

Initial.	Laboratory Number.	Hemolysis.	Capsule.	Bile Solubility.	Dextrose.	Lactose.	Saccharose.	Salicin.	Mannitt.	Raffinose.	Inulin.	Other Strains Same Case. Laboratory Number.	Source.	Type.
D.	20	±	−	±	+	+	+	+	+	−	−	.....	.....	.....
M	31	++	−	−	+	+	+	−	+	−	−	.....	.....	.....
C.	75	+	−	−	+	+	+	−	+	−	−	S. H. 64 and 70.	Sputum	Same
R.	76	+	−	+	+	+	+	+	+	−	−	.....	.....	.....
K.	12	+	+	−	+	+	+	+	−	+	−	.....	.....	.....
V.	13	++	+	±	+	+	+	+	−	+	−	.....	.....	.....
C.	21	+	+	±	+	+	+	+	−	+	−	.....	.....	.....
C.	88	+	+	+	+	+	+	+	−	−	+	S. H. 86.	Sputum.	Main type.
H.	2	++	−	+	+	+	+	+	−	−	−	1.	Lung.	Same.
S	5	++	+	+	+	+	+	+	−	−	−	.....	.....	.....
T.	7	++	+	±	+	+	+	+	−	−	−	.....	.....	.....
R.	10	++	+	+	+	+	+	+	−	−	−	.....	.....	.....
A	14	+	−	±	+	+	+	+	−	−	−	.....	.....	.....
B.	16	+	−	±	+	+	+	+	−	−	−	.....	.....	.....
R..	18	+	+	+	+	+	+	+	−	−	−	.....	.....	.....
Y.	19	+	−	±	+	+	+	+	−	−	−	.....	.....	.....
W	26	+	A	±	+	+	+	+	−	−	−	.....	.....	.....
B	33	+	+	+	+	+	+	+	−	−	−	.....	.....	.....
B	39	±	−	±	+	+	+	+	−	−	−	50.	Sputum.	Same.
L.	40	+	−	±	+	+	+	+	−	−	−	.....	.....	.....
Z.	46	++	+	+	+	+	+	+	−	−	−	.....	.....	.....
M.	47	+	+	±	+	+	+	+	−	−	−	.....	.....	.....
J	48	+	−	+	+	+	+	+	−	−	−	.....	.....	.....
O.	54	++	+	+	+	+	+	+	−	−	−	15.	Sputum.	Same.
C.	57	+	+	+	+	+	+	+	−	−	−	.....	.....	.....
M.	59	+	+	+	+	+	+	+	−	−	−	.....	.....	.....
M.	65	+	+	+	+	+	+	+	−	−	−	65.	Sputum.	Same.
G	66	+	+	−	+	+	+	+	−	−	−	.....	.....	.....
M	67	+	+	+	+	+	+	+	−	−	−	52.	Sputum.	Same.
A.	68	+	+	+	+	+	+	+	−	−	−	.....	.....	.....
T.	71	++	−	+	+	+	+	+	−	−	−	28.	Sputum.	Same.
L.	72	+	+	+	+	+	+	+	−	−	−	56.	Sputum.	Raffinose.
D.	91	+	+	±	+	+	+	+	−	−	−	.....	.....	.....
I.	92	+	+	−	+	+	+	+	−	−	−	84.	Sputum.	Same.
T.	93	+	+	+	+	−	+	+	−	−	−	.....	.....	.....
R.	94	+	+	±	−	+	+	+	−	−	−	60.	Sputum.	Same.
L.	96	++	+	−	+	+	+	+	−	−	−	.....	.....	.....
S.	97	++	+	−	+	+	+	+	−	−	−	69	Sputum.	Same.
B.	102	+	+	±	+	+	+	+	−	−	−	.....	.....	.....
W	96	++	+	±	+	±	+	+	−	−	−	.....	.....	.....

SPUTUM.

S.	42	±	−	−	+	+	+	+	−	−	−	.....	.....	.....
W	53	±	−	−	+	+	+	+	−	−	−	.....	.....	.....
H.	78	−	−	−	+	+	+	−	+	+	−	.....	.....	.....
C.	87	GR.	−	−	+	+	+	−	−	+	−	Type 4.	Pneu. and pleural fluid.	
M	77	GR.	−	−	+	+	+	−	−	−	−	.....	.....	.....
M	81	GR.	−	−	+	+	+	−	−	−	−	.....	.....	.....
G.	82	−	−	−	+	+	+	−	−	−	−	.....	.....	.....
W.	85	−	−	−	±	+	+	−	−	−	−	.....	.....	.....
K.	71	±	−	−	−	−	−	−	−	−	−	.....	.....	.....
O.	15	+	−	−	+	+	+	+	−	−	−	S. H. 54.	Pleural fluid.	Same.
M	24	+	−	−	+	+	+	+	−	−	−	S. H. 65.	Pleural fluid.	Same.
T.	28	+	−	−	+	+	+	+	−	−	−	S. H. 71.	Pleural fluid.	Same.
K.	29	+	−	−	+	+	+	+	−	−	−	S. H.	Pleural fluid.	Same.
T.	2nd	+	−	−	+	+	+	+	−	−	−	S. H. 71, Pl. Fld. 28.	Sputum.	Same.
B.	50	+	−	+	+	+	+	+	−	−	−	S. H. 39.	Pleural fluid.	Same.
Mc.	52	+	−	−	+	+	+	+	−	−	−	S. H. 67.	Pleural fluid.	Same.
R.	60	++	−	−	+	+	+	+	−	−	−	S. H. 94	Pleural fluid.	Same.
P.	61	+	−	−	+	+	+	+	−	−	−	.....	.....	.....
S.	69	+	−	−	+	+	+	+	−	−	−	S. H. 97.	Pleural fluid.	Same.
I.	84	+	−	−	+	+	+	+	−	−	−	S. H. 92.	Pleural fluid.	Same.
C.	86	+	+	−	+	+	+	+	−	−	−	S. H. 88.	Pleural fluid.	Inulin fer.
D.	98	+	−	−	+	+	+	+	−	−	−	S. H. 91.	Pleural fluid.	Same.
T.	37	±	−	−	+	+	+	+	−	−	−	S. H. 22.	Throat.	Same.
L.	56	+	−	−	+	+	+	+	−	−	−	S. H. 72.	Throat.	Main type.
S.	63	+	−	−	+	+	+	+	−	−	−	.....	.....	.....
C.	64	+	−	−	+	+	+	+	−	−	−	S. H. 75.	Pleural fluid.	Same.
												S. H. 70.	Bl. cult.	Same.

TONSIL CULTURES IN MEASLES.

E.	23	+	−	−	+	+	+	+	−	−	−	S. H. 58	Mediastinal abscess.	Same.
Q.	101	++	−	−	+	+	+	+	−	−	−	.....	.....	.....
R.	4	±	−	−	+	+	+	+	−	−	−	.....	.....	.....
T.	22	±	−	−	+	+	+	+	−	−	−	S. H. 37.	Sputum.	Same.
B.	55	++	−	+	+	+	+	+	−	+	−	.....	.....	.....
M	83	+	−	−	+	+	+	+	−	−	−	Not pneu.	.....	.....
B.	62	+	−	−	+	+	+	−	−	−	−	Not pneu.	.....	.....
P	25	±	−	−	+	+	+	+	−	−	−	.....	.....	.....
S	36	+	−	−	+	+	+	+	−	−	−	.....	.....	.....
T.	100	Br.	−	−	+	+	+	+	−	+	−	.....	.....	.....

BLOOD CULTURES.

M	32	++	−	−	+	+	+	+	−	−	−	Hem. strept.	Pleural fluid.	Lost.
C.	70	+	−	−	+	+	+	+	−	−	−	S. H. 75.	Pleural fluid.	Same.
												S. H. 64.	Sputum.	Same.

TABLE VI.—*Continued.*

AUTOPSY CULTURES.

Initial.	Laboratory Number.	Hemolysis.	Capsule.	Bile Solubility.	Dextrose.	Lactose.	Saccharose.	Salicin.	Mannitt.	Raffinose.	Inulin.	Other Strains Same Case. Laboratory Number.	Source.	Type.
D.	8	+	−	−	+	+	+	+	−	−	−	.....	.....	..... Lung.
K.	11	+	−	−	+	+	+	+	−	−	−	S. H. 12.	Pleural fluid.	..... Lung.
H.	1	+	−	−	+	+	+	+	−	−	−	S. H. 2.	Pleural fluid.	Same. Lung.
E.	58	+	−	−	+	+	+	+	−	−	−	S. H. 23.	Throat.	Same. Abscess
N.	17	+	−	−	+	−	+	+	+	−	−	.....	.....	..... Kidney.
S.	89	+	+	−	+	+	+	+	−	−	−	.....	.....	..... Abscess

MISCELLANEOUS.

E.	41	+	+	+	+	+	+	+	−	−	−	.....	.....	..... Diphtheria.
D.	95	+	−	−	+	+	+	+	−	−	−	.....	.....	..... Pharynx.
		+												
F.	49	+	−	−	+	+	+	+	−	−	−	.....	.....	..... Tonsil.
B	3	+	+	−	+	+	+	+	−	+	−	.....	.....	..... Tonsil.

On analysis of Table VII it is found that of the different strains of hemolytic streptococci, Group A occurred most frequently and is therefore called the main group. The statistics are shown in Table VIII.

TABLE VII.—SHOWING PRINCIPAL GROUPS OF HEMOLYTIC STREPTOCOCCI AS ARRANGED ACCORDING TO SUGAR FERMENTATIONS.

	Dextrose.	Lactose.*	Saccharose.	Salicin.†	Mannite.	Raffinose.	Inulin.
A.	+	+	+	+	−	−	−
B.	+	+	+	+	+	−	−
C.	+	+	+	+	−	+	−
D	+	+	+	+	−	−	+

*One additional fermented lactose very slowly.

†A number of hemolytic streptococcus cultures did not ferment salicin.

It will be noted that 78 of the 85 isolations belong to one of the four groups and that in the first group are included 67 per cent. of the strains isolated.

TABLE VIII.—SHOWING NUMBER AND PERCENTAGE OF ISOLATIONS FALLING IN FOUR MAIN GROUPS ARRANGED ACCORDING TO SOURCE OF CULTURES.

Group.	Empyema Fluid 40.		Sputum 26y.		Throat-Measles 10y.		Autopsy 6.		Blood Cult. 2.		Miscellaneous 4	
	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
A.	31	87.5	14	53.8	4	57.1	4	66.6	1	50	3	75
B.	4	10.0	4	15.4	2	28.6	2	33.3	1	50	0	0
C.	3	7.5	1	3.8	2	28.6	0	0.0	0	0	1	25
D	1	2.5	0	0.0	0	0.0	0	0.0	0	0	0	1

For immunizing purposes strains were selected from each of the several groups; strain SH5 from the group, which for present purposes may be called the main group, represented by far the largest number of strains tested (in this group fermentation is confined to dextrose, lactose, saccharose, and salicin); SH13 from a group of 3 strains which, in addition to the above, fermented raffinose; SH76 from a group of 4 strains which differed from the main group in fermenting mannite; SH88 which in addition to the four main sugars fermented inulin, but which in growth characteristics and hemolysis was a streptococcus; and finally SH90 which differs from the main group only in weak and slow fermentation of lactose.

These strains were grown for 24 hours on hor-

mone broth plus 0.1 per cent. dextrose, centrifuged and the sediments made up with salt solution to a moderately dense suspension. This was heated to 60° C. for 30 minutes and immunization started by injections of ¼ c.c. of suspension intravenously into five large white rabbits. The normal weight of the rabbits was determined by several days of weighing, the condition of the rabbits after immunization had been started was determined by the same procedure. The strains of streptococcus had been grown on artificial media for 30-60 days before immunization was begun. As no reaction, loss of weight or appetite was evident from the first dose, the dose was increased to ½ c.c. on the second day and 1 c.c. on the third day. (The rabbit injected with SH76 died suddenly during the night and autopsy revealed no demonstrable cause of death.) After this living cultures were injected, the suspension increased until syrupy in consistence. At no time was any reaction apparent nor did the animals show any distress, loss of appetite or decrease in weight. At one period in the course of immunization in the hope of increasing the precipitin factor, one series of injections with organisms which had been digested in NaCl solution at incubator temperature for 48 hours was employed. At first the attempt was made to determine the agglutinin content of rabbits' sera; however, owing to limitations of equipment in the field laboratory, it was impossible to obtain such stable suspensions as are necessary to show definitely the end points of this reaction. Evidence was forthcoming of a definite agglutinin content which was apparently about equal for all strains of different groups employed. The technical difficulty encountered prevented the use of the absorption test which would have given definite evidence of specificity of each serum. Preliminary work having shown that many of the strains employed were more or less bile soluble, it was thought that it might be possible to employ the precipitin reaction as a measure of the immunity produced. These strains had shown themselves to be most soluble when tested with a 10 per cent. solution of dried ox bile, but this bile when tested against serum of patients suffering from streptococcus infection had shown precipitation even in very high dilutions and at that time was discarded as probably introducing a source of error. As fresh ox bile when tested with rabbits' serum showed no evidence of precipitation, this was employed in the precipitinogen preparation.

The precipitinogen antigen was prepared by dissolving the washed sediment of bacteria in normal salt solution to which ¼ volume of bile was added. This was then heated to 55° to 60° C. for fifteen minutes in a water bath, then centrifuged and the supernatant fluid used in the antigen. Tests against antigen prepared in this manner showed that the animal receiving SH5 was producing by far the strongest serum, and that serum from this animal caused distinct precipitation in a dilution of 1 to 10 and in some cases 1 to 20 of all five of the tested strains. The precipitation was less in SH13 than in the others employed. The results indicated led to one of two conclusions: either the strains employed are serologically identical, or the so-called group factors have completely overshadowed the specific antibody. In an endeavor to produce antigen containing either only group or specific antibody, various methods of extracting the organisms were employed.

Second method of preparing antigen. To the centrifuged organisms was added 1 c.c. of concentrated salt solution. This was then placed in a water bath for 24 hours, then diluted with 5 c.c. of water, rendering the solution twice normal. This antigen was then tested against serum which had been so diluted with water that the final test was in practically a normal salt solution. The results obtained by this method were practically identical with those obtained with the bile method.

A third method employed was to add to a strong emulsion of the organisms about 15 per cent. of antiformin, then to heat in the water bath at 60° C. for 15 minutes, at which time the solution cleared up to a marked extent. Phenolphthalein and 10 per cent. HCL were then added drop by drop with vigorous shaking until all the color had disappeared. After centrifugation the supernatant fluid was employed for precipitin tests. The results were similar to those obtained with the antigen prepared according to the first two methods.

Fourth method. The supernatant fluid obtained from methods 2 and 3 was precipitated by the addition of about 20 volumes of 95 per cent. alcohol, the resulting flocculent precipitate collected by centrifuging and redissolved in a small amount of physiological salt solution. When tested it gave results similar to those obtained with the other antigens, with the exception that antigen so prepared showed lower titer for all strains.

Fifth method. The residue left after treatment with concentrated salt solution (method two) was dissolved in antiformin as above and tested without results.

It was evident that by the means employed no differentiations could be made serologically between the strains, although particularly in the case of SH13 and SH88 marked constant differences in growth and ease of solubility prevailed over considerable periods of time when all the growths were kept on the same media. The serum obtained from a rabbit immune to SH13 remained of comparatively low titre, whereas that produced from SH88 showed as high titre as that produced by SH5. The precipitin reaction measured by a definite amount of precipitate occurring in 24 hours was positive at times in as high a dilution as 1 to 80, but usually did not occur in dilutions beyond 1 to 20 or 1 to 40.

In an endeavor to separate the specific and the group factors in immune sera a resort was made to a homologue of the absorption test with agglutinins. Preparations as for precipitin were set up in dilutions of 1 to 2 or 1 to 2½ incubated at 37° C. for two hours and then placed over night in the ice box. These were centrifuged and the supernatant fluid retested for the precipitin content. Such tests showed that when absorption had taken place with heterologous strains, the reduction of the titre, for the homologous strains was from 1 to 40 to 1 to 10. Absorption with the homologous strain showed a still further reduction of the titre for all strains tested, *i.e.* there was an apparent specific factor which reacted in a dilution of 1 to 10, and which under the ordinary conditions of testing was completely obscured in

high dilution in the presence of an excessive number of so-called groups or minor antibodies. Cross-tests with various sera and organisms gave rather uniform results in this particular. However, the comparatively low titre of the sera which is usual in bacterial precipitin reactions and the rather large amount of serum that would be necessary in order to do any extensive series, precluded the idea of using all the strains available from the different groups. The evidence so far obtained by this experiment may be summed up as follows:

1. It is entirely possible to produce sera against hemolytic streptococci giving as high precipitin titre as is usually the case with animals immunized against the pneumococci. This may or may not be useful in connection with a diagnosis of streptococcus infections.

2. The portion of the hemolytic streptococci which furnishes the precipitin factor is certainly soluble in bile, and thus forms an easy and rapid method of producing such antigen.

3. The absorption test, while not conclusive as yet, points to the view that these strains which show a different biological activity as far as the fermentation reactions go, have a very large common group factor, but also contain a definite specific factor which establishes them as a separate entity.

V. *Active Immunization or Vaccination with Autogenous Vaccines of Hemolytic Streptococci.*—Active immunization to hemolytic streptococci was attempted in 24 patients with empyema and 19 patients with pneumonia caused by hemolytic streptococci, and with 7 measles patients from whose throats hemolytic streptococci had been isolated. In the preparation of vaccine only hemolytic streptococci were used. As soon as a culture of hemolytic streptococci was obtained from the sputum, chest fluid or from the tonsils, it was transplanted on slant harmone agar and after 24 hours the growth was washed off with sterile salt solution. The suspension was finely divided by shaking with sterile sand, centrifuged slowly, then the number of cocci was counted by the Wright method, diluted properly so as to make a suspension containing 500 million cocci per cubic centimeter, sufficient cresol was added to make a 0.25 per cent. solution. The vaccine was heated for an hour at 60° C. and tested for sterility in the final container. In this way autogenous hemolytic streptococcus vaccine was made for patients injected.

The dosage, method of injection and interval between injections varied in the different cases. In empyema the first injection consisted of from 10 to 50 million cocci, given intravenously. On the next day from 50 to 250 million cocci were injected intravenously. On the third day from 250 to 500 million cocci were given subcutaneously, on the fifth and sixth days from 250 to 750 million cocci were given subcutaneously, and on the eleventh day 100 to 500 million were given intravenously. Very seldom was either local or general reaction produced, except a rise of one to two degrees of temperature. In pneumonia and measles about the same dosages and intervals were adopted but usually only subcutaneous injections were made. The statistical results of attempts at active immunization in empyema due to hemolytic streptococci are shown in Table IX.

It will be noted while active immunization in empyemas was being tried, (1) that the death rate for the total series of empyema was 46.8 per cent., (2) that for those of the series not vaccinated the death rate was 52 per cent., (3) while for those actively immunized the death rate was only 37.5 per cent. It will also be noted that the hemolytic streptococcus empyemata in which only type pneumococci were found in the sputum did better than when hemolytic streptococci or type pneumococci and hemolytic streptococci were found in the sputum. This must evidently be due to group

Table IX.—Showing Data on Hemolytic Streptococci Empyema with Reference to End Results as Influenced by the Use of Autogenous Vaccines.

(Figures in parentheses indicate number of days after bacterial vaccine injection was begun.)

Sputum Organisms.	Total Unvaccinated and Vaccinated.				Vaccinated.				Not Vaccinated.				Not Vaccinated: Occurring at the Same Time as Those Vaccinated.			
	Died.		Living.		Died.		Living.		Died.		Living.		Died.		Living.	
	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Hem. strept.	4	57.1	3	42.9	1 (9)	50.0	1 (50)	50.0	3	60.0	2	40.0	1 (2)	100.0	0	0.0
Pneu., Type I	0	....	1	100.0	0	0.0	1 (60)	100.0	0	....	0	....	0	....	0	....
Pneu., Type II	0	....	0	....	0	....	0	....	0	....	0	....	0	....	0	....
Pneu., Type III	1	40.0	1	60.0	0	0.0	1 (56)	100.0	1	66.6	0	33.3	1 (1)	100.0	0	0.0
Pneu., Type IV	1	50.0	1	50.0	0	....	0	....	1	50.0	1	50.0	1 (2)	100.0	0	0.0
Hem. strept. and pneu. Type I	2	50.0	2	50.0	2 (40–43)	66.6	1 (60)	33.3	0	....	1	100.0	0	0.0	1	100.0
Type II	0	....	1	100.0	0	....	0	....	0	....	1	100.0	0	....	0	....
Type III	2	46.6	1	53.4	2 (10–4)	62.5	0	37.5	0	28.5	1	71.5	0	....	0	....
Type IV	3	42.9	4	57.1	1 (6)	33.3	2 (60)	66.6	2	50.0	2	50.0	1 (2)	100.0	0	0.0
Non-hem. strept. and pneu. Type I	0	0.0	1	100.0	0	0	1 (45)	100.0	0	....	0	....	....	0.0	0	....
Type II	0	0.0	1	100.0	0	....	0	....	0	0.0	1	100.0	0	....	0	....
Type III	0	0.0	1	100 0	0	0.0	1 (40)	100.0	0	0.0	0	100.0	0	0.0	0	0.0
Type IV	0	0.0	1	100.0	0	....	0	....	0	....	0	....	0	....	0	....
Non-hem. strept.	2	66.6	1	33.3	1 (3)	50.0	1 (50)	50.0	1	100.0	0	0.0	0	0.0	0	0.0
Negative	1	100.0	0	0.0	1 (40)	100.0	0	....	0	0.0	0	0.0	0	0.0	0	0.0
Not examined	6	40.0	9	60.0	1 (18)	14.2	6 {60-60-60 45-45-50	85.8	5	62.5	3	37.5	0	0.0	2	100.0
Total	22	46.8	27	53.2	9	37.5	15	62.5	13	52.0	12	48.0	4	57.1	3	42.9

antibodies and indicates that pneumococci produce more immune bodies than do hemolytic streptococci.

The beneficial results of vaccination impressed themselves markedly, as every empyema patient vaccinated was extremely ill and in some cases it seemed useless to even try active immunization. Gradually these patients improved and a large percentage are apparently well. Until contrary evidence is introduced it seems as though it is advisable to add active immunization to the other means of treating hemolytic streptococcus empyema.

In the pneumonia series, 19 patients with hemolytic streptococci in the sputum were immunized with the hemolytic streptococcus from the sputum and 9 or 47 per cent. developed empyema against 25 per cent. in our whole series. Of actively immunized pneumonia patients developing empyema 3 or 33 1/3 per cent. died, against 43 per cent. in the whole series of corresponding cases of empyema operated on, and 45 per cent. of the same cases not receiving active immunization. This further emphasizes the value of active immunization with hemolytic streptococcus vaccine.

Seven measles patients received injections of vaccine made from hemolytic streptococci isolated from their own throats. Of these only one developed empyema and he died. Since our series a number of measles patients have been admitted to the hospital and in the throats of some hemolytic streptococci have been found and still they have not developed pneumonia or empyema, so that no conclusions showing the value of hemolytic streptococcus vaccine in measles can be claimed for our series.

VI. *Leucocyte Counting.*—It is the usual custom in the hospitals in the Port of Embarkation to send to the laboratory sputum from all patients diagnosed clinically as having pneumonia. The laboratory then does a white blood count on that day and again on the tenth day. While there was marked variation in the initial leucocyte counts, still generally in the actual cases of pneumonia the white cell count varied from 8,000 to 25,000. After ten days in uncomplicated cases the leucocyte count was usually down to 10,000 or less. There were a few cases in which there was no increase in the leucocyte count on the first days of the disease—these terminated unfavorably.

All fluids withdrawn from the chest are sent to the laboratory and white blood counts done on the first, second, third and tenth days following. In all of our empyemas there was an increase in leucocyte count. The ten-day count on the pneumonias was of value in detecting some of the empyemas, and after operation if the leucocyte count did not go down, or if it again came up on the third or tenth days, some foci had not been located and drained or new ones were being formed. The leucocyte counts were not constant for the various pneumococcus and streptococcus types either in pneumonia or empyema.

Conclusions.—1. Pneumonia of three types—lobar, broncho-, and combinations of the two were observed. Many of the cases were what MacCallum, Cole, and their coworkers have called interstitial bronchopneumonia, but of these very few followed measles or other contagious diseases.

2. Empyema was the most frequent and serious complication. Of 181 pneumonia patients whose sputum was examined 81 had fluid in the chest, and of these 56 had a purulent pleural exudate.

3. Hemolytic streptococci were found in 51.9 per cent. of the pneumococcus sputa, 53.7 per cent of the pleural exudates and 70.4 per cent of the purulent pleural fluids.

4. Thirty-four per cent. of straight pneumococcus pneumonias were complicated by chest fluid and 25 per cent. by empyema; 26.3 per cent. of pneumococcus and hemolytic streptococcus pneumonias were complicated by chest fluid and 24.9 per cent. by empyema; 15 per cent. of pneumococcus and nonhemolytic streptococcus pneumonias were associated with pleural fluid and 7.5 per cent. with empyema; 26 per cent. of all pneumonias in which pneumococci played a part had chest fluid and 20 per cent. had empyema. Hemolytic streptococcus pneumonia was complicated in 37.3 per cent. of the cases by chest fluid and in 25.4 per cent. by empyema. In spite of the fact that in the 116 cases of pneumonia in which we found type pneumococci, 22 of the 26 empyemas were caused by hemolytic streptococci. Three empyemas caused by pneumococci were found in patients in whose sputum we had found no pneumococci. It is our general belief that the hemolytic streptococci are seldom the primary cause of pneumonia, but that usually they assume an important and principal part in the final result of the cases of pneumonia.

5. Some of the hemolytic streptococci or at least a portion of the organisms are bile soluble, this factor being precipitinogenic. According to ability to ferment different sugars, the hemolytic streptococci causing empyema may be divided in four groups. If these groups be accepted we have further argument for the belief that the streptococci are not the primary cause of the pneumonia, but are secondary invaders. These streptococci have a large common group factor in producing precipitin, but also contain specific precipitinogenic groups.

6. In the treatment of hemolytic streptococcus empyema drainage is necessary, the time for this being determined by the condition of the patient. Active immunization by the injection of autogenous vaccine seems to be of value in some cases.

7. In many hospitals routine leucocyte counting on the first and tenth days of pneumonia and on the first, second, third, and tenth days after operation for empyema has proven to be of value. This does not preclude leucocyte counting at other times if indicated.

INFLUENZA ABOARD A MAN-OF-WAR: A CLINICAL SUMMARY

By FORREST MARTIN HARRISON, M.D.,
LIEUTENANT COMMANDER, M.C., U. S. NAVY.

THE pandemic disease which has always been characterized epidemiologically by an extraordinary rapidity of extension and by the large number of people attacked, and clinically by a special tendency to involve the respiratory mucous membranes, generally setting up a tracheobronchitis, has been spoken of under a number of different terms. The early British authors of the seven-

teenth century refer to it as "ague." It would be interesting perhaps to note here that in 1658 Oliver Cromwell died from this affection, when Morton says the country was "one vast hospital." Since then of course "ague" has come to have a somewhat different meaning. About 1712 the French term "la grippe" came into general use and has been periodically revived on various occasions ever since. Osler recognizes this as the one and only synonym of the disease. The Italian word influenza which means literally, "influence," as if from the atmosphere, first came to England in association with the epidemic of 1743. This derivation and translation would seem to indicate clearly that the peculiarly subtle nature of the outbreaks of this disease was recognized long before the bacteriologic era. At any rate this is the universally accepted scientific name of the disease.

The expression "Spanish" influenza is no doubt a result of a craze for weird nomenclature accompanying war conditions, and probably originated because of the fact that several epidemics had their beginning and spent their force in Spain. This fact, however, should not cause any greater importance to be attached to it, nor arouse any greater fear than influenza without the new name. It should at once be discarded as being very confusing and misleading and whenever the disease in question is referred to it should be spoken of as epidemic influenza.

The history of epidemics of influenza does not differ very materially from that of other diseases spread by human intercourse that are usually called contagious. A widespread epidemic follows the introduction of a specially virulent virus and there is established a general immunity among those of the population who have been infected. As the epidemic dies out, the infection decreases in virulence and only sporadic cases occur. From such cases and probably from chronic carriers, local outbreaks occur; but the general immunity prevents any general epidemic. After a period of years a new susceptible population has replaced the immune one, and with the introduction of a fresh virulent virus a general epidemic is again brought about. This would account for the great susceptibility of young persons, and as it is twenty-eight years since the last great epidemic, we should not expect many individuals above thirty years of age to be now affected.

Hippocrates and Livius refer to an epidemic even as far back as 412 B. C., which is regarded by many investigators as being influenza. Of course, this is more or less problematical, but at any rate the symptoms as recorded by these "fathers" of medicine are identical in every way with the present clinical manifestations of the disease. There then followed a long period of medical history in which influenza was apparently not reported. It must be remembered, however, that during these early times the disease was perhaps confused and combined with other epidemic disorders, and so did not stand out as a distinct entity until a relatively modern period.

The next authentic mention of a serious outbreak was in the 12th and 13th centuries, when several occurred. Then followed four in the 14th, five in the 15th, eight in the 16th, including the pandemics of 1510 and 1580, and eight in the 17th century. Twenty epidemics are recorded in the 18th and fourteen in the 19th centuries, including the pandemics of 1831, 1833, 1837, 1847-48 and 1889-90. In these latter two years the first outbreak occurred in St. Petersburg during October; in Berlin and Paris during November; in Brussels, Copenhagen, London, Vienna, Rome, Madrid, Boston, New York and Philadelphia during December, persisting in each place one or two months. This epidemic fell heavily on Spain, the present ruler, then three years old, being one of the first attacked in Madrid. Following the pandemic of 1890 high incidence of influenza was reported during the winters of 1891-94. There then followed a considerable pause before the disease again appeared in 1907-8 and 1915-16.

America itself has been embraced in several pandemics of influenza. In his remarkable work on epidemic diseases, published in Hartford in 1799, Noah Webster locates the first American epidemic of which he could find an account in 1647. It passed over the whole country and extended to the West Indies.

Benjamin Rush described an epidemic in 1789 in Philadelphia, which was brought there by members of the first Congress which had assembled in New York. Daniel Drake records a widespread epidemic in the West in 1807. These are but isolated cases. As a matter of fact, this country has been seriously affected in all of the big pandemics enumerated above, especially during the 19th century.

During the winter of 1915-16 the United States was visited by a severe epidemic of acute respiratory affections which resembled in every way the great pandemic of 1890. This outbreak was apparently noticed first in the Middle Western States, and it spread rapidly over the entire country, taking a heavy toll of human life. December and January were the months in which the infections were most prevalent, and the epidemic had completely lost its impetus by March.

The present epidemic which is sweeping the country, and which is apparently on the decline now, began in Spain last spring, passing over the whole of Europe, both civilized and barbarian, attacking 30-40 per cent. of the population in Germany, Italy, France, England, and Ireland. It was undoubtedly brought to this country by patients or carriers aboard ship. In the United States the disease has played havoc with the civilian population not only, but with the military forces in the great training camps ashore and afloat. Public Health Service estimates place the number of deaths at not less than 400,000 in this country during September, October, and November, 1918.

The question as to the real nature of the "influence" in influenza has not been definitely settled. Aside from a few observations on previously reported epidemics the most important work on the bacteriology of the disease was done during the great pandemic of 1892. During this year Pfeiffer published his great work in which he described a small Gram negative hemoglobinophilic bacillus as the causative agent, and this gained almost universal acceptance at the time,

except possibly in France. The previously described bacteria, streptococcus, pneumococcus, and staphylococcus, because of their frequent presence in the sputum of normal persons, were henceforth considered as secondary invaders and of minor importance in the etiology of influenza. Recent investigators, however, have failed to corroborate his findings and the Pfeiffer organism has been called into question. Davis and others have repeatedly found these bacilli in various diseases, such as whooping cough, tuberculosis, measles, and chronic bronchitis. Minor epidemics of acute respiratory infection, clinically regarded as epidemics of influenza, have occurred in which the influenza bacillus was not regularly present in the sputum or the respiratory tract. In such epidemics, as well as in the great pandemic of 1889-90, streptococci occurred quite regularly in the respiratory tract. Indeed, a large group of French and German observers regarded the great pandemic as a streptococcus or mixed streptococcus and pneumococcus infection.

As a matter of fact, the only evidence that influenza is caused by the Pfeiffer bacillus up to the time of the present outbreak, is the demonstration by a few men of the presence of this organism among other bacteria in the respiratory tract of patients suffering with influenza. The production of influenza in animals by injections of pure cultures of the bacillus has not given any decisive results. No distinctive immunologic reaction has been discovered showing that the body reacts specifically to the influenza bacillus in the course of influenza. In truth, the evidence in favor of the influenza bacillus is not any stronger or different from that which can be urged in favor of the streptococcus, pneumococcus or other bacteria. And if we grant the possibility that the influenza bacillus may cause outbreaks of influenza, it is diffiicult to determine just wherein lies the deep difference between such strains of the bacillus and strains found in whooping cough, measles, and other conditions.

There is perhaps no disease with the possible exception of dengue which attacks indiscriminately so large a proportion of the population—about 40 per cent. as a rule. As we have stated, the cause is still veiled in mystery. All that we seem to know is that apparently in the course of evolutionary processes there is suddenly liberated a form of infectious agent against which large numbers of people offer little resistance, and which is transmitted from person to person under the most diverse climatic and geographic conditions. During such visitations the general mortality is naturally greatly increased. Why this is so is not definitely known. It may be that the etiologic agent independent of its own virulence increases the death rate by combining with preexisting disease or by lowering the resisting power of the individual to such an extent that other formidable infections gain a foothold and cannot be overcome.

Influenza has always been more or less prevalent aboard the U. S. S. *Salem*, but with the possible exceptions of February, September, and October, 1918, the disease has never assumed epidemic proportions. Fifteen cases occurred during December, 1917, but they were well spread out, and not more than two patients were on the sick list at the same time with the disease. Our records show anywhere from one to six cases being admitted a month over a period of a year or more, with the exceptions mentioned above, a number which can scarcely be considered anything but sporadic. Most of these infections were of the mild type in that the average number of days on the sick list was only 3.35 for each patient. Despite this fact, however, the damage caused by influenza was considerable, and this disease formed a major portion of our illness. With an average complement of 600 men and officers, since the ship was placed in commission in September, 1917, there have been 544 sick days from influenza alone, or a daily average of 2 patients for a period of 13 months.

In studying the cases from time to time I have been particularly impressed by the fact that these sporadic cases as seen in the months other than February, September, and October, 1918, have without exception presented the same symptoms and have run identically the same course as did those cases which occurred when the disease was regarded as being epidemic. From my experience aboard ship I am firmly convinced that the ordinary sporadic case of "la grippe" such as one sees in his daily practice is no different fundamentally from the influenza which we call epidemic. In our series of cases there was no increase in the severity of the symptoms. Neither has the duration been prolonged nor complications been more frequent on account of its presence on board in epidemic form or when associated with widespread prevalence in the civilian community.

Another interesting fact which we could not fail to note was that the climate seemed to exert no influence whatever over the disease. From September, 1917, to September, 1918, we handled 170 cases of influenza. They occurred under the most diverse weather conditions. During 1917-18 the ship passed through a very severe, damp, cold, penetrating winter at the Navy Yard, Boston, Mass., while from April to October, 1918, she was cruising continually in sunny tropical waters under absolutely ideal conditions as far as the weather was concerned. One epidemic occurred in February in Boston, the other in Florida in September. During February and the months previous to it the presence of the disease in epidemic form can be attributed, I believe, to the severe weather and the overcrowding of the ship, which was a necessity of course from a military standpoint. Men were constantly exposed to dampness stood watches in driving rains and snow storms and it is very natural that influenza should flourish under these conditions. The cases which occurred during September and October were a part of the prevailing epidemic. The surprising thing is that the severe weather did not result in any complications, and that all of the complications that did occur took place when the ship was in the South. This was probably due to a virulent strain of the causative organism present in the associated epidemic.

The subjoined clinical summary is based upon observations of 78 cases which came under m

personal care during the very recent epidemic in September and October.

We were able to separate our cases, following the classification given by Osler into four varieties, namely, respiratory, gastrointestinal, nervous, and febrile. By far the great majority were of the respiratory type. As was to be expected the gastrointestinal variety was more or less rare, only 3.83 per cent. of the cases coming under this category. The prominent symptoms were fever, delirium, nausea, vomiting, abdominal pain, diarrhea, and a slight degree of collapse. No jaundice or enlargement of the spleen was noticed. Two of the cases or 2.55 per cent. were of the nervous type. Both of these cases showed no catarrhal symptoms, complained of severe headache, pain in the back and joints, muscular twitching, photophobia, and profound prostration and were ushered in with a prolonged chill. In the three febrile cases fever was the only manifestation, and they would have been undiagnosed, I am sure, if they had not occurred in association with a widespread epidemic.

The incubation period, as nearly as could be determined, was apparently two or three days. Osler states that "the incubation period is from one to four days; oftenest three to four days." There is, of course, no absolute way of telling, as so many factors enter into such a consideration. Laboratory experimentation will alone establish the incubation period.

The onset in a great majority of our cases was sudden, being marked either with a well pronounced chill which lasted, as a rule, from ten to fifteen minutes, or else only chilly sensations alternating with a distinct feeling of warmth. The patient sometimes passed from an apparently well condition almost to prostration within one or two hours. In a few the onset was far more gradual, the man remaining at his work for one or more days before reporting ill. In these cases there was ordinarily a history of lassitude, malaise, indisposition, and slight headache several days prior to the actual attack. Profuse sweating occurred in the majority of cases, which was increased undoubtedly by the medication employed.

This initial chill or period of indisposition was invariably followed by a sudden and sharp rise of temperature, 103.5° F. being an average pyrexia for the first day. In a majority of the cases the fever was highest on admission, in several the greatest rise occurred on the second day of the illness, and in a very few it required the third day to reach its maximum. Our cases from the standpoint of the fever seemed to fall in three distinct classes: mild, with a temperature of 101° F.; moderate, with 103.5° F., and severe, with a fever of 105° F.

The temperature curve in every case showed daily remissions of approximately one degree. Three days was the average duration of the fever; it usually terminated by lysis. In not a few instances the temperature, after falling by lysis or crisis, as the case might be, stayed around 100° F. in the evenings and back to normal in the mornings, the patient in the meanwhile feeling well and fit. This fact was due to an associated bronchitis or pleurisy.

The highest temperature recorded in an uncomplicated cases was 105°F. This was present in only two cases and persisted continually for two days despite energetic antipyretic therapeusis. The most interesting thing about this high degree of fever was the fact that the patients felt comfortable, complained of nothing but a slight headache and drowsiness, and there was no evidence of delirium. The lowest temperature on admission was 99.5° F.

One striking thing in connection with the temperature was that in a great majority of the cases the patients actually felt better with one or two degrees of fever and complained more when their temperatures reached normal. It would seem, therefore, that hyperpyrexia is often a protective mechanism. This fact may have some therapeutic significance.

Rhinitis, with its associated distressing symptoms, such as a sense of fullness between the eyes, sneezing, and a profuse nasal discharge, was noticed in every case, the mucous membranes of the upper respiratory tract being swollen, red, and engorged. Because of this latter fact the patients invariably suffered with a dry hacking cough or hoarseness, a sense of rawness beneath the sternum, or a periodical paroxysm of coughing, at times very irritating. Expectoration was present in a varying degree. The sputum showed nothing characteristic.

Headache was complained of in every case. It varied in intensity, duration, and location, but usually lasted throughout the entire attack. It seemed that the higher the temperature the less the cranial pain. It was described by some as a sharp, lancinating pain; by others as dull and boring, and by a few as only a feeling of discomfort. Sore throat was complained of in only a few cases; the tonsils were rarely swollen, and the cervical or other lymphatic glands were not palpable at any time.

The pulse rate followed the temperature curve in every instance and showed the usual rates. I failed to note a particularly slow pulse as reported by many observers.

Another symptom which was present universally was actual pain and a feeling of soreness in the muscles of the back and over the kidneys and practically all the voluntary muscles and joints. The patient felt as though "he had been beaten all over with a club."

Mental dullness and apathy were common, and in some instances the patient was continually drowsy and slept most of the first 48 hours of his illness. In other cases the headache, backache, or pains in the extremities, together with a general irritability, made the days uncomfortable and the nights restless.

There were various other miscellaneous symptoms recorded, such as epistaxis, earache, and abdominal pain, but these were never very prominent and caused the patient but little distress.

Convalesence did not seem to be marked with any unusual degree of prostration or by exhaustion on slight exertion. As a matter of fact, patients were sent back to duty usually the day after their temperatures had reached normal, and with no ill effects whatsoever.

In our series of cases complications were few. Perhaps the most frequent was an extensive bronchitis and active congestion of the lungs, as evidenced by the presence of piping sibilant râles and the characteristic general symptoms. In one or two cases otitis media occurred, while in others acute myringitis gave the patient a lot of trouble. Pleurisy was seen in three cases.

By far the most serious complication was bronchopneumonia. This occurred, however, in only two of our cases. It was not due to any inability or unwillingness on the part of the patient to stay in bed long enough or thoroughly enough; or to any physiological handicaps, such as organic heart disease or chronic bronchitis or old age. In both cases the symptoms of the complication began on the fourth day and seemed to be due to an extension of an acute bronchitis caused by a particularly virulent strain of the organism, whatever it was.

One of the startling features of the epidemic was its sudden flaring up and its equally sudden decline, reminding one of the flame consuming some high combustible which dies down as soon as the supply of material is exhausted. Within a day or so after its first appearance aboard the ship there is every reason to believe that the infection was universally present in the nose and throat of the entire personnel and disseminated by innumerable carriers. Susceptibility was very general, although varying in degree. There are few among the crew who could not recall having had an occluded or running nose, or a raw feeling in the throat, or a cough, or aches and pains at some time during the prevalence of the disease, these symptoms representing, it seems likely, the price such persons paid for their immunization.

In view of the universal prevalence of the infection quarantine was considered useless and was not even tried. Our cases, however, were all isolated. There are only 14 bunks in our sick quarters, but these were abandoned altogether. A large ward was screened off on the main deck by the use of an awning and canvas and the patients placed on cots, thus insuring plenty of fresh air and sunshine and the maximum net air space and breathing space per man. In other words, the cases were treated practically in the open air and sunshine. We were particularly careful to see that the patients were kept warm by the liberal use of blankets. There is abundant evidence to show that warmth favors the development of immunity and that chilling antagonizes it and causes complications.

In passing, other measures adopted to control the spread of the disease were washing down all compartments daily with a solution of cresol; sterilizing the mess gear by subjecting it to boiling water for fifteen minutes after each meal; flaming scuttle-butt terminals four times daily, and spraying the noses and the throats of the entire crew three times daily with an antiseptic solution. In addition, the men were repeatedly warned of the dangers of and cautioned against promiscuous spitting, coughing, and sneezing.

In the absence of specific treatment the therapy of the disease had to be symptomatic. With the onset of the fever the patient was sent to bed and forced to remain there until a day after his temperature had reached normal. We usually gave a course of calomel in broken doses and followed it up with salts or seidletz powders in six hours. The fever was rarely high enough to be detrimental to the patient. When it exceeded 103° F. antipyretic measures, especially hydrotherapy in the form of ice packs, were resorted to. We used also with a great deal of success cold rectal irrigations.

For the pains and aches to which most of the patients were subject we gave acetylsalicylic acid, phenacetin, and the P. Q. and S. capsule, composed of equal quantities of phenacetin, quinine, and salol. It seemed to be their analgesic action rather than their antipyretic properties that rendered the cold tar derivatives so useful in influenza. Dover's powder was given with a great deal of relief when the patient could not sleep on account of the pain.

For the cough which was invariably present, and especially if there was any retention of secretion and clogging up of the bronchioles, ammonium chloride was resorted to either in capsule, tablet, or some vehicle. The cases sometimes cleared up phenomenally under this drug. The opiates were not added to the cough mixtures except when the chest was free from physical signs and the patient was kept from sleeping by a useless, absolutely non-productive cough. In such cases codeine sulphate, gr. ¼, immediately before retiring or three times daily usually sufficed.

Patients were encouraged to drink plenty of water, and as a matter of fact, some liquid, either in the form of albuminized lemonade or plain water, was given systematically every two hours.

The diet was liquid in every case and was not changed to soft until the temperature had reached normal. The nose and throat were sprayed with argyrol, 10 per cent., three times daily.

It would consume too much space to describe in detail all the other measures that were found useful, such as prolonged irrigations of the auditory meatus with hot water for earache, strapping the lower border of the ribs with adhesive plaster for pain and soreness due to strain from coughing and icebags for headache.

It seems to me that the main point to keep always in sight at the present time is that unfortunately we as yet have no specific treatment serum, or vaccines, for influenza. Such is the fact all claims and propagandist statements in the newspapers and elsewhere to the contrary notwithstanding. This being the case, efforts at treatment and prevention by serums and vaccines now hurriedly undertaken are simply experiment in a new field and the true value of the result cannot be predicted by anyone. Indeed, the exact results can be determined, if at all, only after a time; in most cases probably not until the epidemic is passed and all the returns fully canvassed. As to serum treatment, the only noteworthy new method so far is the injection in severe cases of influenzal pneumonia of the serum of patients who have recovered from such pneumonia. The principle of this method is rational analogous procedures have given seemingly good results in scarlet fever and other diseases, an

the results reported in influenzal pneumonia appear promising. Further trial of this treatment under proper conditions consequently seems to be warranted. Of vaccines we know nothing.

Influenza is a self-limited disease with variable complications and of variable severity in different places, thus offering great difficulties in the way of evaluation of different methods of treatment. The therapy must for the present remain in the main symptomatic, and after all, I believe, this is the very acme of medical art despite the fact that it is often spoken of disdainfully. What a wonderful thing it is to be able to take care of the derangements of the functions of the patient while his system is fighting the infection. It is our duty, not only, but a privilege!

AN ANALYSIS OF TWO HUNDRED AND SIXTEEN INDUSTRIAL ACCIDENTS.

By CARL SCHEFFEL, Ph.B., M.D.,

BOSTON, MASS.

THE following data of two hundred and sixteen industrial accident cases was obtained from the records of a manufacturing plant whose average number of industrial accidents per annum compares favorably with that of other plants in the same line of industry. Only those accidents have been taken into consideration which were of sufficient severity to cause loss of time from work. Males and females are employed in about equal numbers in this industry, their ages ranging from sixteen to sixty years. The average age of those injured is twenty-one and six-tenths years. The plant in which these accidents occurred is well equipped with safety appliances, has good light, and its employees are instructed concerning the hazards

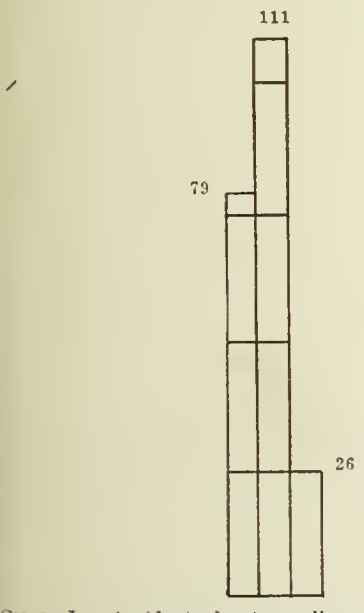


CHART I.— Accidents due to negligence of fellow employees, 26; unavoidable accidents, 79; accidents due to carelessness, 111.

connected with the particular duty each employee is expected to perform.

In the classification of accident causation as shown in chart number one, the term carlessness, as used in this paper, is applied only to those accidents occurring subsequent to some gross violation of reasonable care in their prevention. For instance, where an employee deliberately puts his hands where he has been repeatedly cautioned not to put them; or where an employee cleans a machine while in motion after having been repeatedly warned not to do so; accidents occurring after such acts have been classified as being due to carelessness.

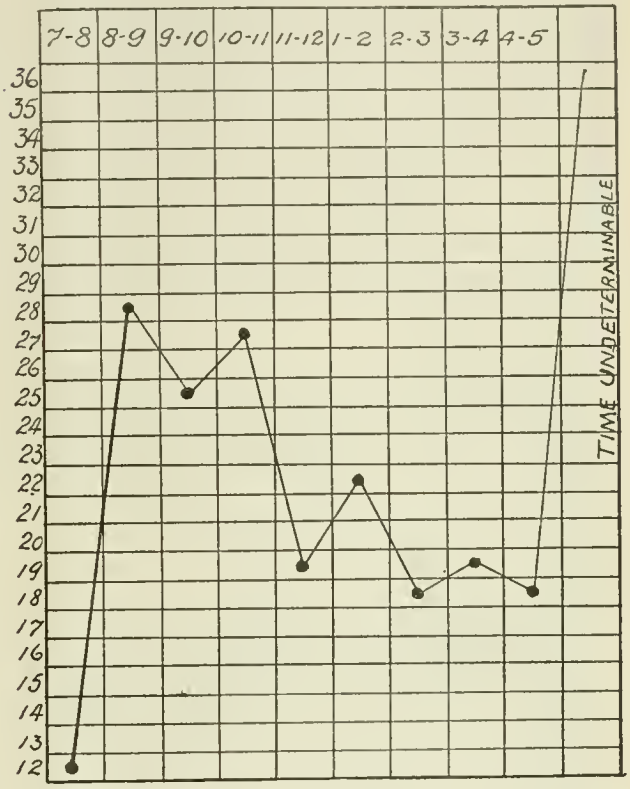


CHART II.—Time of day during which accidents occurred. Those injuries whose time of occurrence cannot be determined are mostly cases of sepsis.

Inasmuch as this plant provides its employees with excellent facilities for the immediate and proper treatment of injuries, and its employees having been instructed to have their injuries—however slight they may appear—promptly treated, cases of sepsis occurring subsequent to refusal or negligence to have primary injuries properly and promptly treated have likewise been classified as being due to carelessness. Those cases of infection which followed prompt and proper treatment have been placed under the category of unavoidable. Accidents where the question of exercising reasonable skill in the performance of some duty is involved are also classified as being unavoidable.

A glance at chart I quickly informs us that by far the largest number of accidents were due to carelessness, even in the limited sense in which the term is used in this paper. One hundred and eleven industrial accidents out of a series of two hundred and sixteen due to gross carelessness is an extremely high percentage and is of sufficient importance to warrant further study with a view to eliminating as many as possible of these unnecessary accidents in the future.

Chart II gives an idea as to the time of day during which these accidents occurred, the plant running from seven-thirty A.M. to twelve-thirty P.M.

and from one-thirty P.M. to five-thirty P.M. The chart shows that in the forenoon the crest of the wave is reached between eight and nine o'clock, gradually diminishing up to noon. In

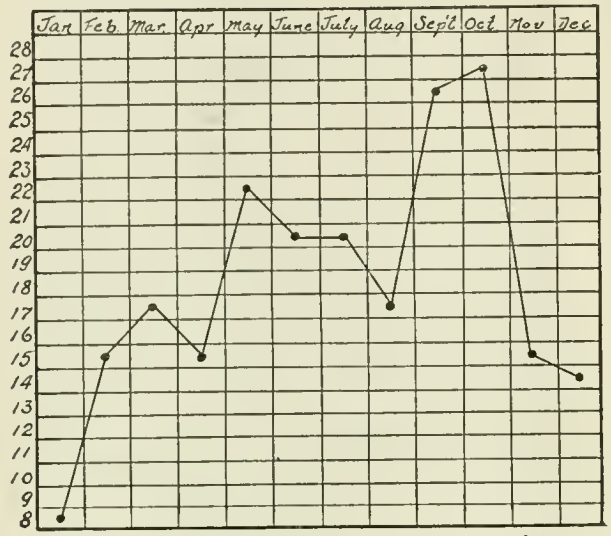


CHART III.—Frequency of accidents by months.

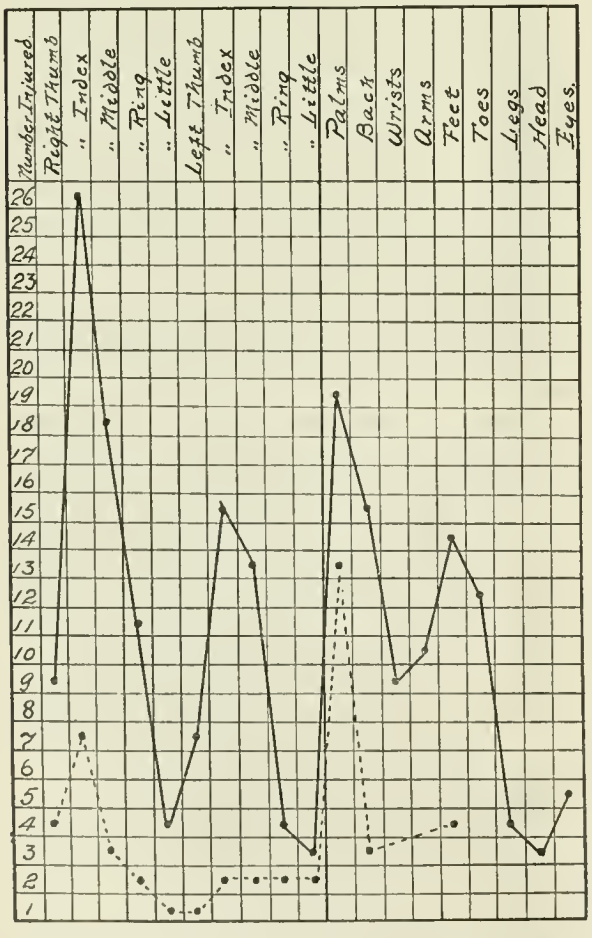


CHART IV.—In numerous instances more than one finger was injured, thus bringing the total number of injuries above 216. The lower broken line represents infection.

the afternoon the largest number of accidents occurred between one and two-thirty. From a study of the wave on this chart it seems logical to conclude that the factor of fatigue does not seriously enter into accident causation at this particular plant, for if it did the height of the wave would have been noted after several hours of continuous uninterrupted work. Or in other words, nearer the noon hour and towards the closing hour when the effects of fatigue would more likely make themselves apparent. The fact, however, that the crest of the wave occurs between the first and second working hours both in the forenoon and afternoon periods, would seem to indicate that the factor of "getting warmed up" to the work after a period of intermission was more important as a factor in accident causation than fatigue itself. Furthermore, if we take this series of industrial accidents incidental to this particular

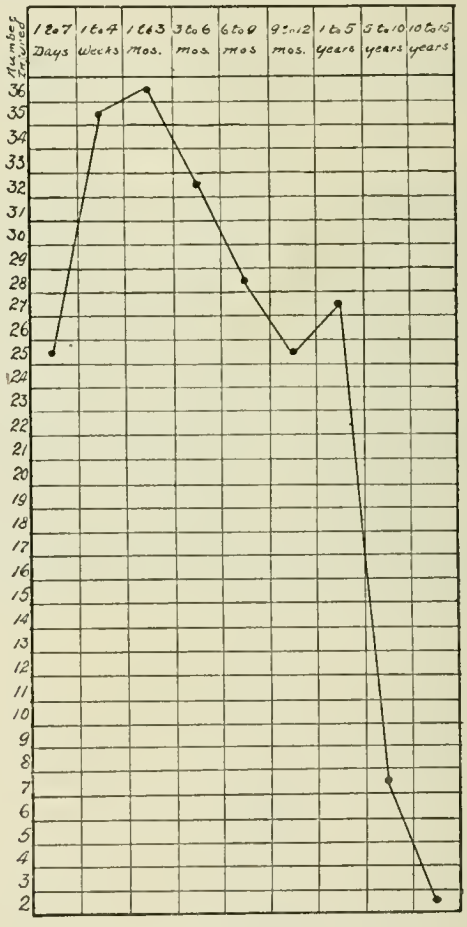


CHART V.—Length of time which those injured had been employed.

plant as a fair average guide, it would seem that the much advocated method of introducing five or ten minute rest periods several times during the day would only tend to increase the accident rate due to the repeated necessity of "warming up" for the work.

Chart III shows the prevalence of accidents by the month. It is rather surprising to note that the height of the curve was reached during the months of September and October. Here again fatigue as a prominent factor in the causation of accidents does not make itself strikingly shown. It would seem more natural to expect the height of the curve to be reached during the hot months of July and August if fatigue played the all important part in

accident causation attributed to it by some authors. Inasmuch as these two hundred and sixteen cases cover a period of three Summers in an industry which is busiest during the Summer months, this curve shows up all the more surprising.

Chart IV enumerates the part of the body on which these injuries occurred, and also the number of infections and the parts of the body which were infected. This line of industry requires almost exclusively the use of the hands and fingers, and as might be expected, these are the members most often injured. Particularly the right index and middle fingers seem to be the victims of the most injury, with the palms of the hands a close third. In this series of accidents palmar injuries seem to be most susceptible to sepsis.

From Chart No. V we learn to confirm a well known industrial fact, namely that a new and inexperienced employee not only costs money to be broken in; but that he is also more likely to be a victim of accident for a varying period of time. This series of industrial accidents would seem to indicate that employees required at least six months' experience in this industry before they ceased to form industrial accident risks above those of the average older employees.

1127 Commonwealth Avenue.

SCOPOLAMINE-MORPHINE IN WAR SURGERY.

By C. W. STROBELL, M.D.,

NEW YORK.

Convinced that an extensive use of scopolamine-morphine anesthesia in military surgery, as applied to our present war, would result in a substantial decrease of suffering, and the saving of large sums of money, I venture to record, very briefly, what I have found of practical value in the method, as applied to surgery in civil life, and presumably, at least equally applicable to the field of battle.

Scopolamine-morphine administered in the field as preparatory to emergency surgery, to be done upon arrival at the dressing station, would be found to be of great value, primarily as an analgesic, and secondarily in anesthetizing the wounded man, en route, so as to have him ready for operation. Such emergency work would comprise the setting and dressing of simple and compound fractures; the reduction of dislocations, the completion of partial shell amputations; the ligation of vessels; trimming and dressing of extensive lacerations, dressing of burns; exploration and extraction of foreign bodies, etc., etc. A first full-strength dose (scopolamine hydrobromide, gr. 1/100, and morphine hydromide, gr. ¼) should be administered hypodermically immediately upon reaching the wounded man. Thirty minutes thereafter a second similar dose should be given in the same way. Thus, at the end of one hour from the administration of the first hypodermic, the patient would be in condition to undergo any of this class of operations. In exceptionally severe cases a trifle of ether may be required.

Major surgical work, allowing of some degree of deliberation, also permits of preparation of the patient for the anesthesia, but of all anesthetics for major operations, scopolamine-morphine requires the least. In other words, the patient does not require any preparation, and least of all, of the gastrointestinal tract. Therefore an initial full strength dose may be given at any time, followed by another, a half hour later. At the end of the hour a half strength tablet is administered, the other half being kept in the syringe in solution, and in readiness, should it be required later. Fifteen minutes after the third injection the operation may be begun. Occasionally a few inhalations of ether may be needed to precipitate the surgical stage. If the operation is very severe or especially prolonged an additional half strength dose of scopolamine-morphine may be necessary. Muscular rigidity or restlessness during the operation is quickly controlled by a breath or two of ether.

Scopolamine-morphine thus administered, with or without adjuncts, confers a surgical sleep that continues for hours after the operation is finished, and from which the patient awakens rested, and normal as regards his ability to take liquid refreshments. It also confers the anociassociation of Crile. In ninety-five per cent. of cases there will be no post-operative sequelæ, such as nausea and vomiting. Therefore the prolonged presence of a nurse at the bedside, immediately following the operation will not be necessary, as the patient may safely be left to "sleep it off."

The occasional moaning and sighing of these patients should not be considered the signal for the administration of anesthetic adjuncts, as these are not signs of distress. Groaning and uneasy shifting about upon the table, however, are indications for the employment of such aid. Light, noise, and rough handling should be excluded. Therefore the ears should be stopped with cotton saturated with zinc oxide ointment. Light should be excluded by cotton and a bandage over the eyes until the surgical stage is reached, when these may be removed. There should also be avoidance of infliction of shocks, as by concussion, rough handling, or hot and cold applications, all of which arouse the patient in a greater or less degree. This surgical narcosis or narcoesthesia can safely be continued for hours, by the occasional administration of a half strength tablet.

Regarding the economic aspect of scopolamine-morphine anesthesia in point of expense, as compared with that of ether, chloroform, nitrous oxide, etc., an actual money saving of 75 per cent. can be effected, with a further 50 per cent. reduction in the time of nurses and attendants. Also there would be a 90 per cent. elimination of oxygen gas from the expense account. As the military bill for these items must be enormous, the above observations would seem worthy of consideration.

For the practical administration of scopolamine-morphine three forms are available: (1) Hypodermic tablet, (2) Standard solution, (3) Ampules. (1) Tablets may be obtained of all pharmaceutical houses. (2) The stock solution is made up much like Majendies solution. (3) Ampules assure asceptic, quickly available con-

tents, and can be used intravenously, hence with more rapid effect.

Hypodermic tablets and stock solutions are best for use on the battlefield. Ampules are best for work in field or base hospitals. Intravenous administration of the drug is as simple as the hypodermic, and absolutely as safe. The time required for this needs not be more than two minutes. As to the technique: It will be sufficient to wipe the bend of the elbow with a weak iodine-alcohol solution, then having an assistant compress the veins of the arm with twist or band (usually the patient can grasp the arm with his opposite hand for the few seconds that it would be needed), select any vein that stands out best, run the needle into the most prominent vein, remove pressure on the arm above, discharge the contents of the syringe quickly, and withdraw the needle. Now another "wipe" of the iodine-alcohol, a temporary compress (not always necessary), and the thing is done.

17 East Thirty-eighth Street.

Medicolegal Notes.

Cause of Optic Atrophy.—A workman, injured in an accident on a logging railroad, claimed under a Workmen's Compensation Act for the loss of the sight of one eye. The physicians called in behalf of the Insurance Department testified positively that the loss of the sight of the applicant's eye could not have resulted from the injury received in the accident; that the applicant was suffering from a primary optic atrophy; that primary atrophy is not due to inflammatory processes, nor is it the result of an injury; that if there had been an atrophy of the optic nerve due to such causes it is called secondary atrophy; that it was likely that the applicant, being afflicted with true or primary optic atrophy, was not aware of his condition, which must have existed for some time before the accident although not discovered until after he had been injured. On the other hand medical experts testifying for the applicant advanced the opinion that there might have been some injury of the optic nerve; that it is almost impossible to make a positive diagnosis in a case like this; that no one can say definitely whether an atrophy of the optic nerve is primary or secondary, without considering the history of the case, and that there is no specific rule to determine positively what has caused the condition. One of the doctors suggested that the learned discourse about primary and secondary atrophy is "dictionary definition pure and simple," and that the term "primary atrophy" is often used for convenience to cover ignorance of the true cause. The court, on appeal from an award of compensation, held that the medical evidence could not be reconciled. The applicant's testimony was that he was a carpenter by trade, that up to the time of the accident he used either eye as convenience dictated, and that there had been no trouble with or diminution of his vision. After the injury the sight of the left eye began to fail rapidly, and at the time of the trial he was practically blind in that eye. A neighbor testified that about a year before the accident he was with the applicant when he was shooting hogs and that he could shoot from one shoulder as well as the other, and that he never complained about his eyesight.

The court said that one of the first inquiries made by oculists in cases of atrophy of the optic nerve is whether the patient has ever been afflicted with lues or any germ-carrying disease. There was no evidence that the applicant was so afflicted. He denied that he was ever the victim of any such condition. It was held that these physical facts, coupled with the opinion of respectable oculists that the condition may have resulted from the accident were enough to sustain the judgment of the court below.—Nelson v. Industrial Ins. Dept., Washington Supreme Court, 176 Pac. 15.

Medical and Surgical Lessons of the War.

THE EDUCATIONAL VALUE OF THE WAR TO THE MEDICAL PROFESSION.*

By Major JOHN A. HARTWELL,
M. C., U. S. Army.
NEW YORK.

In beginning his address the speaker said that though the title assigned to him sounded rather ambitious he would not discuss it from all possible phases but simply from his more or less personal observations and experiences as related to the advances in surgery during the past three or four years. The first obvious advance in medical education that had accrued as a result of the war was that some twenty-five or thirty thousand medical men had been taken into the army and were given the opportunity of receiving intensive instruction in various branches of medicine and surgery. Many had attended formal classes and others had been in active service where they had acquired a much more extensive experience than would have come to them under ordinary circumstances. It was certain that the whole profession had not been able to profit by the experiences of the war as much as might be desired, and the question arose as to what could be done from now on to turn war experience to further advantage. In order to profit by the things the war had brought to the fore, these things would have to be analyzed in relation to our medical schools and post-graduate medical education. Major Hartwell said he did not expect the statement to go unchallenged that there had been no advances in principle in respect to the practice of medicine and surgery brought forth during the war. There was nothing, however, that had come to his attention which he was willing to acknowledge was new in principle in the science or in the art of medicine, but that did not mean that a great deal had not been learned, for surgeons in particular had learned a better application of the things they did know, or should have known, before the war started.

One question was the general one of hygiene and public health. It was well known that this subject in this country had received nothing like the consideration it should have had. We had public health committees in the County Society and the Academy of Medicine—the city, State and Federal Governments had public health organizations, but they were not all that they should be. As a nation we had neglected the general subject of public health and that had acted to a marked degree to the detriment of many people and would still further act to the detriment of many more. Many lay activities had been started to awaken a greater interest in public health problems. The Bureau of Municipal Research had instituted a course of lectures, extending over six weeks, on general hygiene and public health, and an inspection of the list of those giving the course would show that these lectures were being taken seriously. That there was a very broad field for

*Abstract of an Address before the Medical Society of the County of New York, January 22, 1919.

public health work was further attested by the fact that at the Paris Peace Conference the possibility of the formation of an International Board of Health was being considered in connection with the plans for a League of Nations. The importance of the health of the whole world had been brought to the attention of every thinking man through the experiences of the draft boards. Many recruits were thrown out by the draft boards for defects caused by bad hygienic conditions which might have been corrected or prevented, as was demonstrated by the establishment of a training course in this city which resulted in putting a large number of those disqualified for the army on account of defects due to neglect of general hygiene into the service by the simple process of looking after their general welfare, teaching them what to eat, how to eat, and how to take care of themselves. If a man was unfit for military service he was to a corresponding extent unfit for civilian occupation. At the present time few medical colleges had courses on public health. All the teaching the student received on this subject was given in a few lectures, not very carefully thought out and not taken seriously by the students in the medical colleges. In fact very few who finished their course in medical education had any idea of going into public health work. One thing that must be taken up was the establishment of proper courses in public health in every medical school.

On the question of vaccines and serum treatment there had been nothing absolutely new developed by the war, though it was demonstrated that typhoid fever and tetanus could be prevented, and there was much hope held out by the work of Weinberg in Paris and Bull in this country that this might also be done with some other anaerobic infections, such as the gas bacillus. On the other hand, when it came to the treatment of respiratory diseases, the vaccines and sera had not demonstrated their complete efficacy, though there was reason to hope they may do so. Attention must be given to that field of work.

Naturally the speaker's interest was in surgery and in that field he felt that he might venture to speak a little more in detail, as he had been assigned as an instructor in military surgery and had gone to France for the opportunity of gaining a rather complete survey of the treatment and management of war wounds. From one standpoint the experience of the war as it affected medical men might be a little disastrous, in that a large number of men who had had no experience in surgery and before the war no particular desire to practise surgery, on entering the army had been compelled to go into surgical work and under the stress of war conditions had done a great deal of operating; and unless they were very well balanced they might get the idea that they were competent surgeons without realizing that the type of surgery done in France under war conditions was not the type of work that led to good surgery in civil practice, unless the man had been a good surgeon before the war. Such men would need a large amount of help in attempting civilian surgery, and this was a rather important matter.

While it could not be said to be a new principle, unquestionably a most marked success had been obtained in primary suture of contaminated wounds, and this was developed by the British and French surgeons before we were in the war. This method, as was well known, consisted in débridement, that is, removing all tissue in which bacteria could live and multiply rather than in getting rid of all bacteria. After débridement the cases were handled as in a clean primary wound and in about 90 per cent. of these cases, if all the details could be carefully carried out, primary union would take place. This method described by Duval and Tuffier created a great deal of enthusiasm in this country and gave many surgeons the impression that great progress in surgery had been made. It simply meant that the principle we knew had been put into force, namely, that bacteria could not and did not live, as a rule, in healthy human tissue. The method of the British and French surgeons took away the pabulum on which the bacteria subsisted and the bacteria were no longer able to live. In compound fractures in which they attempted to get primary union by this method they were not so successful. At Hospital No. 1, at Toule, during a quiet period they had obtained a very large degree of success in wounds of the soft parts, but here the cases were received early, were comparatively few, and the members of the hospital staff were highly trained in the application of this method. Later when active fighting began in the Argonne and at Château Thierry they were able to do no primary sutures except in knee wounds and sucking wounds of the chest. The reason for this was that it was impossible to carry out the details necessary to get primary union.

Being in charge of a course of instruction, Major Hartwell said he had tried to learn all he could by reading of what was going on in the hospitals of Europe, in which reading he had been helped by all the members of the Cornell Medical College who were associated with him in the course of instruction. As a result of this reading he had come to the conclusion that suppuration in the military hospitals of Europe had practically ceased to exist. Being unable at Bellevue Hospital to duplicate this work he had gone abroad to see how they accomplished their results. To his great surprise he found ward after ward filled with pus cases. It was just after the hard fighting of June and July when this condition existed which made it impossible to take full advantage of what had been learned. At the present time they were seeing many cases of bad suppuration in the military hospitals of New York, but that did not mean that they had learned nothing; they had learned a great deal. The suppuration seen in Paris, on the whole, was being very well controlled, and he thought it was in part because of the Carrel-Dakin teaching. The lesson that Carrel taught was the possibility of putting into practice what before we had known only from a more or less theoretical standpoint. Surgeons had drifted into a period of aseptic surgery; they were operating in an aseptic field; whether they entered the abdomen, the skull, or did a plastic operation, they were operating in

clean fields. The mistake they made was that they relegated suppurating cases to the care of the junior. A man with a suppurating wound drifted down the scale from one surgeon to another until his entire care fell to the junior or the house staff. The tendency was to hand all minor injuries to the junior. Carrel taught that by careful attention to detail these suppurating injuries could be cared for in a much better way than hitherto. He stated that not more than 10 per cent., possibly not more than 5 per cent., of the good result in the Carrel-Dakin treatment could be ascribed to the chemical action of the solution; the remaining 90 or 95 per cent. of the good result was due to care and surgical treatment. The Allied Conference of British, French, Italian, and American surgeons concluded at their last meeting that in the last analysis their success resulted from the application of the well-known old-time principle of surgery, namely, thorough removal of damaged tissue, wide open wounds, and helping nature along biological lines, without looking for great assistance from antiseptics, and that this method was the best available at the present time. The Dakin solution was excellent in cases in which suppuration was established, not because of its bactericidal properties, but because it dissolved protein matter but would not dissolve healthy tissues with active circulation. If the solution entered the wound it combined with the protein substances on which the bacteria lived, and these were washed away and removed more delicately than could be done with a knife. The important lesson in the Carrel-Dakin treatment was the minute and careful attention to detail, the placing of suppurating wounds in an important category, and the having them cared for by older responsible men who taught the technique to the younger men.

One of the most important results of the war so far as surgery was concerned would be the better care of cases of industrial accident. As an illustration of what this would mean Major Hartwell cited the instance of one insurance corporation which had been paying out $250,000 a year for the claims in accident cases. Any doctor could be called in to treat these cases and received two or three dollars for a treatment; in case of fracture he often got only twenty dollars, even if he had to do one or two reductions under ether. Last year this corporation employed a competent surgeon as consultant and adviser at a salary which the corporation considered five times more than it ought to pay. At the end of the year it was found that only $125,000 had been paid for the claims of accident cases, and while from $200 to $500 had been paid for the care of a single fracture case, the net saving had been $100,000. The older scheme caused loss to every one, and the injured man did not get the care he should have. The doctor was not well paid and the whole labor field was taxed to meet the bill. It therefore seemed that there was one thing medical schools should do—teach the student the care of the injured from the beginning of his course. Industrial accidents were occurring all the time to an extent that the average person failed to realize and medical schools could do a great deal to arouse an interest in this question. The surgeon turned over to his junior the suppurating minor injuries without giving him the instruction which he needed and to which he was entitled.

By organizing our hospitals and bringing them into relation with our educational institutions, both would be of much greater value than they were at present. Some plan should be inaugurated whereby young medical men should not be forced to leave the hospitals at the completion of their interneship to go out and struggle for a living and become practitioners of medicine and surgery instead of students. As things now were, when a young man went out from the medical college and hospital his medical education ceased. The avidity with which the young men who had gone into the army took up every opportunity for instruction, working nights and long hours, over and above their responsibility to their patients, was evidence that if we gave them the chance they would go on educating themselves. This opportunity could be given them only by making the public understand that a highly educated medical profession was essential for the public welfare. Funds should be established in large hospitals that would enable young men to remain longer in the hospitals and be paid for their services. The public would not see this unless we put it before them. Money could always be had if the demand for it was based on the broad foundation of public good. The profession and the medical schools should take up this problem and establish continued education for medical men, even to the extent that every three or five or six years they could come back and spend six months a year in educational work and give up the responsibilities and difficulties of private practice merely for the income it brought to support a family. Now, when every field for betterment was being opened and developed, was the time to put this plan into operation and it was to be hoped that our medical schools would grasp their opportunity and undertake the responsibilities that lay before them.

DISCUSSION.

Lt.-Col. CHARLES A. POWERS of Denver, after complimenting the President of the Society, Colonel Charles Howard Peck, on his excellent work in the medical corps in France, said that he felt quite at home in the New York County Medical Society, as he had been a member from 1892 to 1894. He would like to agree with everything Major Hartwell had said when he expressed the opinion that not very much in the way of progress had come out of the war, yet perhaps he differed somewhat in thinking that some advances had been made. He had been in France for two and one-half years during the war and one impression of his service there was that the problem of the sterilization of septic wounds had been solved by that surgical wizard, Dr. Carrel. At the General American Ambulance Hospital No. 1, at Neuilly, in April, 1916, there were 600 septic compound and comminuted fractures. As all knew this was a war of sepsis and the most desperate forms of sepsis. The soil of France gave out not only tetanus, but the Welch gas bacilli, streptococci, and other microorganisms. This particular hospital was a center for shattered long bones and tearing injuries of the face and neck; there were not many abdominal wounds. At that time they were beginning to use the Carrel-Dakin treatment. The speaker watched the results of this treatment during 1916 and 1917 and great progress was made so far as the results obtained in the treatment of these wounds. During the German offensive and the Allied counter offensive of July, 1918,

it took 24, 28, and 72 hours to get the wounded back in ambulances to the hospital and all were in a septic condition, and yet they found that they obtained remarkable results. He thought that the Carrel-Dakin management was the greatest thing that had come into their surgical lives. The results at this time were not the same as those seen in 1916 and 1917. Dr. Powers cited the case of one young man of his acquaintance who was hit by a shell and the buttock torn away. He came into the hospital after forty-eight hours with gangrenous area the size of a dinner plate. Under debridement and the Carrel-Dakin treatment the wound was sterilized in from two to three weeks and was then sewed up under an anesthetic and the sutures held. He was sure he was free to say that he had never seen a result like that in a case of that sort under the older methods of treatment. Such instances repeated themselves almost daily, especially in wounds of the leg, arm, shoulder, etc. If this entire problem of sterilization and secondary suture was not entirely new he hoped Dr. Hartwell would tell him. Dr. Powers then spoke of the management of septic joints by Willems of Ghent. He said that at the Interallied Conference of Surgeons in April, 1918, Willems showed some twenty Belgian soldiers to illustrate the management of septic joints, and they were so surprising that they made a great impression on all who saw them. All agreed that the results were better than any they had ever seen before. If one assumed, for instance, a young man with a wound of the knee, with or without fracture, made by a machine gun shell and showing all the evidences of sepsis, in such a case Willems made a free incision on the inner side and another on the outer side, letting out the pus and septic contents, washed out the joint, put in no drainage, and in eight or ten hours after this operation the man was asked to actively move his knee joint, and to move it every four hours during the day and every four hours at night if he was awake. He soon gained confidence and the pain became less every time he moved it and he thus pushed out the pus and drained his own kneejoint. It seemed that this was an entirely new method of managing cases of this sort that Willems had presented to them. With a septic elbow the arm was moved, and all these cases were ambulant. At Neuilly they put this method into practice in the management of septic knee joints in 25 or 30 cases, and while he could not give the exact data the general impression was that they had obtained much better results than ever before. So he was a little more optimistic than the speaker of the evening, and while he felt that the surgery of war was not a good form of surgery we had nevertheless gotten certain things out of it.

Dr. Howard Lilienthal said that he believed that Major Hartwell had been a little too pessimistic, although strictly and scientifically speaking he was right. When the question came down to new principles they would have to go pretty far back, for there had been no new principles brought forward for many years. While it was true that no actually new principles were brought out by the war, there had been a scientific and wholesale application of well-known principles modified in such a way as to bring about results which, if history could be believed, had never before been equalled in any other war. For instance, advances had been made in the methods of treating injuries of the knee joint. He had seen men walking about with the knee joint open so that one could see the articulation. The war had brought to the front the method of operating on the knee joint, closing the wound and allowing the patient to move the knee. In case of suppuration where the wound had to be reopened operations and resections were now done that would not have been thought possible before the war, and the patients recovered. While the Carrel-Dakin treatment was founded on an old principle it seemed entirely new because no one had been bold enough to use it until Carrel had shown them how it could be used. So far as the Dakin solution went, that was not the important thing at all, the important point was the painstaking care by people who were thoroughly trained in every detail of the method. The same surgeon dressed a wound every time it required dressing and learned to know every hole and corner of that wound and how to get it clean, and that was better than having the dressing done first by one man and then by another. As to the front line and base hospital surgery. One could not get much idea of results from the figures given at the front line, because the wounded men were sent back from the front line to the base hospital and there received the real surgical treatment in cases in which the surgeon at the front had been unsuccessful as to the immediate result. The surgeon at the front did not realize that the man he had operated on might have to be operated on again for the same little injury and might even die from it. As an illustration of this he recalled one case in which a man had been wounded by a high explosive and several foreign bodies were removed, but one piece of metal was left in the tibia. Three weeks later the little sinus unhealed, it seemed a simple matter to take that piece of metal out, but gas gangrene followed its removal and the man lost his leg. As to the matter of muscle extirpation in gas gangrene the principle was known before the war, but its wholesale application, such as the removal of the large muscles of the arm or leg, even the biceps and the quadriceps femoris, looked like a distinct advance. This war certainly had shown what surgery could do as no other war had done.

Dr. Sherwood thought it was understood the Carrel-Dakin method could be properly carried out only by men specially trained for this work. He had had the opportunity to observe a group of men who were not adapted to the work. To be successful with this method a man must have a great deal of enthusiasm and a perfect equipment, and he must have assistants and nurses who were thoroughly trained. He was surprised to hear that they must remove all fragments of shell in bone, because he had seen *x*-rays showing foreign bodies in the bone in which the condition seemed to be entirely benign.

Major Hartwell, in closing, said he evidently had been somewhat misunderstood. He thought he had made the statement very clear that no new principles had been evolved by the war but that the opportunities for the practice of known principles had resulted in a great improvement so far as results were concerned. While he was loath to disagree with Dr. Powers he did not think the chemical treatment of wounds was a new principle. He felt sure that what he had said was that what the Carrel-Dakin treatment had done was to call attention to the fact that we must use antiseptics properly and with detail. He did not intend to give the impression that the Carrel-Dakin treatment was not an improvement, for he had turned one ward at Bellevue over exclusively for the use of that method. He was using the same technique, the same men were dressing the same cases every day and he had taken the best men on the staff for this work. They were dressing the wounds in the same way that Carrel did, had the solution tested in the same way, and made the bacteriological examinations. It was a good thing and if one spent enough time in applying the treatment he could accomplish a great deal with it, but it was not a new principle. The treatment of knee joint injuries by having the patient move the knee was a new principle, but he was not convinced that it was one that would stand the test of time.

The Chairman, Colonel Peck, said he agreed with what Major Hartwell had just said. He had seen a number of joints treated by that method and later amputation had been necessary. He had also seen cases here that had been treated in that way and all had stiff knees. He had tried his best to put this method of treatment into effect, but without success. It was possible that he did not do it in the right way. It was, however, a new principle if it proved its efficiency. At Château Thierry there was no hospital near the lines and at one place there were 250 wounded men out all night in the rain. Of course these wounds were infected and cases of that kind were not a test of surgery. They were now getting many of those cases here. The enthusiasm of the surgeons for the work they were doing was unbounded and they had shown themselves very desirous of learning, and this was a great incentive to giving them the opportunity to learn after the war was over. All the subjects discussed tonight were things that should be taught in the medical schools and among them the Carrel-Dakin method should be included.

THE INTERNAL ADMINISTRATION OF THE MEDICAL SERVICE OF A BASE HOSPITAL.

By Major ROBERT H. McCONNELL,

NEW YORK.

M.C., U. S. ARMY.

In attempting to place before the minds of the men who have not had the great privilege of serving in an army hospital, the various points of interest in the administration of a medical service, one is confronted with rather a difficult problem, and that is to make it an interesting paper, and not merely a paper of statements and bare facts. To those of us who have been in one of these great institutions, the mention of the subject alone will always appeal in a manner such as no other subject can, for we feel that the experience has been one of the great events in our lives and we shall always look back to it with the greatest pleasure and happiness.

My personal experience has been one of the pleasantest imaginable. Knowledge was gained and friendships established in a manner such as one would never realize in the active practice of medicine. There is no such thing as numbers in the Army; miracles are accomplished—hospitals are built in a few hours, one learns accuracy and decision; in fact, my enthusiasm knows no bounds when I speak of these great institutions which the medical profession of the country have conducted with such success during this war. I believe that all of our civilian hospitals will feel the good effects of the training which we all have received and that many valuable points will be brought out by the various men who have been in active service.

For the benefit of those men who may not know, all hospitals have a commanding officer as head, who does the administrative work and who has his own personnel—a medical chief, a surgical chief, and a chief of laboratories. Each branch of the service has its own personnel; I will deal with the medical side only.

A chief of the medical service must be a man well versed in medicine, a good diagnostician, and a person of decision. Decision of vast importance. He must be ready to take responsibility, be resourceful and should inspire confidence; a quick, accurate decision will soon inspire the greatest confidence in those who are working in his department. In the personality of the Chief lies the success or failure of the service.

The points I wish to bring out to-night are taken from the base hospital at Camp Jackson, S. C., where I was a member of the school for chiefs of service. This was a school where men were selected from all parts of the country and trained to conduct a medical or surgical service in a base general or overseas hospital. In our training for chiefs of service we acted in all capacities in the hospital, from the lowest position up, spending a certain time in each department and acting as supervisors to the various wards. We were changed at various intervals to some other ward or would spend days with the chief of service to learn the administrative points; clinics were held three times a day on some days and at other times special work in the laboratory would take the time. In this manner one was able to see the hospital from all sides, to judge the capabilities of the various ward surgeons and rate them accordingly, and to get an insight into the inner workings of a great institution. The selection of the chief should be made with care, as some men are better fitted for a base or overseas hospital, while others may do best in a general hospital. Some men have had very little military instruction and they often fail to create confidence because they fail on the military side. One must remember that they are in a military institution and that all things are governed in a military manner. The medical officer has just as much right to the proper military courtesies as the line officer and he should demand them, not from a personal side, but for the rank which he holds. It disturbs discipline and confidence not to get the proper respect from those under him; on the other hand, he should learn the courtesies necessary and should pay strict attention to see that he carries out his part.

Chief of Service.—What are the duties of a chief of service? This is a question which has been asked many times. They are administrative and medical. He must have complete control of his service, he must know about all the severely ill patients, know the number on his service, know their conditions each day, must see them as often as possible, must look after the paper work, must follow out each man in his organization, become familiar with his work, learn his ability, and assign him to the proper station; a successful chief is the same as a successful leader anywhere else. He must have the organization, and then must see that the men do their work and report to him their results. A sample of a chief's average day is as follows: Breakfast at 7.15 A.M. Meeting with commanding officers at 8.15, lasting one-half hour. A meeting in his own office with his assistants or supervisors, where policies are discussed, plans made, cases reported for observation, announcements made, and any other matters of interest to the service taken up; this lasts about one-half hour, and after this for a short period, correspondence or paper work is done, then rounds are made with the nurse assistant, consultations are held, x-ray plates are looked at, important cases seen, and the ward surgeon's work looked into. This takes till 11.30, when a clinic may be held or a general meeting with the commanding officer in the chair. Mess 12.30. Work beings again at 1.30, paper work, conferences, more rounds with a clinic at 4. Drill at 5.15 is optional. Mess at 6.15, followed by a clinic or demonstration at 8 P.M. This makes a full day. Where there is an epidemic of some disease, the hours may be lengthened or changes made in the routine work, so that special attention can be paid to the particular subject. A chief is supposed to write on various subjects, make reports to the surgeon-general's office, keep in touch with the work done in other camps, keep his men busy arranging their work so as to maintain their interest, and in fact, doing the thousand and one things necessary and which are coming up all day long. He is appointed by the surgeon general, but is under the direct control of the commanding officer of the base hospital.

The office of the medical chief should have

medical staff consisting of an adjutant and an assistant adjutant (captain and lieutenant), and a clerical staff consisting of 1 sergeant, 3 privates, 1 head nurse to accompany him on his rounds, 2 or 3 assistant nurses, and 5 or 6 student nurses, to accompany officers. In the office of the medical chief the paper work is done, and I can assure you that there is a great deal of it. The records are kept and charts made of various epidemics or series of cases are tabulated. The adjutant or assistant is always on call so that in any emergency some one is on hand. The adjutant's duty is to stand between the chief and the many unnecessary calls that may disturb his time. He answers all inquiries and plans the work of the day for the chief up to a certain point. He takes care of and supervises the work of the office, works out with the chief the assigning of men to the various wards; in fact, an adjutant in any department of the Army has one of the most important positions that there is. He should be a man of exceptional ability and the service lies greatly in his power as to its success. His work is to assist the chief, and when I say assist, I mean just that; he should be tactful, energetic, resourceful, and intelligent. The assistant adjutant should follow in his footsteps.

The sergeant, an enlisted man, should be a stenographer and typist. He takes dictation and supervises the work of his clerical staff.

One of the privates should be an artist if possible so that pictures could be made of special cases and drawings made of various abnormalities and of interesting lesions.

The head nurse makes rounds with the chief, she carries a bag with all of the necessary things for emergency work, such as aspiratory needles, lumbar puncture needles, hypodermic syringe, cocaine, iodine, culture tubes, serum, etc., all sterilized so that he can make an examination without delay. She also takes dictation when he makes examinations and supervises the work of the other nurses. The assistants do the clerical work, and sterilize materials that are needed in his work.

The student nurses make rounds with the supervisors of the wards, taking the dictation and each one carrying a bag equipped with the same materials; this is of great help and many of the civilian hospitals would do well to follow this plan. It is a great help to the nurses as well, and it is astonishing how quickly a student nurse becomes proficient in taking the dictation; when she finds a word that she does not know or a disease or symptom strange to her, she makes a note of it and then asks later or looks it up in her books. It keeps up their interest and encourages them, giving them a stimulus in their study and work.

The assistants to the chief of medical service are briefly described as follows:

The general medical consultant, whose work is to supervise the officers' ward and be on call to see all cases of doubtful diagnosis. His work is similar to that of the medical chief, except he answers all calls, and there his work ends as he does not follow up the case.

Medical supervisors are in reality attending physicians to the various wards of a base hospital. Each supervisor is assigned to a ward or series of wards and changed from time to time; his work is to examine such patients as the ward surgeon may designate or any case he may see fit. He advises treatment, checks up the work of the ward surgeon, sees that the proper attention is being paid to the patient, discusses the case with the ward surgeon, and acts in an advisory capacity in all matters. He makes his rounds with his nurse assistant two or three times a day; and right here is where one of the most valuable parts of the whole Army experience lies. Many of these ward surgeons are experts in their own line, such as tuberculosis or neuropsychiatry, and a supervisor must work hard in order to keep the confidence and respect of these men. Another point where the service is most valuable, there is very little of the professional jealousy in a large hospital and supervisors can examine another supervisor's cases without asking and make their notes on the charts accordingly; each man must make a note on the chart when he examines a case, so frequently six or seven different men may see a case and not one has seen the other man. It does not take long to find out whether a man is careful and thorough in his work or whether he is a "bluffer." Each supervisor is checked up in his work by the chief of service and rated accordingly. If a supervisor fails to make a correct diagnosis, or in other words does not exert all of the facilities and resources to determine what is the correct diagnosis, he is liable to a court martial. He cannot afford to make a mistake; no one is infallible and he could not be blamed for not making a correct diagnosis, but he could be blamed for not doing everything in his power to make the diagnosis, and if he is unable to do so it is his duty to ask for consultations.

Specialists.—The various specialties or in other words the various subjects that have been the source of special study, such as pneumonia, meningitis, and other acute infections, neuropsychiatry, tuberculosis, and cardiovascular diseases, are looked after by men who have had training in these various subjects, and it is the duty of the chief of service to assign men as they are sent to him through the adjutant general's office to these different wards. On a man's arrival at a base hospital the chief tries to find out what he is especially fitted for, and this is done partly through his efficiency card, which he makes out himself and partly by means of conversation held with the new arrival. For instance, if a man is especially interested in neuropsychiatry, he is assigned to that division on trial, and if he is capable and fills the bill he is retained there; if not, he is transferred to some place where the chief of service thinks he may fit in. If he is medically unfit, he is given a course in some subject and trained in that line or he is given some assignment where his medical knowledge is only partly necessary. Many men are assigned to do work sometimes entirely opposite or far removed from what they had been doing in civil life, sometimes because there is no need for the particular line that they had been working on or because they would do something else better. As, for instance, I know of a case in which a very good otolaryngologist made a most expert sanitary inspector. He had a correct military bearing and had the instinct of sanitation born in him; and while he was an exceedingly good laryngologist for war purposes he

did his bit far more effectively as a sanitary expert. Again, a most efficient internist made a very remarkable property officer; he had what one might call the "property instinct," and by his methodical ways and ideas of property responsibility converted what was an apparently hopeless property tangle to an efficient and economical department. So the duty of a chief of service or commanding officer is to develop the best that is in a man during the period of his service in the Army.

The duties of the *epidemiologist* is to study the epidemiology of disease under the direction of the chief of the medical service and the chief of the laboratory, and to record the same.

The *supervisor of therapy*, under the direction of the chief of the medical service (1) has charge of the coordination of the dispensary and wards, the filling of prescriptions, the ordering of needed medical supplies and of other devices for the treatment of patients; (2) he is responsible for the adequate supply of serum vaccine and antitoxin through proper storage and distribution; (3) in the event of an important epidemic he has general supervision of its management and the publication of routine orders. In this work he cooperates with the hospital epidemiologist; (4) he also has supervision of the diets and must confer with ward surgeons, officers, nurses, and dietitians in the prescribing, preparing, and serving of food to the patients.

The duty of the *efficiency officer* is the organization of the departments and the wards of the hospital on a basis of highest efficiency. He must spend all necessary time in a given department or ward and assist those in charge in organizing it on an efficiency basis.

In a well organized hospital it is a good plan to have a supervisor of special instruction. It is his duty to arrange clinics, keep track of interesting cases, select men to present the cases and arrange classes for special instruction in various branches. This is an important position and one that can do a great deal to perfect a service by increasing the efficiency of the men, establishing classes in physical diagnosis and special instruction in the various specialties, all given along the line of post-graduate instruction. It is astonishing how popular this is; many men who have been going along in a rut for years and have been out of touch with the special branches, broaden out as this instruction opens up a new view of the practice of medicine to them. New ideas are created and they become more efficient in their own line of work. The supervisor also arranges with the ward surgeons for special training and attention to the teaching of the pupil nurses.

The *disability officer* deals with all cases recommended for limited service, S. C. D. and civilian work. He also investigates personally all cases about which inquiry is made.

The Ward Surgeon.—Probably there is no harder worked man and no one to whom greater credit should be given than the ward surgeon. His duties are manifold, he must not only look after his ward medically but also must be responsible for all property, and if any is lost must pay for it. If anything goes wrong, the blame is often thrown on him. To be a good ward surgeon, one must have medical ability and executive ability; have a knowledge of sanitation, be methodical, conscientious, a hard worker, and a man to command respect from nurses, corps men, and patients. A man could not have a higher compliment than to have it said that he was an exceptional ward surgeon, for this means a great deal. He is one of the mainstays of the hospital. He stands in the same relationship to a base hospital as a house physician does to a civilian hospital, except that his responsibilities are greater and to conduct his ward satisfactorily he must use his tact and judgment to their fullest sense.

He is responsible for: (1) Professional care of patients. (2) Condition of wards and equipment. (3) Proper performance of duties devolving upon nurses and enlisted men. (4) In case of critical illness to report to the adjutant. (5) In case of death to notify the officer of the day. (6) In case of transfer of patient to another hospital to notify the chief of service. (7) Keeping a complete clinical record of all cases under his care using the prescribed forms, also special reports on examinations such as Wassermann and gonorrheal fixation, daily, weekly, and monthly reports and notification of seriously ill cards.

The receiving ward officer has charge of the receiving ward, and when all cases, both medical and surgical, enter his duty is to distribute the cases. The vast importance of the receiving ward cannot be overestimated, for a mistake here may endanger the whole hospital from an epidemic. The receiving ward officer must be one of untiring energy, he must have an organization behind him untiring also; he must be keen, an exceptional diagnostician, and must have decision developed to a marked degree. It is often due to his care that mistakes are rectified and many medical men are saved from court martial because of his strict attention to the details of the service.

Receiving Ward System.—The receiving ward consists of three divisions 1, 2, and 3. 1. All ambulatory patients are admitted to No. 1 from the regimental infirmary. The nurse in charge enters the patient on her book, takes his temperature which is written on back of form 55a, and takes his valuables for safekeeping. Form 55a is filled out in duplicate, two laundry slips are attached, and the patient is sent to ward No. 2. The duplicate of 55a is for the registrar's files. One clothing slip stays on the patient's record; the other is attached to his clothes.

2. All patients admitted to the hospital must pass through ward No. 2. Here they are divided into two classes: bed patients and ambulatory patients. All patients with temperature of 100° or over are put to bed. All litter cases are brought directly here. Clothing is checked as soon as it is taken off the patient, and sent to the clothing room with clothing card attached. The ambulatory patients are given the shower bath; the others are bathed in bed. The ward surgeons in No. 2 examine all cases and assign them to the proper wards. Ward No. 2 keeps the admission sheet on which each patient is recorded, and the ward he is sent to is noted. This sheet is turned over to the registrar of patients daily. Ward No. 2 keeps the list of empty beds in each ward, and notes each patient sent to each ward, so that it is possible to

tell at a glance how many empty beds each ward has. Transfers fro mone ward to another must pass through No. 2 for notation.

Half of No. 2 is the colored observation ward and No. 3 is the white observation ward. Cases in which the diagnosis is in doubt are held in observation awaiting laboratory reports and consultations.

Records and Reports.—All prisoners entering hospital are sent to the prison ward and the adjutant notified. All women entering the hospital as patients must be admitted by order of some officer authorized to issue such an order; the adjutant is notified of these admissions. All patients entering the hospital for observation with a view to S. C. D. are sent to the proper ward and the chief of service is notified.

Care of Cases in Wards.—When a patient reaches a ward, he is immediately seen by the ward surgeon, a complete physical examination is made, and he is placed on treatment. If it is a simple case and perfectly clear as to its diagnosis, it remains under the care of the ward surgeon; if not, and there is a question of diagnosis or the patient is very sick, the supervisor of that section is notified and he immediately sees the case in consultation with the ward surgeon, and advises the treatment or further examination. He writes his opinion on the "progress sheet" and on his next visit follows out the case. In this manner each man is seen by two surgeons. If there is a doubt in the mind of the supervisor, he asks for a consultation with the general consultant or the chief of service; no trouble is too great or no examination too difficult in the care of these men. If the case is one of pneumonia or meningitis, or other disease such as mumps, measles, scarlet fever, etc., the case is immediately transferred to its proper place. At the termination of the disease the patient is sent to the concalescent camp and from there back to the regimental infirmary or to duty or to the development battalion for further convalescence.

Discharges.—When a patient is ready to go to duty the ward surgeon fills out his chart and sends him to No. 1 for his clothing in the morning. All patients going to duty must be ready and at No. 1 at 1:30 p. m. Here their valuables are returned to them; they are asked if they are ready for duty, and if all their clothing has been returned to them. Any difficulties are settled by the ward surgeon in charge of No. 1. Lists of patients are made out on form 45 ("disposition card") according to the infirmaries they are to go to. These forms are sent on the ambulance with the patients to the regimental infirmaries where they are signed and returned to be filed as receipts. The patient's charts which come to No. 1 with the patient at 1:30 p. m., are turned over to the registrar's office for file.

The record officer has charge of the case reports, routine ward reports, and such other records as may be required. He arranges an adequate catalog in cooperation with the epidemiologist and other members of the service, and makes a complete record of groups and individual cases of importance. He must be prepared to make a report on any epidemic or any group of cases or any individual case when called upon.

The personal officer who is the adjutant, must take care of newly arrived officers, assign them to duty, instruct them in their duties, see that they have proper quarters, and in fact do everything to put them in proper shape for immediate work.

Special Cases.—Time will not permit my going into the details of the case of each type of disease, but just a word—all diseases are systematized as far as possible. Various types of pneumonia for instance are placed in wards according to the type, whether hemolytic streptococcus, *Staphylococcus aureus*, pneumococcus, etc., cases of measles, scarlet fever, diphtheria, and other contagious diseases are isolated in separate wards. Stomach cases are taken care of by gastroenterologists, nerve cases by nerve specialists in separate wards. Lung and heart cases are placed as far as possible under specialists in these lines. In fact each disease is looked after as far as possible in a menner to produce the highest efficiency. As an illustration, no surgeon is allowed to prescribe an opiate unless he first examines the patient; again, no case of abdominal pain is allowed to continue without notifying the supervisor or chief of service. These are simply to illustrate to what degree of efficiency the care of these men has been developed.

The *x*-ray department is one of the great developments of the war, is invaluable. Besides pictures are made, chests and hearts examined without distress to patients, and marvelous plates made in unlimited quantities.

The dental department, while not under the direct control of the medical service, cooperates with it, and the dentists are there to examine all cases referred.

Summary.—I think in summing up that a few lessons could be learned from the military hospital in the conduct of our civilian hospitals in regard to (1) Organization, (2) Cooperation, (3) Thoroughness, and (4) Scientific research. Our civilian hospitals should stop the petty jealousies and quarrels that so often disturb the building of an organization. The organization of a civilian hospital can be made just as efficient as a military one if this is done through the cooperation of the various departments by the harmony of the members of the medical board with the board of directors, and with each other. This cooperation will lead to thoroughness in all the work of the hospital and from thoroughness scientific research quickly follows.

The great advantage of the military hospital is in the fact that we do as we are told without question, while in the civilian hospital if we are asked to do something, we hesitate because it may be below our dignity. I recently saw this illustrated when a certain laryngologist who attended the dispensary of a certain hospital refused to see a case in the wards because he did not have the title of attending laryngologist.

In conclusion I wish again to say what I feel all of the other members of the profession will endorse, and that is we have all gained more than we have given; we have tried to do our part, and in doing that part we have built a monument to the medical profession of this country that will last to the end of time.

138 West Ninety-second Street.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, April 26, 1919.

HEPATIC CIRRHOSES OF SPLENIC ORIGIN.

WHEN the spleen, involved in some serious pathological process, ceases to counterbalance a normal hematopoiesis, a plethora from hyposplenia ensues and the increase in size of the spleen is a direct consequence of the polyglobulia. These splenic lesions, often of a tuberculous nature, have nothing in common with those belonging to a hemolytic spleen which also is increased in size. In point of fact, while in the first process the splenomegaly is above all passive and is to be explained as an elastic blood-reservoir undergoing oscillations of the plethora, in the second process, on the contrary, the enormous size assumed by the splenic tissue is an active phenomenon resulting from an exaggeration of the hemolytic functions. This hyperfunction may also be secondary to an affection of the bone marrow—a simple defensive reaction against an exaggerated hematopoiesis—or, on the other hand, it may be primary. In this case, the erythrophagia being exaggerated while the hematopoiesis is not, the latter remains below the needs of the economy, and the clinical picture of splenic anemia—that is to say, an anemia caused by a hypersplenia—becomes realized.

Under the term primary splenomegaly, Debove and Bruhl have described a variety clinically characterized by its insidious onset, the occurrence of painful paroxysms in the left hypochondrium (perisplenitis), extreme asthenia and anemia, and lastly, hemorrhages, especially gastric. As no case has come to autopsy, these writers have been unable to formulate an opinion as to the nature of this type of splenomegaly.

Another type of primary splenomegaly is that described by Banti, which, when typical, undergoes its evolution in three phases. In the first the spleen enlarges and a feeling of weight is complained of in the left hypochondrium, after which a moderate anemia becomes manifest. At the same time there is leucopenia. This first phase lasts for six to ten years. The second, or precirrhotic phase, is characterized by an aggravation of the poor state of the general health and the development of digestive disturbances, which probably are the first manifestations of hepatic insufficiency. This phase lasts a few months, after which the third, or ascitic, phase appears, dominated by the symptoms of cirrhosis and progressing rapidly to death, unless surgical interference arrests the progress of the process. The cirrhosis is usually atrophic. In some cases, however, an increase in the size of the liver, with or without icterus, may be met with. The most likely pathogenesis of this cirrhosis of splenic origin is that it is the result of toxic or irritating products elaborated in the spleen and carried to the liver by the portal system. With material from necropsies other writers have shown that the splenic inflammation may extend by continuity to the walls of the vein and thus attain the portal spaces in the liver. In other words, there is a true chronic splenoportal endophlebitis.

Banti is of the opinion that the affection is primarily a splenic one, basing his supposition on the preexistence of the splenomegaly in relation to the hepatic lesions. According to Oettinger and Fiessinger, the splenic lesions are the index of a hemolytic process due to blood changes. It is probable that it is the effect of a slow infection or intoxication bringing about the repetition of hemolytic acts. Whether the process is syphilitic, malarial, or tuberculous is yet obscure. Finally, there is the considerable hypertrophy offered by both the liver and spleen in phlebitis of the portal vein and the as yet badly explained cases of megalosplenia and megalohepatia of congenital origin.

STAPHYLOCOCCUS AUREUS PNEUMONIA.

THE *Staphylococcus aureus* has long been regarded as an organism of relatively little virulence, found generally in localized infections, though it has been known at times to cause a violent and serious bacteriemia. Its occurrence in bronchopneumonia has generally been regarded as a contamination, and even when found in pure culture the tendency has been to question its etiological significance. The appearance of what seems to be increased virulence of this organism has been thought to be due to a diminution in the resistance of the subject, and, strictly speaking, this is generally true. Certainly when infecting war wounds it is vastly less dangerous than the streptococci. Its importance in bronchopneumonia, hitherto slight, has been much increased as a result of the observations of Chickering and Park at Camp Jackson last fall. (*Jour. Am. Med. Assn.*, 1919, lxxii, 617). These authors made cultures from the lungs of 312 patients who died from pneumonia with the remarkable result that 153 revealed the presence of the *Staphylococcus aureus*, in ninety-two of them unassociated with any other organism. The cultures were made by thrusting a needle deep into the lung tissue and aspirating fluid into a syringe. The results were checked by examination of stained films and also by cultures made directly from the lung tissue in those instances in which an autopsy was performed. The organism was hemolytic and appeared not to differ from the usual virulent strain of staphylococcus isolated from other lesions. These findings

were so frequent and so striking that the authors examined the clinical histories of the patients and have drawn from them a clinical picture which they present as characteristic, if not necessarily pathognomonic, of bronchopneumonia due to the *Staphylococcus aureus*.

After a rather insidious onset the patient rapidly becomes critically ill with a fairly high temperature and a relatively slow pulse. Cyanosis is a pronounced symptom, the "cherry red indigo blue" color being very striking. Pain is not marked and delirium is not frequent. Epistaxis is not uncommon. Physical signs of frank consolidation are often wanting and the *x*-ray examination reveals a lobular consolidation in which the patches may be extremely small. The sputum is purulent and of a dirty salmon pink color when characteristic. There is usually a leucopenia. Complications are not frequent, probably because of the short course and high fatality of the disease. While this seems to be a fairly clear-cut picture, it is probable that it would fit many cases of pneumonia, not due to the staphylococcus, as seen at other camps. Pathologically there has been noted a definite tendency to the formation of abscesses in the lung. The treatment is symptomatic and the prognosis very grave. The authors regard the staphylococcus in these cases as a secondary invader growing rapidly in the tissues of those patients whose vitality has been tremendously lowered by the organism causing what we call influenza. It is not known whether similar bacteriological results were obtained at any other camps, but it was apparently true that certain secondary invaders were characteristic of certain camps, though the reason has not been discovered. It is possible that with the subsidence of this epidemic the staphylococcus will again become of negligible importance in bronchopneumonia, but it is necessary to remember the possibilities of the organism and to appreciate that it may produce a form of the disease which has been described as characteristic.

A DEFECT IN THE MEDICAL LAW.

ANY one who takes the trouble to scan the advertising pages of some of our daily papers, especially the Sunday editions, and of the foreign language press, will be struck with the philanthropy of several members of our noble and altruistic profession. So anxious are they to help their suffering fellows that they spend large sums (in one instance said to be $1,000 a week) to inform the sufferers where they can be cured. One of these gentlemen recently attracted the attention of the *New York Tribune*, one of whose reporters was sent to visit him. The doctor has two offices, one in Brooklyn, the other in Manhattan. The reporter visited the Brooklyn office first and there learned that he was suffering from serious cardiovascular trouble with a blood pressure of 160 and a pulse rate of 162. The treatment necessary for a cure would take three months at $50 per month. Three-quarters of an hour later the reporter was in the Manhattan office and there learned that the heart was absolutely sound, but that the lungs were "infiltrated," a condition which might readily pass into consumption; in this case the patient was told he could be fixed up all right in one month for $55.00. The proprietor of this twin establishment is a graduate of the N. Y. University Medical School and a licensed practitioner. The *Tribune* states that he formerly practised in Chicago under another name, which is a cause for revocation of license, and that he left that city after an exposure of his methods by the *Chicago Tribune*. Here he advertises and practises under his own name.

We don't know whether or not this man's methods have been brought to the attention of the officers of the County Medical Societies of Kings and New York, and we don't know what could be done if they have been. The medical practice law of this State does not forbid advertising, and even indirectly sanctions it in the clause which says that "any person who shall practise medicine or advertise to practise medicine under a name other than his own, or any person not a registered physician who shall advertise to practise medicine, shall be guilty of a misdemeanor." The law provides for a revocation of the license of any practitioner of medicine who is guilty of any fraud or deceit in his practice, or who is guilty of a crime or misdemeanor, or who is guilty of any fraud or deceit by which he was admitted to practice. It is clear the man cannot be proceeded against simply because he advertises, and it might be difficult to convince a jury that he was guilty of fraud or deceit because two of his assistants made two contradictory diagnoses, and both manifestly wrong. It is doubtful whether a law declaring it illegal for a medical practitioner or an association of medical practitioners to advertise could be passed, for it would encounter strong opposition both within and without the medical profession. So long as an association, counting among its directors an ex-President of the United States and a professor of Yale University, can fill pages of the Sunday papers with scare stuff urging the public to come and be examined before it's too late, apparently ignoring the rights of this public's private physicians, it would be manifestly inconsistent to prevent a licensed physician, advertising under his own name, from doing the same thing. It might, however, be possible to find some means for putting an end to such improper practices, and, as is shown in our news columns, the New York County Medical Society is ready to do what it can to abate this evil and to institute proceedings against those advertisers who can be proved guilty of fraud.

EDUCATION OF THE ORGANIC FUNCTIONS IN INFANCY.

THE feeding and management of an infant exert a great influence over its organic functions. Therefore the working of the digestive functions of a child depends largely upon the amount of intelligence applied to the choice of its diet and the man-

ner of its feeding generally. Dr. Eric Pritchard, writing in the *Medical Press*, March 19, 1919, on the education of the digestive functions of the infant, points out that the environment of the newborn infant is largely under the control of human intelligence. When this intelligence is wisely directed the results are good, when unwisely the results are bad. He goes on to say that instances are met with frequently in which the digestive functions have been seriously disturbed, perhaps with permanent results, owing to faulty methods of feeding or management which have been applied during the first few days of life. Moreover, and this is an important fact, most of the symptoms which are associated with digestive disturbances are manifestations of faulty motor functions, and not necessarily due to any failure of the gastric, pancreatic, or intestinal ferments to play their physiological part in the processes of digesting food. These motor functions can be educated to act smoothly and harmoniously. The motor mechanisms of the stomach are apt to be wrongly developed by faulty feeding. During the first few days of life breast feeding evolves the gastric functions favorably by the education afforded by colostrum. After three or four days of life this colostrum is converted into ordinary milk and calls the normal functions of the stomach into play. Pritchard deprecates any attempt to short-circuit this gradual educational process and states that he constantly meets with cases of pyloric spasm in young infants which has been caused by giving unduly large amounts of diluted cow's milk during the first few days of life. He goes so far as to say that any case of pyloric spasm which can be subsequently cured need never occur, and as he has seldom met with a case which has defied treatment, he is inclined to doubt that they need really occur.

Constipation or looseness of the bowels is, to a great extent, a matter of education. The bad custom of giving a dose of castor oil during the early days of life is likely to result in the establishment of faulty and incoordinated reactions. Meconium is the natural means supplied to educate the rectum in the functions of defecation, and if this is immediately discharged by castor oil purgation, the means whereby the rectal and anal muscles learn to practise their periodic duties has been lost or impaired. In short, it is obvious that, if the motor functions of digestion are not properly educated during the earliest days of life, the future of the child may be greatly imperiled; as so much depends on physical efficiency and constitutional soundness.

The Prevention of Typhoid Fever.

Owing to the precautions taken, typhoid fever has been a factor of no particular importance so far as the medical aspects of the war are concerned. This comparative immunity of the Allied armies on the western front to epidemic typhoid fever has been ascribed, and rightly, to sanitary and hygienic measures efficiently carried out and to antityphoid inoculation, but with regard to the influence exerted by each of these methods opinions differ. Some have been inclined to attribute to vaccination effects which are not justified by a close investigation of the subject. Antityphoid vaccination has been proven to be of the greatest value, but, on the other hand, it cannot be looked upon as a substitute for sanitary measures. That is to say, while both these preventive methods are of the first moment, sanitary measures are absolutely essential and vaccination is valuable. In Public Health Reports, of March 28, 1919, this point is strongly emphasized by Colonel Walter D. McCaw. Typhoid and paratyphoid fevers are increasing in the American Expeditionary Forces, and it is insisted upon that vaccination is a partial protection only and must be reinforced by sanitary measures. Colonel McCaw warns that faulty conditions of sanitation that may not be dangerous now will become serious menaces when the warm weather sets in. The means of conveyance are water and food, both of which under the conditions of army life may be easily contaminated, water by drainage from latrines and indiscriminately deposited defecations, and food by hands of carriers and by flies infected at the latrines and by uncovered feces. Consequently, in order to avoid a serious outbreak of typhoid fever in France it is incumbent upon the medical officers to see that every necessary mode of safeguarding the water and food supplies is taken and rigidly enforced. It would be a calamity if a big typhoid outbreak should occur from any slackness or negligence on the part of army medical officers in using sanitary precautions or by relying too greatly upon the preventive virtues of vaccination. This method is good so far as it goes, and should be employed in conjunction with proper sanitation and hygiene. These constitute the first and most important line of defense. and neglect in carrying them out to the last letter may result disastrously. The warning voiced in the Public Health Reports is timely and should be taken to heart by civil as well as military medical authorities.

News of the Week.

New York Newsstands for Cripples.—An amendment has been made to the city ordnance relating to the granting of new licenses for newsstands within stoop lines and under elevated railroad stations, presented to the Board of Aldermen. It was drawn up by a committee of the Red Cross Institute for Crippled and Disabled Men, and is designed to open an avenue of self-support to disabled soldiers and sailors and those physically handicapped as a result of accidents or disease contracted in civil pursuits. This amendment provides that hereafter all newsstand licenses, except renewals of existing licenses to the same person, shall be issued to honorably discharged soldiers and sailors and to other handicapped persons.

Prof. Francis Carter Wood, Director of the George Crocker Special Research Fund, Columbia University, lectured on April 15 before the members of the Georgia State Medical Association and the students of Emery University, at Atlanta, Ga.

The Harvard Medical Society of New York City will hold the only meeting of this season at the

Harvard Club, 27 West Forty-fourth Street, Saturday evening, April 26. Dinner will be served at 7.30 o'clock, after which there will be a special meeting of welcome to hear the experiences of members who have been in the army or navy medical service.

Charitable Bequests.—By the will of the late Charles McElvaney of Philadelphia, bequests of $1,000 each are made to St. Mary's and St. Agnes' Hospitals.

Moving Against Advertising Physicians.—The following resolution was passed by the Comitia Minora of the Medical Society of the County of New York, at its regular meeting, April 14, 1919:

Whereas, The Counsel of The Medical Society of the County of New York made an extensive examination and survey of the medical advertisements for a given time that appeared in the foreign language newspapers published in the County of New York, as well as in the English language newspapers, and prepared a complete list of the names of registered physicians whose advertisements appeared therein, and

Whereas, Most of the papers published in the English language in said county have cooperated with this Society in the suppression of fraudulent medical advertisements, and

Whereas, It is desirable in the interests of public health that the public should not be misled or victimized by false or misleading medical advertisements, and

Whereas, The Health Department of the City of New York has, from time to time, called upon the Counsel of this Society for cooperation in the suppression of such types of medical advertisements;

Be It Resolved, That The Medical Society of the County of New York, through its Counsel, render such assistance as is possible to the Health Department of the City of New York and to the other duly constituted authorities in said city, to suppress by proper proceedings such medical advertisements and to prosecute those against whom legal evidence may be found, who by means of such advertisements may be guilty of fraud or other illegal conduct.

A Physician Sent to Jail for Speeding.—A sentence of ten days in jail and a fine of $100 for speeding, imposed upon a physician of this city in the Adams Street Police Court, last January, was upheld last week by Judge May in the County Court, in Brooklyn. The physician claimed he was on his way to visit patients, but the court held that "a physician has no rights upon our highways superior to those of any other motorist." An emergency, he said, might occasionally confront a physician who was called in a life or death case, where his haste to give relief might be partially excused or entirely overlooked, but as this was the sixth offense of the accused it was not possible to overlook it.

Citations for Distinguished Services.—Col. Ernest G. Bingham, U. S. Army, has received the Distinguished Service Medal for exceptional meritorious and distinguished services as chief surgeon of the Paris District, where he most efficiently coordinated the work of the hospitals and ambulance trains in the Paris Group during the second battle of the Marne.

Lieut. Arnold D. Tuttle of San Francisco received the Distinguished Service Medal for exceptionally meritorious and distinguished services in his capacity as assistant to the chief surgeon, and later as member of the General Staff, A. E. F. He superintended the preparation of hospitalization plans and their execution, and assisted in the evacuation of the sick and wounded from the battlefield in such a manner as to greatly increase the efficiency of his department.

Col. Fred T. Murphy of St. Louis has received the Distinguished Service Medal for meritorious and distinguished services. As director of Base Hospital No. 21, as supervisor of the evacuation of the sick and wounded of the First Army, and later as director of the Bureau of Medicine and Surgery of the American Red Cross, he rendered most valuable service to the A. E. F., displaying unusual administrative and professional ability and a genius for organization which contributed greatly to the efficiency of the medical service of the army.

Lieut.-Col. Joseph M. Flint of New Haven, Conn., has received the Distinguished Service Medal for exceptionally meritorious and distinguished services when placed in a position of great responsibility as commanding officer of Mobile Hospital No. 39, Aulnois-sous-Vertuzey, France, where he used extraordinary skill and sound judgment in the organization and operation of that unit, the first of its kind in the A. E. F.

Col. Burton J. Lee of New York has been awarded the Distinguished Service Medal for exceptionally meritorious and distinguished service as surgical consultant attached to the Second Division. He served continuously at the front, organizing his forces for the treatment and evacuation of the casualties with unusual skill and marked success. He displayed unusual ability in the operations before Soissons, when in an emergency he organized and personally led and directed surgical teams which cared for hundreds of wounded soldiers, at a time when adequate hospital facilities could not be established.

Hospital Unit for Turkey.—The American Women's Hospital, which has been operating a hospital at Luzancy, France, and maintaining a chain of dispensaries in the country around Soissons and Chateau-Thierry, is now launching a campaign to raise $250,000 to be spent in the Near East. It is planned to establish a hospital at Aleppo. A unit of six doctors has been selected; they will be the first women to be put in charge of a hospital in the Turkish domain.

Tribute to War Nurse.—Brigadier General Francis Winters, M. C., U. S. Army, in a special communication to the press calls attention to America's gratitude to Miss Jane Delano, who died at Base Hospital No. 8, Savanay, France, on April 15. She was formerly superintendent of nurses at Bellevue Hospital, New York, coming into the army in 1908, in response to an appeal from the Surgeon General for help in reorganizing the Army Nurse Corps. Later she took the direction of the Red Cross Nursing Service and went to France in that capacity. Brig. Gen. Winters compares Miss Delano's work to that of Florence Nightingale, and suggests a fitting memorial in the Red Cross Building in Washington.

Restless Students.—April 9 was a day of unrest for students in South America. In Buenos Aires seven thousand high school students went on strike to enforce their demand for the abolition of entrance examinations in the National University. In Rio Janeiro the students in the law and medical departments of the National University of Brazil went on strike demanding free passes on the street cars.

Medical Examination of Employees of Armour & Company.—Plans are being made by Armour

& Company for the renewal of the medical examinations of the 12,900 men and women working in the Chicago plant of the company, which was discontinued during the war. Dr. Volney S. Cheney and his assistants will have charge of the work.

Doctors Fight Health Insurance.—The Medical Society of the County of Rensselaer (N. Y.), which is opposed to the health insurance measure before the Legislature, is incensed against Senator John J. Mackrell of that district because he voted for the bill and is reported to be making plans for his enforced political retirement.

Medical Society Elections.—The NEW YORK SURGICAL SOCIETY, at its annual meeting, held April 9, 1919, elected the following officers for the ensuing year: *President*, Dr. William A. Downes; *Vice-President*, Dr. John A. Hartwell; *Secretary*, Dr. Ransom S. Hooker.

The HOMEOPATHIC SOCIETY OF THE STATE OF NEW YORK, at its sixty-seventh annual meeting, held in Brooklyn on April 7, elected the following officers for the ensuing year: *President*, Dr. Roy Upham of Brooklyn; *First Vice-President*, Dr. Arthur S. Grant of Utica; *Second Vice-President*, Dr. Samuel B. Moore, Manhattan; *Third Vice-President*, Dr. T. D. Buchanan, Manhattan; *Secretary*, Dr. Grace Kahrs, Manhattan; *Treasurer*, Dr. Gertrude G. Mack, Manhattan; *Necrologist*, Dr. Glen I. Bidwell, Rochester; and *Counsel*, Edwin Van Wormer, Albany.

The ST. LOUIS PHYSICIANS AND SURGEONS' SOCIETY, organized on April 1, 1919, elected Dr. L. C. McElwee *Chairman* and Dr. H. Grosby, *Secretary*. The society held its first meeting on April 7.

Government Survey of Drug Addiction.—A special committee, composed of G. C. Keith, deputy commissioner in charge of narcotics of the Internal Revenue Bureau at Washington; Professor Reed Hunt of the Harvard Medical College, Dr. A. G. du Maz of the Public Health Service, Lieut.-Col. Pearce Bailey of the United States Army Medical Corps, and Representative H. T. Rainey of Illinois, appointed by the Secretary of the Treasury to make a national investigation of the drug habit, have recently submitted a survey. This report seems to show that native born Americans are more prone to the drug habit than other white races, and that the drug habit is more widespread in the United States than anywhere else on earth. In some parts of the country, notably in large cities like New York, Philadelphia, and Pittsburgh, the liquor and drug habits were found to be gaining more victims side by side, while in other parts of the country, where prohibition had gone into effect, extensive use of paregoric and similar compounds containing morphine was discovered. In Jacksonville, Fla., 800 drug victims were found out of a population of 7,000. The number of drug victims were found out of a population of 7,000. The number of drug victims in the United States is estimated at not less than 1,500,000. There is no part of the country without them and no State where the growing evil has not been a problem. The experience of the war shows that excitement and overstimulation is responsible to some extent for the increase in the use of drugs. The report points out that if drug addiction is to be controlled the individual States will have to pass supplementary legislation, and thus far only three States have done this, namely, New York, Massachusetts, and Tennessee. In seeking to prevent the drug evil from extending its grip when prohibition goes into effect the authorities at Washington propose to seek the closer cooperation of physicians.

The Drug Campaign in New York.—The New York City Branch of the State Narcotic Commission has opened an office in the Department of Health Building, and intends to open clinics in this city and throughout the State, working in cooperation with local health boards. A clinic has been opened in Albany. The clinics in New York City will be temporary, and arrangements will be made with the hospitals for the after care of drug addicts. The Worth Street Clinic, which was opened about a week ago, has treated 3,931 drug addicts, an average of about 700 daily. The Health Department will open no additional clinics at present, but will continue to conduct the clinic at 145 Worth Street. Statistics taken from 214 drug addicts visiting the clinic show that most of them are engaged in unskilled occupations. Thirty-four pursuits are represented. There were four doctors, a newspaper man, and a teacher among the number. At least 20 per cent. of these addicts were employed in transportation work. This constitutes a menace to the traveling public and steps are contemplated to prevent the employment of such persons by transportation companies. Dr. Walter B. Herrick has been appointed chairman of the State committee.

St. John's Guild Seeks Funds.—St. John's Guild, which for the past fifty-two years has maintained the Seaside Hospital at New Dorp, Staten Island, and operated the Floating Hospital, has begun a campaign to raise $150,000 for a nurses' home at the Seaside Hospital. An anonymous donor has offered to donate $50,000 of this amount provided the trustees can raise an additional $150,000.

Dr. E. S. Loiseaux, City Bacteriologist of Sacramento, has been appointed medical superintendent of the Sacramento County Hospital.

Vacancies for Physicians.—The New York State Civil Service Commission announces that examinations will be held on May 24, 1919, to fill the following positions: Bacteriologist, Department of Health, men only, between the ages of 25 and 40 years. Applicants must have a degree in medicine or an equivalent education and a thorough knowledge of the principles of bacteriology, immunity, and vaccine and serum therapy, and must have had considerable practical experience. The position carries a salary of $2,000 to $2,500. Assistant bacteriologist, Department of Health, for men only, between the ages of 21 and 35 years. Candidates should have a collegiate education or its equivalent, and thorough knowledge of the principles of bacteriology and infection and immunity, together with practical experience in the bacteriological diagnosis of infectious diseases. The salary is from $1,200 to $1,800. Assistant physician, regular or homeopathic. This examination is intended to provide eligibles for the position of assistant physician in the State hospitals and for other positions of a similar nature in various State and county institutions. Applicants should have had at least six months' practical experience on the resident staff of a general hospital or as medical interne in a State hospital, or have been engaged at least one year in the

practice of medicine. The position carries a salary of $1,200 with increase and maintenance. Applications must be in the hands of the Civil Service Commission, Albany, N. Y., not later than May 14, 1919.

Obituary Notes.—Dr. H. Augustus Wilson of Philadelphia died of chronic nephritis on April 16, at the age of 65 years. He was graduated from Jefferson Medical College in the class of 1879. He became in 1879 ophthalmologist to St. Mary's Hospital, in 1880 pathologist to the Presbyterian Hospital, was from 1879 to 1892 lecturer in the Philadelphia School of Anatomy, became in 1885 assistant surgeon to the First Infantry Regiment of the National Guard of Pennsylvania, in 1888 professor of mechanical surgery in the Philadelphia Polyclinic Hospital and College for Graduates in Medicine, later professor of general and orthopedic surgery in the same institution, and since 1897 emeritus professor; in 1889 clinical professor of orthopedic surgery in the Women's Medical College of Pennsylvania, in 1891 clinical lecturer on orthopedic surgery in Jefferson Medical College, in 1892 clinical professor, and he was from 1904 to 1918 professor of orthopedic surgery; in 1900 he became orthopedic surgeon to the Philadelphia General Hospital, in 1906 orthopedic surgeon to St. Agnes' Hospital. He also served as consulting orthopedic surgeon to the Kensington Hospital for Women and to the Philadelphia Lying-in Charity. He was a member of the Philadelphia Academy of Surgery, of the Philadelphia County Medical Society, of the Medical Society of Pennsylvania, of the American Medical Association, of the American Orthopedic Association, and a Fellow of the College of Physicians of Philadelphia and of the American College of Surgeons.

Dr. George Edwin Day, retired, a graduate in medicine and dentistry, died at his home in New York on April 7, aged 85 years.

Lieut. Col. Lewis T. Griffith, M. C., U. S. Army, of New York, died in France on April 8, aged 46 years. He was a graduate of the Albany Medical College in 1897, served in the Army Medical Corps through the Spanish-American War, and later in the Philippines. He went to France in September last to take charge of Base Hospital No. 76.

Dr. Albert A. Appel of Haddon Heights, N. J., died in his office at Philadelphia on April 9, at the age of 47, as a result of heart disease. He was graduated from Hahnemann Medical College and Hospital in the class of 1898.

Dr. Joseph Cummings Poffenberger died at Sunbury, Pa., on April 9, at the age of 31 years, as a result of pneumonia complicating influenza. He was graduated from Jefferson Medical College in the class of 1912. He was a lieutenant in the Medical Reserve Corps of the United States Army, a member of the Northumberland County Medical Society, of the Medical Society of the State of Pennsylvania, and of the American Medical Association.

Dr. Alfred J. Becker died of apoplexy at Catasauqua, Pa., on April 16, at the age of 58 years. He was graduated from Hahnemann Medical College and Hospital in the class of 1885. He was a member of the Homeopathic Medical Society of Lehigh County.

Dr. Reuel Baker Kimball of New York and Seabright, N. J., died at the Stern Hospital, New York, on April 18, aged 64 years. He was a graduate of the College of Physicians and Surgeons in 1880, a member of the New York Academy of Medicine, attending physician to the Babies' Hospital, and consulting physician to the Monmouth Memorial Hospital, Long Branch, N. J.

Dr. James W. Harris, a graduate of the New York Homeopathic Medical College in 1882, died from pneumonia at his home in New York, on April 13, aged 72 years.

Dr. James Herman Betz of Jamaica, New York, a graduate of the Pennsylvania Medical College, and for many years an employee of the New York Health Department in Queens, died on April 17, aged 60 years.

Dr. William J. Hurley, retired, formerly of New York City, a graduate of the New York University Medical College, died at his home in Elizabeth, N. J., on April 16, aged 60 years.

Dr. John Devoe Martinez Cardeza, a graduate of the University of Pennsylvania, in 1877, and of the University of Heidelberg, Germany, formerly a practitioner of Claytown, Del., died at the home of relatives in Brooklyn, N. Y., on April 15, aged 79 years.

Dr. Norton Harkness Kirkland, formerly of New Haven, Conn., who made a special study of tropical fevers, died recently of blood poisoning at Brighton, England, aged 58 years.

Dr. Abraham Branaman, a graduate of the Kansas City Medical College, in 1898, died suddenly on April 1, aged 63 years.

Dr. Pearl Tenney Haskell, superintendent of the Bangor State Hospital, died suddenly on April 13, aged 51 years. He was a graduate of Bowdoin Medical College, in 1893, practiced medicine for ten years in Wakefield, N. H., and then became assistant superintendent to the New Hampshire State Hospital. He became assistant superintendent of the Bangor State Hospital in 1914, and superintendent in July, 1917.

Correspondence.

OUR ATTITUDE TOWARD GERMAN PHYSICIANS.

To the Editor of the Medical Record:

Sir:—The sentiments expressed in your editorial of December 14, 1918, ably championed in later issues by Drs. W. W. Keen and Charles A. Powers, suggest the following comment.

American physicians and surgeons are a unit in placing a low estimate upon the morale of the German medical profession as a body. The arrogance of the latter, their false pride, unwarranted assumption of superiority, ruthless depreciation of the achievements of men of other nations, and open violation of the established rules of ethical conduct are matters of common knowledge.

The idea of according full fellowship to German doctors "to arrive" is repulsive to most Americans. Experiences of the past four years have given us a new point of view, and we have a clearer vision of German thought emanating from their centers of learning and from individual men of science. Never again will Teutonic universities assume the

rôle of "Mecca" for the numberless thousands of students who have perennially worshipped at their shrine, and who with grave serenity have accepted their false philosophy. In a word, the non-Germanic world has awakened from a forty-year obsession.

Furthermore, we have ample evidence that the German profession as a body brazenly and unreservedly endorsed the Hohenzollern policy in the conduct of the world war. Beyond question, the doctrine of frightfulness, as set forth by Treitschke and his school, became the inspiration not only of men of science but of the German people far and wide. No word of protest in the face of atrocities fiendish and without precedence in human annals has ever come out of Germany. Entire absence of human sympathy, numberless examples of cruelty, brutality, and criminal neglect of plain duty as recognized by the humane of all *civilized* nations form a conspicuous chapter in the recorded annals of this world war.

If there be exceptions, as you intimate there may be, individuals have failed through inadvertence (?) or cowardice to voice their protests. In reviewing the vast chronicles of inhumanities and horrors we have reiterated assurances that the German people are one in sentiment.

Col. George Harvey authorizes the statement that the Universities of Leipsig and Heidelberg have had the effrontery to ask the Universities of France for a resumption of pre-war relationships. This request was made on the theory that there are no racial or national lines of demarcation in the world of science. The French rejoinder is forceful if not final in its suggestiveness. Freely paraphrased, it is as follows: The most scathing indictment of the German people rests upon the fact that they do not appreciate the enormity of their moral wrong. Let them seek an answer to their cringing demand from the people who were driven from the battle zone of France, who were ruthlessly robbed of their homes, their fortunes, and their lives under the pernicious doctrine that might makes right. They best understand the depths to which the German mind can descend.

It cannot be doubted, as Dr. Powers states, that the German profession is already insidiously paving the way for reinstatement in American medical organizations and for reestablishment of full fellowship with the medical profession.

Americans will act wisely in adopting the attitude of their colleagues in pallid, war-worn France, the noblest of all our allies, who know best the moral degradation of men who have lent their approval to the unspeakable philosophy of the "Fatherland." In my opinion this matter can be safely left for final adjustment, first to the individual American physician, and finally to our most representative judicial body, the American Medical Association.

THOMAS W. HUNTINGTON, M.D.
SAN FRANCISCO, CAL.

Mitochondries and Symbiotes.—Regaud states that between mitochondries and ordinary microorganisms there are no essential differences, but numerous superficial distinctions, the former being readily deformed and but slightly resistant to mechanical, chemical and autolytic agencies. By mitochondries he means the symbiotes of Poirier.—*La Presse Médicale.*

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, March 27, 1919.

Pensions to Hospital Doctors.—Shortly before the war, in the spring of 1914, the executive committee of King Edward's Hospital Fund for London appointed a sub-committee to consider the question of pensions for hospital officers. The sub-committee consisted of Mr. W. J. H. Whittall, Fellow of the Institute of Actuaries, who acted as chairman, Mr. H. L. Hopkinson, and one well-known medical man, Sir William J. Collins, M.P., who is also an ex-chairman of the London County Council. The enquiry was held at the instance of the Hospital Officers' Association, who submitted to the sub-committee a statement of the hardships suffered by hospital officers by the lack of ability to make proper provision for old age or retirement; and the terms of reference were "to enquire into and report as to the existing provision for pensions for officers and staff employed in the London voluntary hospitals, and to recommend changes of extensions of the existing arrangements." The enquiry, it should be added, was welcomed by the London hospitals, which institutions were consulted by circular letter in order to ascertain their opinion of the movement. The replies to the circular letter indicated that the enquiry would be very generally welcomed, and that there was reason to believe that any practicable suggestion for getting over the difficulties in the way of securing pensions, particularly in the case of medium-sized hospitals, would receive the sympathetic consideration of the various hospital authorities. The report, which has now been issued, investigates fully the difficulties that arise in providing pensions in the case of hospital officers, which difficulties are specially indicated by the meager provision to such an end as at present exists. While the principle of pensions for hospital officers is generally recognized, and while at some hospitals there are schemes in force there is no regular pattern for making such provision, individual cases being treated as requiring a special act of benevolence on the part of the managing authorities.

It became evident in the course of the enquiry that migration from the service of one hospital to that of another involved the loss of all claim to pension resulting from years of service at the first hospital, while on general grounds the grant of pensions to superior officers deranged the finances of institutions which exist for the dispensation of public charity. With this last objection the sub-committee deal succinctly in their report. They state the objection to the gift of money, subscribed to hospitals for the treatment of the sick poor, being used in the grant of pensions, only to dismiss it as based on a confusion of ideas. "The grant of a pension," they say, "is not an act of charity involving a diversion of the funds of the hospital from the particular charitable purpose for which they were given, ... it is the method of paying to an officer a certain portion of the remuneration which he has earned, and the payment of which is part of the ordinary expense of carrying on the work." They then analyse the schemes that exist for the granting of pe-

sions in the six London hospitals where such schemes are in operation, later discussing the position at the ninety-nine London hospitals which have no such schemes. The six London hospitals with general pension schemes are St. Bartholomew's, the London Hospital, Guy's, Middlesex, St. George's, and the Cancer Hospital, all of which large institutions have endowment, though the charities benefit to a very variable extent by such private income. The pensions at these six hospitals are based on the usual Civil Service pension scheme laid down by the Superannuation Act, they are non-contributory, and are calculated at a certain fraction of the final salary for each year of service up to a maximum of two-thirds of the final salary. Dealing with the hospitals without schemes, the sub-committee classifies the pensions paid in 1913 to the total staffs, salaried staffs and weekly-wage staffs, when it is at once seen that in the 99 hospitals without schemes, only seven salaried officers retired from age, and those officers received on the average less than one-seventieth of the salary for each year of service, as against the proportion of nearly one-fiftieth in the hospitals with schemes.

The uncertainty and lack of uniformity in any existing provision of the London hospitals for the granting of pensions is made completely clear by careful analysis supplied in the report. The sub-committee endeavor to analyze and correlate all the methods by which pensions are granted under existing schemes, classifying them according to the method of financial provision; they then apply these experiences, thus brought together and analyzed, in order to answer the fundamental questions. Their final recommendation is that a joint conference of hospital representatives should be invited to consider the whole question of a scheme "based upon recourse to insurance companies." They reject "the mutual principle" unless a sufficient financial guarantee can be provided outside the mutual fund; and this the hospitals are unable to ensure. They recommend that in addition to the hospital staffs and officers, care should be taken that the nursing staffs and weekly-wage class are separately represented and that experimental calculations should be based on a ten per cent. contribution, each party to the pension scheme paying five per cent. Such a scheme, of course, would be obligatory upon all accepting new appointments. In cases of existing staffs a similar total contribution would have to be made on mutually agreed terms for each year of future service, a procedure which would greatly reduce the cost of private pensions in arrear. The sub-committee recommends that in order to raise the status of hospital service every year of work should command a vested right to pension, so that the benefits of any existing policy would follow the officer either on withdrawal generally or on migration to another institution.

This is the general recommendation of the sub-committee, but in a dissentient memorandum Sir William Collins finds himself unable to concur in the conclusion that a scheme based on a recourse to insurance companies is the only possible solution of the problem. Sir William Collins considers that the conference of hospital representatives which will follow upon the report should have before it not only the plan based upon the methods of insurance companies, but the various alternatives presented in the report, such as the Civil Service and other State Service patterns, the pattern adopted by the police, and the asylum officers, and the schemes of great railway companies, where, for the most part, the amount of the pension depends upon the officer's future salary. He recalls in his memorandum the fact that pensions to officers are already regarded by King Edward's Hospital Fund as legitimate expenditure of hospital revenue, quotes the statutory powers of the fund in respect of its general funds and gifts for special purposes, and suggests that if the King's fund by subvention or guarantee were permitted to render financial aid, a mutual scheme would become feasible.

The whole report is a most valuable document, because it brings within the covers of a readable book the causes and details of much financial disorder and much injustice known to exist in the management of these great charities, and known moreover to exist there to the extreme dissatisfaction of all the authorities concerned. Every one is aware that hospital officers deserve pensions; the result of this close investigation of the circumstances should be prompt reform.

The Exclusion of Ireland from the Operation of the Ministry of Health Bill.—The exclusion of Ireland from the operation of the Ministry of Health Bill was a tactical error. It conveys the impression that the public health of Ireland is of less concern to the empire than the public health of other possessions and divisions of the kingdom. The Attorney General for Ireland is accordingly proposing to press for the inclusion of Ireland in the bill.

The Diminishing Population of England and Wales.—In the last quarter of 1918 the number of civilian deaths in England and Wales actually exceeded the number of births by 79,443. The message of the Registrar General, concealed behind these figures, is that pestilence has recently taken the place of war in reducing population. It is true that 8000 more births were registered than in the corresponding quarter of 1917, and that the period in question corresponded with a devastating pandemic of influenza, but that in any period like a quarter of a year the deaths should exceed the births is unknown in England in modern times.

CANADIAN LETTER.

(From an Occasional Correspondent.)

MONTREAL, April 14, 1919.

Federal Department of Health.—Although the war has not exerted a direct influence upon the movement for the establishment of a federal department of health for Canada, it has exerted a strong indirect influence. That is to say, the question of such a department has been discussed for some considerable time, and there is little doubt that the project would have come to pass in the course of time, but the events of the war have greatly hastened the decision of the Cana-

dian Government to create a department of this nature at once. The speech from the throne at the opening of the present session has announced that the Dominion Government is pledged to bring into being a ministry of health. Perhaps the prevalence of venereal disease among returned soldiers and the necessity for coping with the problem adequately has had a great deal to do with the prompt action. Also, there are several other matters which come within the domain of public health upon which attention has been focussed by the war and which it is incumbent upon the Government to deal with rapidly and effectually. For instance, there is the question of immigration and housing, both of which call loudly for attention. The debate in the Canadian Parliament on the bill for the creation of a national department of health was introduced by Hon. H. W. Rowell and was discussed by some well-known Canadian medical men. During the debate Mr. Rowell pointed out that figures indicative of the physical condition of Canada's young manhood, as revealed by the medical examination were not by any means encouraging. Of a total of 361,695 young men who passed through the hands of the doctors 180,440 were found physically fit, while more than half of that number, 181,255, were rejected for one defect or another. These figures disclosed the necessity for taking measures to improve the public health. Thousands of young men found unfit were probably in that condition as a result of preventable causes. Mr. Rowell also gave statistics with regard to the comparative mortality of infants under one year of age in certain countries and in Canada: New Zealand, 50 deaths per thousand babies under one year of age; Australia, 68; Sweden, 70; Switzerland, 91; Denmark, 95; England and Wales, 110; France, 78; Russia, 248. In Canada, Saskatchewan, 91; Prince Edward Island, 93; Ontario, 107; British Columbia, 107; Manitoba, 113; Nova Scotia, 120; Quebec, 153. Compared with London, England, as regards the mortality of infants under one year of age, Canadian cities were as follows: London, England, death rate for infants was 89 per 1,000, while Toronto was 109; Vancouver, 126; Winnipeg, 144; Quebec, 203; Montreal, 207; Ottawa, 224. The speaker further drew attention to the fact that venereal disease was more prevalent among the civil population than among the troops. He urged that as nothing was so important to public health has good housing, so the housing scheme of the Government would be entrusted to the Department of Public Health.

Dr. Charles Sheard of Toronto, a former head of the Toronto Board of Health, insisted that it was essential to develop scientific research and laboratory work as a feature of the proposed Department of Health. As for venereal disease, Dr. Sheard advocated a most careful examination of persons coming into Canada at the port of entry. Cases of this kind should not be allowed to come into the country at all because if they were allowed, the result was injurious to the national health as well as to the national purse. If any soldiers or their relatives returned with contagious disease they should be cared for by the Federal Government. Dr. R. J. Manion suggested that the minister in charge of the department should not be a medical man, but expressed the hope that the very best public health authority available should be chosen for the position of deputy minister. He mentioned the names of three eminent medical men—Dr. T. Starkey, Professor of Hygiene at McGill University, Montreal; Dr. Amyot, Professor of Hygiene at Toronto University, and Dr. Hill, formerly of London, Ont., and now in Minnesota. His reason for hoping that the minister in charge would not be a medical man was that as a doctor he could say that the ordinary medical man had very little knowledge of public health.

Canada then is the first of the English-speaking countries to resolve on the formation of a department of health, and her example will soon be followed by England and Wales. It is a new departure of the utmost consequence, and if the bill be wisely drafted should exercise a most favorable influence on the public health. There will be a certain amount of overlapping, but that can be regulated, and there seems to be no doubt that Canada has taken a step highly calculated to advance the cause of preventive medicine. It is, however, very essential to the successful working of the scheme that medical health authorities should play a leading part in framing the bill and also in carrying its provisions into effect; at any rate, in an advisory capacity. It is absolutely true that the health of the people is the supreme law, and no trouble nor expense should be spared to foster good health among the masses. But as was pointed out editorially in the MEDICAL RECORD April 12, 1919, the medical profession should have a voice in the formation of a department of health, and politics should wield no influence in the matter which so closely concerns the health and therefore the prosperity of a nation. It may be stated that an appropriation has been made recently by the Canadian Government of $25,000,000 for housing purposes.

The Returned Medical Man.—The medical man who offered his services to his country and who thereby, to a greater or less extent, sacrificed or, at any rate, injured his future is deserving of consideration. It is, of course, a problem in Canada, as in Great Britain, and in the United States. The absence from practice has borne, and will bear, more heavily on some men than on others. For the young men of the profession it was in many instances a useful experience and somewhat of an adventure. The rich or well-to-do men did not suffer greatly materially, although they gave up a great deal. But the men who were settled in practice and were making a comfortable living and not much more, gave up practically everything, and it will be hard, indeed, if by their self-sacrifice they and their families suffer in the future. A letter on the subject has been published recently in the *Montreal Star*, written by Sir Robert Philip, president of the Royal College of Physicians of Edinburgh, and by Dr. R. McKenzie Johnston, president of the Royal College of Surgeons, Edinburgh. It is pointed out that it is one of the problems of demobilization deserving of sympathetic consideration from the public. Many doctors who throughout the war have held

commissions in the Navy, the Army or Air Force have now to face the question of return to civil practice. This is for them far from an easy matter. The natural growth of their practices has ceased during their absence in spite of loyal help given, in most instances by colleagues, who deserve all thanks for their ungrudging efforts and by professional committees to hold together the practice in the interest of the absentee, the normal wastage due to deaths, changes of residence, etc., has had the effect of materially reducing the practice from what it was in 1914. Beyond such unavoidable influences there is risk of curtailment from other causes. It is known to us that many of these who have been absent with the forces of the crown view their future with grave anxiety. In a profession like medicine, where the work is essentially personal, the future of the men evidently depends largely on the attitude of the general public. It is greatly to be hoped, therefore, that every patient will feel it an honorable duty to return, wherever possible, to the old doctor, and that public institutions will reinstate, as far as they can to their former positions, those medical officers who have sacrificed so much to the call of the Empire.

Dr. Sir Robert Philip and Dr. R. McKenzie Johnston have put their fingers on the crucial point as regards the future of the returned medical man when they say that it mainly depends on the attitude of the general public. After all, a practice is largely a personal matter, and a medical man makes his living, to some extent, by his individuality and mostly by his capacity to establish confidence. The break in the relations of doctor and patient made by the war will not be easy to cement, but if the patients are loyal to the individual as well as patriotic the returned medical man will be able to commence anew under favorable auspices.

Education in Public Health Affairs.—The people at large are beginning to become interested in public health work and to understand that in the furtherance of preventive methods lies the hope of their physical salvation. There is yet, however, a large field open for propagation of public health teaching, and it is encouraging to note that in Western Canada the authorities are well alive to the situation. Recently in the Western Provinces a series of public meetings have been planned throughout the various school districts to supplement the work of the public health nurse, to arouse and stimulate interest in the phase of public health activity, and to preach the gospel of health. According to the *Canadian Medical Association Journal*, April, 1919, the history of the new venture is brief, the movement having begun in 1916 with four nurses, which number was increased in 1917 to ten or twelve, and in 1918 to about eighteen. Fifty would be needed to cover the ground properly.

The public health nurse does no actual nursing except to give first aid. The public service nurse does visiting nursing. The provincial government, the municipality, and the school district pay each one-third of the salary of these nurses. Thirty or forty schools come under their inspection, in addition to numerous home visits which have to be paid. The aim is to secure for every school child an examination to determine physical fitness and, whenever that is lacking, to suggest to parent and child means to achieve it. The work of education goes on constantly and incidentally between school and home as a consequence of these visits. An Honor Club is established among the children not to keep any sickness a secret. The mothers are helped with hints about safeguarding young life and prevention and the golden rule of quarantine are taught effectively. In the Western Provinces the public health nurse is greatly needed on account of the sparsely populated country. In fact, she is a godsend to the sick in out of the way districts to which the visit of the medical man is necessarily a rare event.

Sanatorium in Alberta.—A sanatorium is to be built by the Dominion and Provincial governments near Calgary. The Federal Government will grant the extra appropriation of $60,000 which will be necessary to build the addition asked for by the Alberta medical profession, providing room for another seventy-five civilian patients. The total expenditure will be $460,000, of which the Dominion Government will pay $260,000, and the Province $200,000, the entire plant to revert to the latter after the lapse of five years.

The Influenza Epidemic in British Columbia.—The Department of Health of British Columbia has published recently figures showing the mortality in that province from influenza during the months of October, November, and December. Two thousand and fourteen died during these months. The figures given do not include any deaths that were not certified to as from "influenza" or "pneumonia following influenza." Other forms of pneumonia are not included. The percentage which the deaths from influenza or from pneumonia following influenza bore to the total deaths from all causes was 43.05.

Progress of Medical Science.

New York Medical Journal.

April 12, 1919.

1. What the General Practitioner Should Know About Chronic Gonorrhea. Abr. L. Wolbarst.
2. Homonymous Hemianopsia and Central Scotoma in Neurological Cases, with Question of Localization. I. S. Wechsler.
3. Birth Injuries. J. C. Applegate.
4. Artificial Pneumothorax in Pulmonary Tuberculosis. Le Roy S. Peters.
5. Circulatory Complications in Influenza. Notes on the Epidemic in the U. S. Marine Hospital, Stapleton, N. Y. Z. I. Sabshin.
6. Joint Hypotonia, with Report of a Case. Samuel A. Jahss.
7. Personal Observations of Military Surgery at the Belgian Front. Victor A. Robertson.

5. Circulatory Complications in Influenza. Notes on the Epidemic in the U. S. Marine Hospital, Stapleton, N. Y.—Z. I. Sabshin draws attention to the fact that close bedside study of cases of influenza shows one general feature, namely, that the circulatory system is the primary seat of complications, in some form or other. This is true during the acute stages and in the course of convalescence; furthermore, patients complaining of some circulatory disturbance frequently give a history of recent influenza. The greatest mortality of the epidemic has been due to acute cardiac or general circulatory complications, the other phenomena, including pneumonia, being in reality secondary. During the acute stage we find: slow pulse, compara-

tively low blood pressure, arrhythmias, murmurs, diffuse apex beat, feeble cardiac sounds, pain over the precordium, associated with cold extremities, sweating and dilated pupils. During convalescence and frequently long thereafter there are feeble cardiac sounds, diffuse apex beat, irregular variations in the pulse rate, stenocardia, shortness of breath, and general signs of neurocirculatory asthenia. Such signs point to vasomotor paralysis and an abnormal condition of the heart muscle. Sabshin has observed the effect of atropine on the pulse rate of convalescents, and in no case was there increase in this rate, and he concludes therefore, that the slow pulse in the influenza convalescent is probably due to changes in the cardiac muscle itself. Clinical observations all point to a damaged or deranged circulatory apparatus, the degree of disturbance varying directly with the intensity of the acute course of the influenza. The author believes that the improvement of the pulse and general condition of the patient occurring with the crisis in pneumonias is due not to a sudden local change in the anatomy of the lungs but to some change in the nervous control of the circulatory mechanism, and that the rapid fatal cases are not due to local anatomical findings but to primary circulatory failure, to which pulmonary changes are but secondary. Congestion is a striking clinical feature and becomes a chronic factor in many cases, a cause of suffering to the patient and a diagnostic puzzle to the doctor. This congestion is of an active rather than passive nature. Its early appearance in all mucous linings, and in the form of bubbling and crackling râles in the lungs, which last long after the acute stage is over, with no swellings or edemas anywhere else in the body, is in favor of its active origin, rather than as a result of myocardial inefficiency. In such cases the physical findings are suggestive of tuberculosis, but the tubercle bacillus is not found in the sputum. Pleuritic, and sometimes pericardial, adhesions are shown by the *x*-ray. Sabshin gives the rationale and order of events as a vasomotor paralysis, local or central, an active congestion, a toxic hemorrhagic edema, a rapid process of destruction, with threatening of perforation of the viscus, in which case nature tries to protect itself by fibrinous exudates, thereby forming adhesions. This results in protracted recovery and in delay in clearing of the lungs, the cough, expectoration, and pus formation, simulating and predisposing to tuberculosis. With the fall or reduction in the general arterial blood pressure, resulting from vasomotor depression, there is diminished renal circulation and reduction of urinary output. Albuminuria is common. Postmortem examination usually reveals congestion of the kidneys. In regard to treatment, Sabshin points out atropine given hypodermically in doses of 1/100 grain to one seventy-fifth grain every three to four hours postpones, if it does not prevent, a pulmonary edema in many cases. Strychnine seemed to keep up the blood pressure and was used with digitalin. Morphine and codeine gave comfort. Hot applications were found to give more satisfaction than cold ones. Summarizing his observations, this author states that the patients observed were all males of more than 18 years of age, mostly sailors. He is inclined toward the following conclusions: (1) Influenza is a toxemia of various degrees, with special localization in the circulatory mechanism. (2) In the malignant cases there is a primary paralysis of the vasomotor system, resulting in congestion and hemorrhages internally and externally throughout all parts of the body. (3) Complete recovery from the toxic and protracted febrile course is doubtful, as the congestion favors secondary infections, adhesions, and chronic cardiocirculatory disturbance. (4) Influenza is to be added to the classical list of diseases affecting the heart. (5) The entire circulatory apparatus being deranged, the therapeutic indication is to improve the circulation by stimulants during the acute stage, support during convalescence, and careful resumption of usual occupation thereafter.

Journal of the American Medical Association.

April 12, 1919.

1. The Complement Fixation Test in the Diagnosis of Tuberculosis: A Clinical and Laboratory Study. Henry F. Stoll and Lester Neuman.
2. Immunization Against Measles. D. L. Richardson and Hilary Connor.
3. The Relation of the Lymphocyte to Cancer. L. D. Bristol
4. The Needs of Medical Education as Revealed by the War. Edward L. Munson.
5. The Epidemic Respiratory Infection at Camp Cody, N. M F. H. Lamb and E. B. Brannin.
6. Nontraumatic Hemorrhage of the Suprarenal: Report of Case. F. B. Lusk and A. Braumbaugh.
7. Recurrence of Oral Syphilitic Lesions During Treatment with Mercury: Report of Three Cases. G. O. Scott and G. H. J. Pearson.
8. Enterostomy as an Emergency Measure in the Surgical Treatment of Intestinal Obstruction in Cases of General Peritonitis Following Purulent Appendicitis. A. L Hageboeck and L. H. Kornder.
9. Increased Tolerance and Withdrawal Phenomena in Chronic Morphinism: A Review of the Literature A. G. DuMez.
10. Torsion of an Enlarged Hydatid of Morgagni as the Cause ot Acute Abdominal Disturbance. Chester H Waters.

2. Immunization Against Measles.—D. L. Richardson and Hilary Connor report a series of experiments on immunization against measles, which though too few to be conclusive, are sufficiently suggestive to warrant further investigation. Six children were definitely exposed to measles and were apparently protected from the disease by immune serum; one, used as a control, developed measles. Eight others were partially exposed and did not develop the disease after immunization. Three other patients received virus inoculation and immune serum simultaneously. In two there was no reaction. In the third there was a slight reaction indicated by a transient rise in temperature and an atypical rash. The blood serum was prepared as follows: Blood was withdrawn from veins on the flexor surface of the elbow. It was collected in sterile test tubes marked with the name of the patient. These test tubes were placed in the refrigerator over night. Next morning the serum was decanted into one or more sterile test tubes, the serum of each patient being kept separate and a Wassermann test was made of each. Serums of different patients, reacting negatively, were then mixed for treatment. Record was kept of the time after the date of the rash when patients were bled. The serum was kept in the ice-box for a week without preservative, but if kept longer than that a 0.25 per cent. solution of tricresol was added. Serum was given intramuscularly, into the thigh, usually as a single dose within a few days of exposure. Dosage was from 7 to 25 c.c. No reactions, either local or general, were noted. Virus inoculation was carried out as follows: the virus was collected on cotton swabs from the nose of patient twenty-four hours before the appearance of the rash, and the swabs rubbed gently over the nasal mucosa of the infants it was desired to inoculate.

The Lancet.

March 22, 1919.

1. Milroy Lectures (in abridged form) on Half a Century of Smallpox and Vaccination. Delivered Before the Royal College of Physicians of London on March 13. 18, and 20, 1919. John C. McVail.
2. The Future of the Tuberculosis Problem. P. C. Varrier-Jones.
3. The Y. M. C. A. Agricultural Training Colony, Kinson, Dorset. Major Noel D. Bardswell, M. V. O.
4. Rat-Bite Fever: Two Cases Treated with Apparent Success by a Single Dose of Novarsenobenzol Intravenously. R. V. Solly.
5. Prophylactic Treatment of Constipation in Children. Vynne Borland.
6. Double Resection of Bowel. Four Successful Cases of Gunshot Injury, with a Note on Double and Triple Resections. Gordon Taylor.

4. Rat-Bite Fever: Two Cases Treated with Apparent Success with a Single Dose of Novarsenobenzol Intravenously.—R. V. Solly describes two cases of rat-bite fever, in both of which there was a history of having been bitten by a rat. In each case the intravenous injection of 0.45 grain of novarsenobenzol was followed by a fall in temperature, which remained normal for one month. There was then a slight rise in temperature which lasted in one case for about a week. Since then both patients have been well. No spirochetes were found in either case. A peculiar body, suggestive of the *Spirochaeta icterohaemorrhagica* was observed in one case, and it is suggested that this might have been a couple of spirochetes adhering to a red cell. In the second case, in one culture tube, a bacillus having

the cultural characters of the *B. coli communis* was found, but this was probably a contamination. The author remarks that many diseases other than syphilis might be successfully treated by salvarsan and its substitutes.

5. Prophylactic Treatment of Constipation in Children.—Vynne Borland draws attention to the importance of constipation in children, since it affects so markedly the child's health in later years. It is necessary that the term "constipation" should be correctly understood: it means that, for some reason, the rate of expulsion of the bowel contents and the amount expelled are below normal. The characters of a normal stool must also be understood. In the prevention of constipation, satisfactory hygiene in the home is of paramount importance—abundant fresh air and sunlight during the day, and a fresh, airy room at night, the position of the child in the cot being changed at intervals. Regular periods should be reserved for exercise, according to the child's age. Feeding times should be at definite hours, the child being wakened if necessary. The longer the interval between feeds the better. The author has found that many cases do well on four-hourly feeds; others require five or six feeds per day. In no case should the child be fed during the night, and the essential point is regularity. The bath should be given at the same time every morning and the child trained into the habit of a morning stool after the bath feed. If a laxative is required a dose of syrup of figs may be given at night. Liquid paraffin is the best lubricant. If the bowels have not moved in the preceding 24 hours, a warm normal saline enema, 1 dram to an ounce, is best; large enemas produce distension and loss of tone. If soap is used, a mild superfatted soap should be chosen, since ordinary soap tends to set up catarrh and proctitis, and consequently constipation. Neither method should be pushed for any length of time, as impairment of the normal rectal reflex would result. A binder should not be used after the navel has healed; it prevents proper development of the muscles of the back and abdomen, and when round the abdomen constricts the bowel contents, and, if it is loose and slips up, it prevents proper development of the chest. It is important that the expectant mother should regulate her bowels. Small doses of laxatives should be taken at night to insure the morning stool rather than larger doses once or twice a week. Borland points out the danger of giving castor oil to the baby, such a procedure being frequently the starting point of constipation. He says: Never give castor oil unless there is diarrhea. A child should gain from 4 to 7 ounces per week. Underfeeding is evidenced by a small and insufficient stool. It is better to give small quantities of milk after each feed than to replace one or two feeds by a bottle-feed, as the natural stimulus of sucking is thus not interfered with. Insufficient fat is liable to produce constipation; on the other hand, too much fat is to be avoided, and if the stools become pasty and greasy the quantity should be reduced. In case of faulty fat digestion some pancreatic extract should be given. Curds in the stool should be examined to see if they consist of undigested milk or small rolls of dried mucus; if the former, humanized or citrated milk, should be given, and in case of the latter liquid paraffin is indicated. If the stools are too dry the feed should be further lubricated or the child given sips of water between feeds, the water always being first boiled. Too much water must also be avoided, since the bowel becomes lazy if stools are always watery. A little fruit juice each day is of benefit. After an attack of acute diarrhea, the tone of the bowel must be restored and if simple hygienic measures do not suffice, a mixture of cascara, nux vomica, and liquid paraffin may be given. Mothers should be warned of the danger of the indiscriminate use of soap suppositories as if this remedy is resorted to too frequently the natural stimulus of rectal reflex is lost. In constipation in mental defectives, cretins and in cases of infantilism, the administration of thyroid extract is of benefit.

British Medical Journal.

March 22, 1919.

1. The Etiology of Influenza. A Filtrable Virus as the Cause with Some Notes on the Culture of the Virus by Noguchi's Method. The late Major H. Graeme Gibson, Major F. B. Bowman, and Captain J. I. Connor.
2. Symptoms of Hyperthyroidism Observed in Exhausted Soldiers. Major W. Johnson.
3. Note on Hemorrhagic Spinal Effusions. Colonel W. P. S. Branson.
4. Some Bacteriological Findings in Epidemic Influenza. Captain William T. Munro.
5. A Typhoid Carrier for Thirty-seven Years. S. T. Champtaloup.
6. The Milroy Lectures on Half a Century of Smallpox and Vaccination. John C. McVail.

1. The Etiology of Influenza.—A Filtrable Virus as the Cause with Some Notes on the Culture of the Virus by Noguchi's Method.—The late Major H. Graeme Gibson, Major F. B. Bowman, and Captain J. I. Connor report the results of an attempt to cultivate the "filtrable virus" of influenza and experiments in the transmission of the disease to animals by inoculation with the cultures so obtained. The animals used were babboons, *Macacus rhesus* monkeys, rabbits, guinea pigs, and mice, and in all these animals they succeeded in producing, by the inoculation of both filtered and unfiltered sputum, lesions that appear similar to those seen in human cases of influenza. For experiments with blood transmission they used *M. rhesus* monkeys and mice. The results in the case of the two monkeys inoculated were not wholly satisfactory, but experiments with mice gave a high percentage of positive results, and the authors believe it is possible to transmit the virus by means of infected blood to the latter animals. In the case of the mice the dose given per body weight was much larger than the monkeys received, and this factor no doubt played a part in the results obtained. With cultures it was found possible, by Noguchi's method, to infect monkeys, rabbits, guinea pigs and mice. (The authors give a careful description of the method they employed in the preparation of the Noguchi culture tubes and of their staining methods). Although they consider their experiments too small in number to justify the drawing of final conclusions, they have made the following deductions from their work: (1) The apparent immunity of some animals to filter-passing viruses and the occasional difficulty of the transmission of these viruses by means of blood is well known. When this is taken into account the number of positive results obtained would seem to be significant. (2) The pathological lesions in what may be called experimental influenza in animals closely resemble those seen in the lungs of men. (3) There is some evidence in favor of the view that the passage of the virus from one animal to another may raise its virulence. (4) Inoculation of the filtered and unfiltered sputum taken from cases of influenza, especially at an early stage of the disease, has been found to produce lesions in the lungs in a high proportion of inoculated animals. The inoculation of blood may not always produce such striking results. (5) A minute microorganism of a coccoid shape may be grown by Noguchi's cultural methods from: (*a*) The kidney of infected animals; (*b*) the filtrates of lung tissue, and (*c*) the filtered sputum from cases of influenza. The cultures have been carried by us to the third generation by direct culture. The cultures when inoculated into animals produce typical "experimental influenzal" lesions, and cultures can be recovered again from the animals so inoculated. (6) In view of these findings we consider that there are very strong grounds for considering that (*a*) The organism isolated by us is capable of passing through a filter. (*b*) That it is in all probability the cause of influenza as seen to-day. A similar organism, having the same properties, has been described by Captain J. A. Wilson, R.A.M.C. (see MEDICAL RECORD, March 8, 1919, p. 420), and this observer and the authors are of opinion that the organism isolated independently is the same in both cases. A note is added to this paper by Colonel S. L. Cummins on the regrettable death of Major Gibson. Major Gibson succumbed to an attack of influenza before he had an opportunity to revise or even complete the summary of his work.

2. Symptoms of Hyperthyroidism Observed in Exhausted Soldiers.—Major W. Johnson draws attention to (a) The occurrence of a definite condition of exophthalmos in exhausted soldiers; (b) The fact that this exophthalmos is present in the early stage of advanced conditions of exhaustion, and that it is only temporary,

lasting usually two or three weeks. (c) When it disappears the patient at once merges into the group of cases labelled "neurasthenia," and is indistinguishable from them. He therefore puts forth the following hypothesis: (1) That a large number of so-called psychoneuroses are cases in which the symptoms are due to a state of disordered internal secretion the result largely of emotional exhaustion, and, to a less degree, of physical exhaustion. (2) That many cases which are later diagnosed irritable heart, D. A. H., soldier's heart, and neurasthenia, are really cases of this class, and that possibly many have passed through a slight state of exophthalmos without its importance being realized. The author suggests that all such cases should be classed under a suitable term, such as *Exhaustion syndrome*. He points out that this term would have the advantage of not suggesting a period of chronic invalidism such as a soldier associates with D. A. H., neurasthenia, and similar terms. He adds that having observed some thousands of cases of breakdown in the line—in men otherwise healthy—he has become impressed by the fundamental unity of the group, and by the fact that exhaustion is the active etiological factor.

Archives of Pediatrics.

January, 1919.

1. Vaccine Therapy, the Most Rational and Effective Method of Treating Whooping Cough. Charles James Bloom.
2. The Use of Vegetable Milk in Children. Preliminary Report. Henry Dwight Chapin.
3. The Complement Fixation Test for Tuberculosis In Infancy and Childhood. Henry Heiman.
4. Report of the Cornell Nutrition Class. May G. Wilson.

1. Vaccine Therapy, the Most Rational and Effective Method of Treating Whooping Cough.—Charles James Bloom says that he has been interested in vaccine therapy for whooping cough since 1912, and though at the start, with small doses, discouraging results were his lot, he continued the treatment, until now he feels that his conclusions are convincing and thorough. In 1916, and again in 1917, Bloom brought to the attention of the New Orleans Parish Medical Society the success he had had with the method of treating whooping cough, and through his efforts a great many physicians are using it in New Orleans. Statistics from New Orleans show that whooping cough is a fatal disease. The death rate from whooping cough during the past five years has been 2 per cent. greater than diphtheria; 7 per cent. greater than measles, and 6 per cent. greater than scarlatina. Ordinarily without the vaccine treatment the duration of pertussis, according to authorities, last: Holt, 60 days; Rotch, 90 days; Cantley, 120 days; Garrod, Batten and Thursfield, 40-148 days, and Ruhrah, 90-180 days, respectively. The total average and duration of Bloom's entire series was about 20 days. The question of the cough is a valuable one. In no two cases are the results found the same. But there is, as a rule, a difference in the intensity and number of coughing spells following the administration of the vaccine. Some cases seem to "clear up" after the first or second injection; others continue throughout the duration of the disease, but the cough is trivial and does not provoke vomiting, and is not associated with cyanosis. Bloom has not seen in the past four years a case where treatment was instituted right from the first few days of the catarrhal stage that did not obviate the cyanosis entirely or render less severe the intensity of the individual coughing attacks. One will see rather marked improvement as far as the number of coughing spells, or the intensity is concerned, as soon as two or three injections have been given, although on the night following the administration of vaccine the cough is considerably increased. Several cases referred to Bloom in the second stage, where the symptoms of cyanosis are paramount, cases that seem to cease to breathe each time they cough, the effects of the vaccine in some of the cases have been almost instant, while in other cases the number of attacks were deferred to longer intervals. Summary and conclusions as to treatment are as follows: 1. No active case of whooping cough has developed in a single instance where the prophylactic administration of the vaccine had been given. 2. A number of cases thus vaccinated have been directly exposed to whooping cough since the vaccine was given them. During the past three years the writer has used both the simple and combined or mixed vaccines in about 300 cases. Constant and quicker results have been obtained when the combined vaccine was used. Unfortunately autogenous vaccines are not practical for many reasons, namely: (1) In the early stage, when the vaccines are needed most, there is practically no expectoration. (2) In only rare cases is any sputum whatsoever secured; hence the inability to culture the organism. (3) Seldom can a pure culture be secured. (4) By the time the vaccine is delivered the second stage will have been started. From the very onset of this important subject, when the vaccines were first used, the writer has felt that perhaps there were two bacteriological factors: one the specific organism, and the other the influenza bacillus. The belief prompted his deliberate use of a mixed vaccine from the very start, contrary to the arguments of others. In his successive combinations the number of Bordet-Gengou bacilli and influenza bacilli, constituting the vaccine used, have been increased in numbers. In the future, in some of my cases, a vaccine containing these two organisms alone will be tried. Mallory has found two organisms in the dog. The question of injections and time concerns the individual case, and no definite rule can be ascribed to either interrogatives. The loss of appetite, loss of sleep and restlessness, while present in the majority of cases, were not of sufficient importance to alter methods, and had no relation whatsoever, directly or indirectly, with the vaccine therapy. As far as complications were concerned, the writer has yet to note a single case of pneumonia, tuberculosis, etc., in the cases recorded by him. In relation to reaction, it is noted that following the hypodermic administrations, the temperature rarely exceeds 101° Fahr., the temperature is not affected in the greater proportion of the cases. As a matter of fact, the only evidence of the aftermath is a "hardened knot" described by mothers at the site of the injection. Bloom has never noted a case of anaphylaxis. His final conclusions are that (1) vaccine therapy in pertussis is rational and effective; (2) experience has proven its efficacy, both as a prophylactic, and as an active therapeutic agent. (3) Usage (*a*) Minimizes loss of weight; (*b*) Reduces the duration of the disease; (*c*) Decreases the intensity of the illness; (*d*) Foreshadows the possibilities of complications and sequelae; (*e*) Unattended by danger of anaphylaxis, etc. (*f*) Limits the mortality.

New Orleans Medical and Surgical Journal.

April, 1919.

1. The Laboratory as an Aid In the Diagnosis of the Pneumococcal Complications of Influenza. Foster M. Johns.
2. Is Argyrol Useless? Henry Dickson Bruce.
3. Practical Congenital Syphilis. C. J. Bloom.
4. A New Technique for Suspension of the Kidney. R. W. Penick.

4. A New Technique for Suspension of the Kidney.—R. W. Penick points out that it is well to bear in mind that in practically every case of movable kidney the abdominal walls are found very lax, demonstrating the very important part they play in supporting the normally placed organs, and the after treatment should take care of this condition following nephropexy. An interesting and rather remarkable fact has been the recovery or improvement in a number of cases operated on by English surgeons of movable kidney associated with insanity. Suckling reports twenty-one cases in which insanity disappeared after fixation of the kidney, and Billington reports most encouraging results obtained in the same manner. The technique in detail is as follows: Penick uses the Kelly incision, approaching the kidney through the superior lumbar trigonum, only he makes the incision a little larger, if necessary. When the deep lumbar fascia is reached it is opened with a clean cut, and beginning at the lower angle of the wound, a ribbon of fascia is dissected about two-thirds of an inch wide. The end is secured with a hemostat and laid aside for the present, and the operator proceeds to deliver the kidney up into the wound as usual.

The perineal fat is stripped to the hilum and the capsule incised and dissected, the sutures introduced two on each side. These sutures are caught in hemostats and laid aside, while the perineal fat is gathered by a circumferential large suture, forming a cup-shaped support under the kidney, and the ends are left long for later attachment at the lower angle of the wound in the musculature. The ribbon of fascia is now picked up, and a large chromic gut suture threaded into the end to prolong it; it is then fitted around the lower pole of the kidney, just below the hilum, and a stitch securing it to the capsule of the kidney near the front is introduced to prevent slipping. The ends of the suture prolonging the ribbon of the fascia are left in the hemostat while the kidney is being replaced, and the sutures of the capsule are secured in the adjacent musculature, as usual in this procedure. When this stage is reached the kidney is placed in the position desired and the suture prolonging the ribbon of fascia threaded on a carrier or large needle and fixed in the muscles of the back, at the most convenient point, fitting snugly around the kidney and holding it securely while the denuded surface on the kidney forms adhesions. The large sutures in the subphrenic fat securing a support under the kidney are now drawn sufficiently taut, forming a cup-shaped support. The last procedure closes the loose space under the kidney, and while it may not be necessary, it is quickly and easily done; indeed, Dr. Bartlett uses this principle alone, almost, in dealing with this type of kidney surgery. The wound is then closed in the usual way, layer by layer. The conclusions are as follows: (1) The use of fascia seems logical, gives the greatest security under the severest postoperation strain, and prevents tilting, rotation, and sagging. (2) It is easily and rapidly done. (3) Good surgery demands that we employ methods that insure the greatest security, and this technique seems to give us that security. (4) It is reasonable to suppose that this fascial band eventually forms a stable ligamentous support that would hold the kidney in place in the absence of any other support.

Berliner klinische Wochenschrift.

February 10, 1919.

Researches on the Elimination of Quinine.—E. Küster and H. Wolff have studied the elimination of this drug in patients who had been taking it for a considerable time. Some writers have maintained the rate of elimination varies with the degree of acquired immunity to the drug, which depends upon a greater destruction of quinine in the organism, this destruction being in direct ratio to the acquired immunity. The writers' conclusions are not in accord with the above propositions, because they note that subjects accustomed to the use of quinine eliminate it in the same way as those unaccustomed to its use; that immunity to quinine is rather more due to the malarial plasmodium than to the patient himself.

Nutrition During the War.—F. W. Bach refers to the usefulness that may lie in studying the metabolism during the present scarcity of food and to establish the minimum absolutely necessary for maintaining the normal weight. His researches in this direction consisted in making dosages of the nitrogen in the total urine, the figures obtained being multiplied by 6.25, this representing the amount of albumin utilized by the organism. The procedure is evidently only an approximate one, because both the feces and sweat contain a portion of the total nitrogen, but these sources of error are of only secondary importance and do not influence the appreciation of the results. The mean figures found by the writer are: A subject weighing 61 kilograms has a daily elimination of nitrogen of 8.917 grams, therefore 56.17 grams of disintegrated albumin. These figures were obtained in subjects who had lost considerable weight from insufficient food during the war and who offered at the time the calculations were made a stationary weight.

Renal Changes in Dysentery.—E. Wolf shows that these changes consist in a diffuse nature in the glomeruli with marked changes in the canaliculi, in the form of hyalin, fatty and necrobiotic processes. These morbid phenomena can be regarded as primary localizations in the vessels of the pathogenic agent. In point of fact, the vessels offer by the fifteenth day of the disease (if renal manifestations arise) a dilation with thromboses and nuclear degeneration in the walls, occasionally with a leucocytic infiltration. The cases reported by the writer did not offer any apparent clinical manifestations.

Münchener medizinische Wochenschrift.

February 7, 1919.

The Agglutinative Power of the Weil-Felix Bacillus.—F. Schiff has studied the influence of the sugar content in culture media on the biologic properties of the bacillus X 19, from the viewpoint of serologic diagnosis of typhus fever. The writer offers the following conclusions: (1) An absence or decrease of agglutination of this bacillus may be due to an insufficient quantity of sugar in the broth. Bacilli grown on sugar free agar-agar are not agglutinated by sera. With increasing amounts of sugar the rapidity of the reaction likewise increases, as well as the amount of precipitation. (2) When the sugar content is too great, cultures in series on over-sugared broths end in spontaneous agglutination. (3) Emulsions of bacilli which have lost their power of agglutination by heating at 56° C., recover it after washing in a normal salt solution. (4) Cultures heated at 100° C. for two minutes usually retain the power of agglutination, in which case this power depends upon the nature of the culture medium, and does not always correspond to the power of agglutination of the living bacillus. Therefore, emulsions which are to be used for diagnostic purposes should be selected from tested stock cultures. (5) The sugar content of broth influences the emulsions of the bacilli heated at 100° C. in the same way that it does living bacilli. Cultures grown on sugar-free broth are not capable of agglutination while living, but become specifically agglutinable after being killed. (6) Cultures which have lost their power of agglutination from growth on Drigalski's medium and endo-agar do not recuperate their power of agglutination either by heating or inoculation on neutral agar containing sugar. The writer has been able to note that other bacilli (Eberth, paratyphoid A, and cholera) change in their power of agglutination by a given specific serum, according to the amount of sugar contained in the culture medium.

Wiener medizinische Wochenschrift.

February 8, 1919.

Voluntary Provocation of Psychoses.—A. Pilez has twice met with instances of provoked acute psychoses induced by the subjects in order to escape military service. In the first case the subject resorted to a potion that popular tradition in his country (he was a Tchec) regarded as a producer of insanity. Analysis showed that this potion was composed of a mixture of belladonna and daphne leaves. The patient presented marked delirium, psychomotor agitation and dilatation of the pupils. This condition was, of course, only transitory, and ended in recovery. The second case was that of a man who had formerly taken sodium salicylate, which had given rise to an acute delirium. Knowing this, the soldier in question took sodium salicylate, which again produced an acute psychic paroxysm, and for a time was mistaken for a state of dementia.

War Neuroses.—M. Kahane offers some general remarks on this subject which are lacking in interest, but besides these the writer advises a procedure of objective examination which, according to him, may reveal a predisposition to neuroses. This consists in galvanopalpation. A weak current from an anode (for example, 0.3 milliamperes) is passed over the cutaneous surface and may give rise to vasodilatation which, when it occurs, denotes a vasomotor lability peculiar to psychoneuroses. The procedure has only a positive value, since vasomotor lability only indicates the reality of a neurosis, while a negative reaction should not lead one to conclude as a matter of course that there is simulation.

The Use of Barany's Drum and Reflex Winking in the Diagnosis of Simulated Deafness.—E. Wodak states

that this procedure is not a sure one. The reflex may be produced from the perception of the aërial vibrations by the trigeminus, even in the case of true deafness. It may also be absent when there is perfect integrity of the auditory apparatus.

La Presse Médicale.

March 10, 1919.

Pityriasis Rosea Is a Tuberculide.—Le Damany, after a prolonged study and follow up of cases of this apparently insignificant dermatosis concludes that it is a manifestation of tuberculosis. This is shown by the positive tuberculine reaction in men of apparently robust health, the frequent association of other manifestations of the disease as micropolyadenopathy, the tendency to recurrence, etc. Originally the affection was regarded as a form of ringworm until Brocque disproved this possibility. Sabouraud placed it among the erythemas of central origin, due to some unknown agency, and Gougerot attempted to show that it rested on some constitutional disorder. These views naturally culminate in the author's theory of paratuberculosis. The general belief that there is but a single outbreak in a lifetime suggested acquired immunity to some noxious principle, but long control of the patients has shown that relapses are possible. They may follow the first so promptly as to suggest an ordinary relapse of a primary acute manifestation, or may not reappear for several years. The malady appears to be largely a disease of the robust like psoriasis. It runs its course in from one to two months. Its incidence is unknown because of its benign character. The almost constantly present polyadenopathy is strongly suggestive of a tuberculous factor, however benign. Aside from this, it has been seen in association with lichen scrofulosus, scrofulous lymphnodes, pulmonary tuberculosis, suspicious apices, tuberculous family history. The tuberculin reaction has already been mentioned. Numerous illustrative cases are appended, from which we select one. An adjutant was seen with a well-marked case of pityriasis rosea, involving the entire surface. The general condition was excellent. In the axillae micropolyadenopathy. The eruption vanished in about ten weeks. Examination for tuberculous lesions of the classical types was negative. A retraction of the sheaths of the flexors of the palms, suggesting a beginning Dupuytren's disease, is worthy of mention because the claim is heard in some quarters that this lesion is paratuberculous. The cutireaction made 25 days after the first outbreak was frankly positive.

Correspondenz-Blatt für Schweizer Aertze.

February 22, 1919.

Influenza Heart.—Eichhorst refers to the numerous reports of influenza death from vasomotor paralysis and the attempt to control this condition with adrenaline. The vasomotor theory has been based on the coincidence of pallor and weak pulse with but slight involvement of the lungs, intact heart and overfilled splanchnic vessels. The author has no quarrel with this theory and has even had excellent results in such cases from the use of adrenaline. He only would add that the heart in these cases may be damaged. At autopsy he has found but little anatomical alteration in this organ. The number of grippe patients treated by him to January 1 was 2,411, with a mortality of 14 per cent. Without exception the 351 deceased showed some pneumonia, usually bilateral, and confined to the bases. But 6 cases of mitral endocarditis were found, and the total number with anatomical changes was but 14. Hence such a term as influenza heart must be a clinical one only. The author has noted tachy and bradycardia, extrasystole, and cardiac neuralgia. The first named is extremely rare, but 4 cases being noted. Bradycardia was far more common and occurred both in the febrile period and in convalescence. A pulse of from 48 to 60, with a temperature of 40° C. was followed by a rise at defervescence in some cases. The postinfluenzal type may persist over long periods. Extrasystole was likewise seen at the acme of the fever and in convalescence, while cardiac neuralgia was very rare. The four types of cardiac troubles, when considered jointly, appear to represent a definite condition, influenza heart, which appears under different modalities, but is genetically perhaps one and the same affection. The double incidence at the height of fever and at defervescence (the same patient apparently does not show both of the incidences) seems common to all and no cardiac death has been associated with this clinical behavior.

Revista Medico-Cirugica do Brazil.

October, 1918.

Influenza in Brazil.—The entire issue of this number is taken up with this subject. Dr. Carl Seidl, the editor, former director of public health, relates that the grippe reached Brazil from Dakar in French Senegal on October 3. The epidemic had exploded at Dakar on September 10, and on the 26th the Brazilians were warned by cable that cases of Spanish influenza were on board a Dakar steamer of the "Royal Transport" line. Up to this time the local health officers had not known the nature of the new African disease, and believed it either cholera or bubonic plague. Seidl was at the time the director of public health, and seems to have been blamed for the spread of the pandemic in Rio. Having resigned from this post, he gives a minute account of his stewardship in the matter and in addition showed that in other great cities the health officers had been powerless to prevent the invasion of the pandemic. He was later exonerated by the responsible authorities, and some of his colleagues who had at first by their silence apparently endorsed the attitude of the public as reflected by the daily press, made a tardy reparation. A document is reproduced which shows that as early as September 22 Seidl had warned the public of the presence of influenza in Spanish, Portuguese, and African ports, and the certainty of a visitation in Brazil. At that time there were no suspects in Rio, and the death rate in July and August showed that no marked disease was sending up the mortality. There appears to have been one scare in connection with a passenger steamer which was held up for a period of quarantine, but five deaths which occurred on this boat could not be recognized positively as influenza. In the preceding pandemic Brazil appears to have escaped a severe visitation (it must be remembered that while scarlatina is not only rare but benign in Brazil, the year 1842 saw it appear in an epidemic and deadly form). In another article the author goes more fully into the case of the quarantined steamer. It was a British vessel with over 500 third class passengers, which after having been en route from Liverpool for 35 days, reached Brazil on September 14. On its voyage it had stopped at Lisbon Recifa, and Bahia. As stated, five people died on board with alleged influenza. One woman passenger died later in hospital of the same malady. The diagnosis of Spanish influenza in connection with these cases seems to have been in dispute, and in any case the malady did not enter the country in this manner. Granting that the visitation is inevitable, sooner or later, it is of course easy to criticize the health office for lack of hospital facilities and for refraining to employ certain prophylactic measures of doubtful utility.

Recent Graduation Theses of the University of Bordeaux.—As is most natural, a state of war reacts upon the undergraduate who is obliged to serve in the army and leads often to the preparation of a medical graduation thesis on a military subject. In a series of theses by recent medical graduates reviewed in the *Journal de Médecine de Bordeaux* for January 15 we find the following devoted strictly to military subjects: Nervous crises in soldiers who have sustained cranial cerebral injuries (epilepsy, hysteria, and hybrid states); secondary hemorrhages in war wounds; pneumonia in negro soldiers and its treatment; lesions of the eyeball due to warfare; immediate treatment of projectile wounds, etc. By way of contrast we may add theses on non-military subjects: Ergography by Mosso's method; hematology of diphtheria; nasopharyngeal polyp; nonsuppurative mastitis in infectious diseases, etc.

Book Reviews.

THE ORGANS OF INTERNAL SECRETION, THEIR DISEASES AND THERAPEUTIC APPLICATION. A Book for General Practitioners. By IVO GEIKIE COBB, M.D., M.R.C.S., Neurologist, Brinnington Section, Second Western General Hospital. Second Edition. Price, $2.50. New York: William Wood and Co., 1919.

THIS is a revised and enlarged edition of the work which appeared first about two years ago. It is founded on a series of articles which appeared in medical journals and aims merely to be a guide in the use of the preparations of the organs of internal secretion in the treatment of their disorders. As such it will be found very helpful and, while some of the statements seem at first sight to be rather overenthusiastic, nevertheless it is necessary to defer to the author's experience. He naturally devotes the largest space to the thyroid gland, and about one-half of the book is taken up with the thyroid, adrenal and pituitary glands. The rest of the endocrine glands are still as much of a mystery as ever, apparently, but it is possible to employ them tentatively and to hope for good results. Every practitioner meets numerous patients who should benefit by some internal secretion therapy, if he only knew what to give. This book should help him to choose the preparation and to regulate the treatment.

A TEXT-BOOK OF PHYSIOLOGY FOR MEDICAL STUDENTS AND PHYSICIANS. By WILLIAM H. HOWELL, Ph. D., M.D., Sc.D., LL.D., Professor of Physiology in the Johns Hopkins University, Baltimore. Seventh Edition. Thoroughly Revised. Price, $5.00. Philadelphia and London: W. B. Saunders Co., 1918.

THE successive editions of this standard work appear so rapidly and the revisions are kept so thoroughly up to date that a cursory glance at any two successive editions shows but few changes. But there are numerous small changes, sometimes additions, sometimes omissions, often alterations—all tending to keep this book in the front rank of text-books on physiology. The author has managed to make this new edition very little larger than its immediate predecessor, and it is less than forty pages larger than the fifth edition.

CLINICAL MICROSCOPY AND CHEMISTRY. By F. A. MCJUNKIN, M.A., M.D., Professor of Pathology in the Marquette University School of Medicine. Price, $3.50. Philadelphia and London: W. B. Saunders Company, 1919.

THIS volume is based on a course given to students and has been prepared from the laboratory rather than from the clinical standpoint. To this end clinical descriptions are omitted. To increase the practicality of the work "only those methods are included which have a definite and practical use." The chapters on blood cytology and upon histological and autopsy technique are easily the best in the book and it is apparent that it is with these subjects that the author is most familiar. In other portions of the work there is often little system in the presentation of the material, and it is sometimes difficult to sympathize with the author's choice of methods for presentation. For instance, he includes a very imperfect description of the Abderhalden test and wholly omits any mention of the fractional test meal. On the whole, while the ground covered is extensive, the book is better suited as a note book in a course presenting adequate didactic lectures and practical work than as a source of information to the questioning practitioner.

SPEECH TRAINING FOR CHILDREN. The Hygiene of Speech. By MARGARET GRAY BLANTON and SMILEY BLANTON, B.S., M.D., Captain Neuro-Psychiatric Unit, Medical Corps, U. S. Army; Associate Professor, University of Wisconsin. New York: The Century Company, 1919.

TRAINING in the development of speech in children is important, as clear enunciation means much in these days. In the past, and perhaps especially in this country, that branch of education concerned with training in speech has been sadly neglected and the results are to be observed on every side. Not only should enunciation be distinct, but the voice should be trained so that the tones are soft and modulated and do not offend the ear by their harshness. The authors explain in this book how the object may be best attained, and it may be recommended to the earnest consideration of the medical profession and public.

AMERICAN RED CROSS TEXT-BOOK ON FIRST AID: WOMAN'S EDITION. A Manual of Instruction. By Colonel CHARLES LYNCH, Medical Corps, United States Army. Prepared and Endorsed by the American Red Cross. Second Edition, with 31 Plates, Containing 92 Figures. Philadelphia: P. Blakiston's Son & Co.

IT was peculiarly appropriate that a woman's edition of a manual on first aid should have been written and published. The issue of the first edition for women showed that it was needed. This edition has been revised and brought into line with recent medical and surgical progress. Its value can hardly be overestimated.

AMERICAN RED CROSS TEXT-BOOK ON HOME HYGIENE AND CARE OF THE SICK. By JANE A. DELANO, R.N., Chairman of the National Committee, Red Cross Nursing Service; Director, Department of Nursing, American Red Cross; Late Superintendent of the Nurse Corps, U. S. A.; of the Training School for Nurses, Bellevue Hospital, New York City, and of the Training School for Nurses, Hospital of the University of Pennsylvania. Revised and Rewritten by ANNE HEWEY STRONG, R.N., Professor of Public Health Nursing, Simmons College, Boston. Second Edition of the American Red Cross Text-Book in Elementary Hygiene and Home Care of the Sick. By JANE A. DELANO and ISABEL MCISAAC. Prepared for and Endorsed by the American Red Cross. Price, 60 cents. Philadelphia: P. Blakiston's Son & Co., 1918.

IT is a truism now that hygiene, and especially domestic hygiene, is one of, if not the most, important branch of preventive medicine. Most contagious and infectious disease can be prevented from spreading if the mother of a family knows the elementary laws of hygiene and how to put them into practice. This book was written and this second edition was rewritten and revised with this aim always in view. The authoress has fully succeeded in giving to the public a manual on home hygiene which gives all the essential methods by which to care for the sick and safeguard the remainder of the family and which is couched in expressive but easily intelligible language.

AMERICAN RED CROSS ABRIDGED TEXT-BOOK ON FIRST AID. General Edition. A Manual of Instruction. By Colonel CHARLES LYNCH, Medical Corps, United States Army. Prepared and Endorsed by the American Red Cross. Second Edition. With 41 Illustrations. Price, 35 cents. Philadelphia: P. Blakiston's Son & Co., 1919.

THIS is an abridged edition of the American Red Cross Text-Book on First Aid and Relief Columns. It is also a second edition and has been revised and brought up to date. It is clearly written in concise language and adequately fulfills its avowed purpose.

ROENTGENOTHERAPY. By ALBERT FRANKLIN TYLER, B.Sc., M.D., Professor of Clinical Roentgenology, John A. Creighton Medical College; Attending Roentgenologist, St. Joseph's Hospital, Bishop Clarkson Memorial Hospital, Ford Hospital, Immanuel Hospital, Douglas County Hospital, and Lord Lister Hospital, Omaha, Neb.; Member American Roentgen Ray Society; Fellow American Medical Association, etc. With 111 Illustrations. Price, $2.50. St. Louis: C. V. Mosby Company, 1918.

THIS is a book on Roentgen therapy designed to set forth the principles of the treatment in such easily comprehensible terms that the beginner can understand. Description of the apparatus is given and a feature of the work is the number of illustrations, which serve to interpret and exemplify the text. The book is eminently suitable for those desiring instruction in Roentgen therapy.

Society Reports.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting Wednesday, March 5, 1919.

THE PRESIDENT, COLONEL WILLIAM J. TAYLOR, IN THE CHAIR.

Observations on Otolaryngology in the War. — Dr. HARRIS P. MOSHER, Lt. Col., Medical Corps, U. S. A., presented this paper, which began with a few pessimistic paragraphs on "personnel." Then took up the two special hospitals and described a day at Cape May. After this it dealt with oral and plastic surgery, a subject overlapping otolaryngology as practised by many. Fully half of his observations, Col. Mosher said, were assembled in 1915, while he was serving with the British. The paper later considered otolaryngology in the United States, discussing in order the prevailing bacteria of the epidemics, carriers, and the use of dichloramine-T. This discussion was followed by a tabulation of operations, and the paper concluded with a statement of some new clinical observations made in the cantonments, and a brief report on the influenza epidemic from the standpoint of otolaryngology. While the paper was largely made up of "pickings from other men's brains," the author said he had tried in each instance to give due credit. The Division of Surgery of the Head, he said, had established two special hospitals, and the Section of Otolaryngology was, of course, represented in them. The first hospital was at Cape May in this country; the second at Vichy, in France, and was known as No. 115. Before the personnel selected for it arrived the Chateau-Thierry drive had filled its beds with general surgical cases. Major Ivy had reported, however, that in the section on maxillo-facial surgery 305 cases of this character had been treated in the four months ending January 18, 1919. The dentists at Cape May, the author observed, had a unique opportunity to compare the results of the different types of splints put on overseas. This splinting work was, in the writer's opinion, one of the best American contributions to the surgery of the war. He had come away from Cape May feeling very proud that the Division of Surgery of the Head had fathered such an upstanding hospital. The number of special cases which would return from overseas for treatment was roughly estimated as follows: Peripheral nerves, 5000; maxillo-facial, 300; blind, 250 to 300; ear, 300 to 500; cases for instruction in lip-reading, 100. The capacity of the Cape May Hospital was stated to be about 700 beds. Two things which had impressed him profoundly during the war were the dental work and the associated plastic work of the face. Interdental splints, the restoration of the form and function of the jaw by a vulcanite plate which allowed the patient to use his jaw at once and furnished a surface over which defects in the lip or cheek could be repaired, and the use of bone transplants for large losses of substance had supplemented the cruder methods of treatment of four years ago. It had been learned during the war that the loss of a very large amount of bone from the lower jaw could be replaced by Nature. The loss of even as much as an inch of bone at the symphysis would finally be bridged across if the ends of the jaw were immobilized by an interdental splint. Otolaryngologists should acquaint themselves with the possibilities of the mechanical help that the dentist would give the surgeon who did plastic work on the nose and face. Col. Mosher said that at Epernay Col. de Schweinitz and he had found Majitot implanting sheep and lamb cartilage for supports in plastic operations of the face. He kept a supply in a weak solution of formalin. Gillies at Sidcup used human cartilage, keeping it, however, in the novel store house of the abdominal wall. He had exhibited one patient with six pieces implanted in the fat of the abdominal wall. While the methods of using a double skin graft over a Stent's mass, and of burying cartilage and turning down later the flap containing it were not new, the war had brought these procedures into very great prominence. Major Scott and his collaborators, dealing with the causes of mastoiditis, were quoted as saying that by "locality infection" was meant the occurrence in a locality or army post of a certain organism which was found to predominate either singly or combined, in infections occurring in that particular locality or army post. At one camp, for instance, the hemolytic streptococcus might be the organism found in the tonsil crypts, in pneumonia, in mastoiditis, or other diseases, while in another camp the pneumococcus or streptococcus viridans might be the prevailing organism. Any one of these organisms might become virulent for a certain period and then apparently become of little consequence. However, when an epidemic of tonsillitis, measles, scarlet fever or influenza occurred then the particular organism for a certain locality suddenly assumed the rôle of secondary invader and became the predominating factor in complications. That the temporary home for this "locality-infection-organism" is in the tonsil crypt is undoubtedly true, while the accessory nasal sinuses are at times the home of the organism. . . . One must conclude that the occurrence of mastoiditis as seen in army cantonments depends upon the surroundings of the individual and the presence of a virulent organism such as the streptococcus or pneumococcus. Further, that the invasion of the mastoid occurs directly from the naso-pharynx or the blood stream." Colonel Mosher observed that there was something uncanny in the sudden acquisition of great virulence by certain bacteria which had been for a time harmless. Further than the knowledge that overcrowding, fatigue and chilling of the human body are important causative factors in this result, he regarded the process as a mystery. With the solving of this problem preventive medicine would take a great leap forward. The war had brought into startling prominence the long known fact that the throat especially, the nose and its accessory sinuses were the primary lodging places of the bacteria responsible for the infectious diseases and those that are sputum-borne.

Dunham had devised a gang spray for use with troops and demonstrated that a thousand men could be sprayed within an hour. He had showed that the spraying with dichloramine-T markedly reduced the bacterial flora of the nose and throat. From the extended study made in the camps it would seem to the writer to be a good plan in civil life regularly to culture the nose and throat of all hospital personnel and to spray with dichloramine the nose and throat of every patient. Among new clinical observations by the otolaryngologists in the cantonments reference was made to Major Owsley's description of a series of cases of ulcerative laryngitis due to the pneumococcus, distinguished by a superficial ulceration of the anterior ends of the vocal cords, the chief symptoms being hoarseness and aphonia. There had been ready response to treatment with solutions of silver. Major Eagleton had successfully placed a bone graft from the tibia in the cavity of the mastoid process produced by a simple mastoid operation. He felt that he had a new frontal sinus operation, and Major Fetterolf had confessed to a new procedure for the resection of the nasal septum. At one of the base hospitals there had been a number of cases of hysterical aphonia, "Whispering Willies," as they were called, and in the cure of these the psychiatrist had great success. Holmes and Harris had drawn attention to the advantageous use of gas oxygen for producing anesthesia for mastoid operations in pneumonia cases. Porter and Orton had reported similar cases operated under local anesthesia. In thirty-nine mastoid operations at Camp Zachary Taylor in January, five were bilateral. In a retrospective view of the war experiences Colonel Mosher felt it might be said that draft examination should have been more thorough; that there could have been closer cooperation between the camp and the base hospital; that there had been no provision for an automatic interchange of special personnel; that special instruments and supplies were late in getting to hospitals and overseas, and that hospitals at the port of embarkation should be thoroughly equipped and staffed.

DR. GEORGE B. WOOD said that from their experiences in the otolaryngological department at Camp Meade it would seem that the hemolytic streptococcus found in healthy carriers was not particularly dangerous, but that when there existed an acute infection due to this organism a spread of the infection was very liable to take place unless great care were exercised to prevent contact. He believed the theory of the danger of drop-

let infection to be not quite so great as had been suggested by some. Major Teague in telling him of his work in Manchuria with the pneumonic plague had said he believed one foot would represent the danger zone of coughing, and that for the infection of culture media and guinea pigs a distance within six inches of the patient's face was necessary. Dichloramine-T had been tried in acute coryza with little success. Dakin's solution was found very valuable in clearing up mastoid infections. The use of dichloramine in carriers gave good results with meningococci, but had little effect with the Klebs-Loeffler bacillus.

Lieut.-Colonel V. P. Blair announced that the basis of their treatment of injuries had been the theory that if the patients could be received early there should be no reason why in the majority of instances early healing should not occur. In no part of the body did the tissues, either bones or soft parts, heal more kindly than in the face, and no place was more resistant to infection. In almost every hospital in France in which he saw good dental work being done there was a university man back of that work. In order to give early treatment to face and jaw injuries it was necessary to have surgeons and dentists who would work together. After the St. Mihiel drive there had been in almost every advanced hospital a good dental man. In Colonel Blair's opinion, the face injuries of this war will probably not be over 1 per cent of all injuries. If the war had continued he thought it would have been possible, with the cooperation of the dental men, to get this type of surgery everywhere on the same basis as that of any other surgery.

Dr. S. MacCuen Smith observed that one of the outstanding advances of this recent war had been the recognition of otolaryngology as a specialty in the United States Army. The statement that drooping of the superior-posterior wall as a well-recognized symptom of mastoid disease had fallen somewhat into disrepute he felt should be challenged. Failure to find this evidence of mastoid disease, in his opinion, was probably due to overlooking the fact that the symptom was present only when the higher cells and the mastoid antrum were involved. This did not in any way alter the fact that if the disease were confined largely to the tip, the above-mentioned sign would not be present, but the case just as urgently required operation.

A Discussion of Some Social and Economic Problems Resulting from Acquired Deafness.—Dr. Wendell C. Phillips of New York City said that otologists should be as much interested in the social and economic problems pertaining to deafness as in the treatment of aural affections. There was too great proneness to look upon deafness as a rare condition when such was not the case. The Twelfth United States Census returns showed that 89,287 of inhabitants are totally deaf, and to this number must be added the far greater array of those partially deaf. It was estimated that in the City of New York alone there were at least 100,000 people more or less incapacitated as a result of hardness of hearing, and of these probably 80 per cent. were of the working class. About eight years ago a small company of hard of hearing persons in New York attempted to form an organization which might meet the necessities of the partially deaf. Later some of the otologists and other hearing people became interested. The main objects of the organization were "to assist the hard-of-hearing in the matter of procuring and obtaining employment; to provide full and part scholarships in lip reading; to alleviate the social isolation of the hard-of-hearing, and to assist them in every way." The labors of the society were conducted under education, employment, welfare, and industry. All applicants for membership, he said, presented individual problems which were carefully worked out by expert workers. An advisory board of otologists freely devoted time and advice. Branch leagues had been established in Chicago, San Francisco, Los Angeles, Pittsburgh, Newark, and Philadelphia, and plans were now being formed for a national organization. In addition to the present objects of the organization there would be considered the prevention of deafness in children. With every constituent organization there should be an advisory board of otologists.

Mental and Spiritual Readjustments of Acquired Deafness.—Miss Annetta W. Peck, corresponding secretary the New York League for the Hard of Hearing, said that readjustment was the preparation for complete reconstruction. It meant not only what was done for the deaf but what no one but the persons could do for themselves. In the five years since the New York League for the Hard of Hearing has had its own office Miss Peck had talked with at least a thousand deafened people. The peculiar burden of acquired deafness was that its victims become odd, if not eccentric. When they had relieved a man's material needs it was their part to help him fight their common enemies—depression, timidity, reluctance to take the initiative, and other antisocial characteristics. That deafened people need not be useless was proved by the records of their employment department. They had convinced about 300 business houses that their applicants were employable. They regard a hard of hearing person as an asset in a business office because he concentrates better than others, saying he is better at routine work because he is accustomed to monotony and isolation, and that he does more work in less time because not engaged in the talking going on about him. In the social work of the League there were seen among those who refuse to readjust themselves many who became more or less mentally unbalanced. After fifteen or twenty years of this isolation (and it was by no means rare) two out of three were not normal. Clubs and recreations and, above all, the friendliness of the workers, often bring such wanderers back. A Sunday afternoon club was designed to meet the religious needs of the hard of hearing. The task in social work for the hard of hearing was, first, to readjust ourselves industrially, if need be, but always spiritually, and having done this, to see that everyone who needs this help has it.

Practical Aspects of Readjustment of Acquired Deafness.—Miss Estelle E. Samuelson, Superintendent of Employment Department of the New York League for the Hard of Hearing, said that social service for the deafened must begin with the otologist. When the League was incorporated in 1912 seventeen persons had signed the charter. To-day their membership was nearly six hundred, less than 10 per cent. being hearing persons. The industrial department transacted a business of about $1,400 a year. In the welfare clubs the members play games, dance, and make merry together. They converse freely by lip-reading or pencil, or with the aid of a hearing device. The educational department undertakes the promotion of lip-reading. In the employment and vocational readjustment department there were placed in 1912 20 per cent. of the applicants; in 1918-1919, 85 per cent were placed; 220 out of 261 who applied. About 300 firms had cooperated in giving employment to the hard of hearing. A one-armed, totally deaf man within a short time had been placed by one of the workers at a salary of $4 a day, which later was increased to $6 per day. With little readjustment applicants were placed in practically all lines of work. From statistics it had been noted that many were pursuing work tending to increase their peculiar type of deafness. The author earnestly asked for the sympathetic cooperation of the medical profession.

Dr Francis R. Packard said that those who had to do with deaf people ought to experience some chagrin that they had not sooner seized and developed the idea presented by the representative of the New York League for the Hard of Hearing. It was a regretable fact that there was no institution to care for those handicapped by acquired deafness. The value of the early acquisition of lip-reading was to be emphasized. He was glad the fact had been mentioned that the hearing devices were more of a strain and of less advantage than an early acquaintance with the motion of the lips in making words and the ability to use the eyes to replace the organs of hearing. He urged the cooperation of doctors and laymen in the extension of the movement to all the states of the Union.

Dr. S. MacCuen Smith said that that which had impressed him most markedly in the presentations was the cheerfulness which Miss Peck and Miss Samuelson personally manifested and brought to their work. He inquired whether they advised the use of an aid to hearing early in the process of loss of hearing. It had seemed to him that such early use established premature dependence upon the hearing device. He believed

that all Philadelphia aurists would be glad to cooperate in furthering the work of the League for the Hard of Hearing.

Miss ESTELLE SAMUELSON said that from her own experience she could say that an aid to hearing was not advisable in the first stage of deafness and this she had found to be the experience of many. With the instrument she could hear all sounds, except the voice.

Dr. WENDELL C. PHILLIPS said he believed that the gradually growing deaf patient might well learn lip-reading for the reason that it lessened strain. In his opinion the aid to hearing device should not be used until it was a necessity.

Dr. B. ALEXANDER RANDALL referred to the claim that one adult in three is deaf in one or both ears. From this largely confirmed fact it could be realized to what a large clientele a society such as mentioned was rendering service. In the use of the electric appliance the low tones, he said, were not heard by those whose deafness was due to impairment of the conducting apparatus. The fatigue resulting from the effort to hear prevented the deaf person hearing. It was well known that the inventor of the electro-phone used a big tin dipper. Edison knew that he had to take in a large volume of sound.

Dr. PHILLIPS emphasized the point made by Miss Peck that quite a proportion of the cases of advanced deafness were instances of borderline insanity. The hearing of imaginary noises presented the first symptoms of these cases and rather fine judgment was required in diagnosis. He bespoke for the League for the Hard of Hearing the assistance of the otologists of Philadelphia.

Miss PECK said there were in their office, besides herself, four young women, all slightly deaf; one was not a lip-reader. The other three were put right back in the hearing class by their lip-reading. Looking at them, one would not know they were deaf. She did not advocate the use of an instrument in the case of slight deafness. Lip-reading should be studied in preference. In her own case, since she was busy every day from nine to five, the instrument gave the needed rest for her eyes.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

VIRGINIA STATE BOARD OF MEDICAL EXAMINERS.

Richmond, June 18-21, 1918.

ANATOMY AND HISTOLOGY.

1. Name the bones of the head.
2. Name the twelve pairs of cranial nerves and give the point of exit of each from the skull.
3. Give origin and insertion of pectoralis major, pectoralis minor, and serratus magnus.
4. Give origin, course, and branches of external carotid artery.
5. Bound Scarpa's triangle, mention vessels in it, and give their anatomical relationship.
6. In appendectomy name structures divided from without inwards.
7. Bound anterior triangles of neck, give origin and insertion of muscles forming them.
8. Locate, describe, and give relationship of gall-bladder.
9. Describe the wall of the bladder, give different structures in cross section and kind of epithelium.
10. Name the different kinds of epithelia.

PHYSIOLOGY AND CHEMISTRY.

1. Is lymph a product of the lymphatic glands? (*b*) How is lymph formed?
2. Locate lesion that will cause incoordination of voluntary movement and loss of knee jerk.
3. Trace the course of blood in the adult. (*b*) What changes occur at birth?
4. Name the three portions of the stomach and describe the functions fulfilled by each.
5. What effect on digestion has the existence of a biliary fistula?
6. What is the effect of an abundant diet containing an insufficient amount of protein?
7. What is the relation of the thyroid gland to myxedema, cretinism, and exophthalmic goiter?
8. What effect has the seasons on the specific gravity of urine?
9. What is the difference in action of the "ous" and "ic" compounds of Hg.? Give name of one of each.
10. By what tests can starch be recognized?

MATERIA MEDICA, THERAPEUTICS, AND TOXICOLOGY.

1. Name five most efficient anthelmintics, giving doses of each and the parasite upon which the drug is most effective.
2. What are the five most important preparations of mercury, giving dose and use of each.
3. Write a compound prescription having cholagogue action and also stimulating different parts of intestinal canal.
4. What secretions of internal organs furnish extracts of therapeutic value, and give physiological action of each.
5. Give physiological action of digitalis. State in what lesions and conditions it should be used with choice of preparations.
6. In what four ways do diuretics act, and give an example in each class.
7. Name of the official bromides, average adult doses, and chief therapeutic uses.
8. Describe the symptoms caused by a toxic dose of opium. State with what diseases they may be confounded and outline the indicated treatment.
9. Name two neurotic poisons and two corrosive poisons. State upon what organs the specific effects of each are most shown.
10. Give general treatment for poisoning by the stomach and the chemical antidotes for opium, carbolic acid, bichloride of mercury, nitrate of silver, and iodine.

PATHOLOGY.

1. What is the pathology of plastic inflammation?
2. Describe how mitral stenosis and aortic regurgitation respectively affect the cavities and musculature of the heart.
3. What are the degenerative changes of arteries?
4. Differentiate between osteomyelitis and inflammatory rheumatism.
5. What is necrosis? What prevents hemorrhage in gangrenous lesions?

BACTERIOLOGY.

1. What are the three basic forms of bacteria? Describe each form.
2. Define immunity. Explain (*a*) how acquired, (*b*) how destroyed.
3. By examining the fluid of lumbar puncture, how may we distinguish between tuberculous and other forms of meningitis?
4. In what diseases have specific microorganisms been recovered from the blood?
5. How would you diagnose malaria from typhoid fever by the microscope?

ANSWERS.

ANATOMY AND HISTOLOGY.

1. The *bones of the head* are: Occipital, two parietal, frontal, two temporal, sphenoid, ethmoid, two nasal, two superior maxillary, two lacrymal, two malar, two palate, two inferior turbinated, vomer, and inferior maxillary.

2. *Cranial nerves, with foramina of exit from skull:* First, or olfactory, through foramina in cribriform plate of ethmoid. Second, or optic, through optic foramen. Third, or motor oculi, through sphenoidal fissure. Fourth, or trochlear, through sphenoidal fissure. Fifth, or trigeminus, through sphenoidal fissure, foramen rotundum, and foramen ovale. Sixth, or abducens. through sphenoidal fissure. Seventh, or facial, through stylomastoid foramen. Eighth, or auditory, through internal auditory meatus. Ninth, or glossopharyngeal; tenth, or pneumogastric, and eleventh, or spinal accessory, through jugular foramen. Twelfth, or hypoglossal, through anterior condyloid foramen.

3. PECTORALIS MAJOR. *Origin:* Inner half of anterior surface of clavicle, half of anterior surface of

sternum, anterior surfaces of upper six costal cartilages, and upper part of aponeurosis of external oblique. *Insertion:* Outer bicipital ridge of humerus.

PECTORALIS MINOR.—*Origin:* Upper margin and outer surface of third, fourth, and fifth ribs near their cartilages, and from the aponeurosis covering the intercostal muscles. *Insertion:* Coracoid process of scapula.

SERRATUS MAGNUS.—*Origin:* Outer surface and upper border of upper eight ribs and from aponeurosis of the corresponding intercostal muscles. *Insertion:* The ventral aspect of the vertebral border of the scapula.

4. The *external carotid artery* arises at the point of bifurcation of the common carotid artery, opposite the upper border of the thyroid cartilage, passes upward and ends in the substance of the parotid gland behind the neck of the lower jaw, where it divides into the superficial temporal and internal maxillary arteries.

The *branches of the external carotid artery* are: Superior thyroid, lingual, facial, occipital, posterior auricular, ascending pharyngeal, superficial temporal, and internal maxillary.

5. Scarpa's triangle is a triangular area or depression situated just below the fold of the groin. It is bounded *above* by Poupart's ligament, *externally* by the Sartorius, and *internally* by the inner margin of the Adductor longus; its *apex* is formed by the junction of the Adductor longus and Sartorius. The *floor* is formed, from without inward, by the Iliacus, Psoas, Pectineus, Adductor brevis, and Adductor longus. *Contents:* The femoral vessels pass from about the center of the base to the apex, the artery being on the outer side of the vein; the artery gives off the superficial and profunda branches, and the vein receives the deep femoral and internal saphenous; the anterior crural nerve lies to the outer side of the femoral artery; the external cutaneous nerve is still further external, lying in the outer corner of the space; just to the outer side of the femoral artery, and in the sheath with it, is the crural branch of the genitocrural nerve. At the apex, the vein (which at the base was internal to the artery) lies behind the artery. The triangle also contains fat and lymphatics.

6. In *appendicectomy*, the following structures are divided, from without inwards: Skin, fascia, external oblique, fascia, sheath and fibers of internal oblique, fascia, transversalis, fascia, areolar tissue, peritoneum, appendix.

7. The ANTERIOR TRIANGLE OF THE NECK is *bounded:* In *front* by a line from the chin to the sternum; *behind* by the anterior margin of the sternomastoid; *base* is upward, and is formed by the lower border of the body of the lower jaw and a line from the angle of the jaw to the mastoid process. It is *divided* into three smaller triangles (inferior carotid, superior carotid, and submaxillary) by the digastric muscle and the anterior belly of the omohyoid. The *inferior carotid triangle* is bounded, in *front* by the median line of the neck, *behind* by the anterior margin of the sternomastoid, and *above* by the anterior belly of the omohyoid. The *superior carotid triangle* is bounded, *behind* by the sternomastoid, *below* by the anterior belly of the omohyoid, and *above* by the posterior belly of the digastric. The *submaxillary triangle* is bounded, *above* by the lower border of the body of the mandible and a line drawn from its angle to the mastoid process, *below* by the posterior belly of the digastric and the stylohyoid, and in *front* by the anterior belly of the digastric.

STERNOMASTOID. *Origin:* Upper and outer part of the anterior surface of the manubrium sterni, and upper surface of the clavicle at its sternal end. *Insertion:* Outer surface of mastoid process of the temporal bone, and outer part of the superior curved line of the occipital bone.

DIGASTRIC.—The posterior belly arises from the digastric groove on the internal surface of the mastoid process of the temporal bone; the anterior belly from a depression on the inner surface of the lower border of the inferior maxilla, near the symphysis. These two bellies are connected by a central tendon which perforates the stylohyoid, and is bound down to the greater cornu of the hyoid bone by a process of fascia.

OMOHYOID. *Origin:* By means of the *posterior belly*, from upper border of scapula and suprascapula ligament. *Insertion:* By means of *anterior belly*, into the outer third of lower border of body of hyoid bone.

STYLOHYOID.—*Origin:* Posterior and outer side of styloid process of temporal bone. *Insertion:* Anterior surface of hyoid bone at junction of great cornu with the body.

8. The *gall bladder* is a conical bag placed in a fossa on the under surface of the right lobe of the liver. Its upper surface is attached to the liver, and its fundus and posterior surfaces are invested by peritoneum reflected from the adjacent surface of the liver. The body is in relation in front with the liver, and behind with the first part of the duodenum, the pylorus, and the hepatic flexure of colon. The fundus is in contact with the parietes opposite the ninth right costal cartilage. It is about four inches long and holds about one ounce. Its duct passes from the neck of the gall bladder downward, backward, and to the left to join the hepatic duct.

9. *Wall of the bladder:* "There is a mucous, submucous, muscular, and serous coat to the bladder. The *mucous membrane* resembles that of the ureters, with which it is continuous. It is covered with a transitional epithelium whose cells vary according to the distention of the bladder. As a rule, epithelial cells have but very little elasticity and mucous membranes therefore are frequently much folded. The bladder cells are capable of considerable distention, when they become very flat. When the organ contracts they accommodate themselves to this condition and become cubical. The cells of the surface layer are squamous and have concave depressions into which the rounded ends of the second layer or pear-shaped cells are adjusted. Two or more layers of irregular interstitial cells intervene between the apices of the pear-shaped cells. The interstitial cells divide regularly by karyokinesis and are then crowded to the surface to replace the superficial cells that normally exfoliate. A *vascular submucosa* intervenes between the mucosa and the muscularis. This is a thin layer of areolar tissue, but sufficient to give the mucosa apparent elasticity and enable it to move upon the muscularis. The *muscular coat* consists of smooth muscle fibers which may be divided into bundles of outer longitudinal fibers, a middle strong circular layer, and an imperfect inner longitudinal or diagonal stratum. At the urethral opening the middle layer is thickened to form a sphincter muscle, according to some authors. The bladder musculature forms a basket-work fabric, and when much distended intervals may arise in its walls which become points of weakness through which the mucosa may protrude, when the organ is said to be sacculated."—(Hill's *Histology.*)

10. KINDS OF EPITHELIUM. (1) *Pavement* or *Squamous:* A single layer of flat, nucleated cells, cemented together at their edges. (2) *Stratified:* In layers of cells that are unlike in form. (3) *Columnar:* Tall, cylindrical cells arranged in a single layer. (4) *Cuboidal:* Similar to columnar, but the cells are shorter. (5) *ciliated:* Columnar cells with hair-like processes (cilia) on their free surface. (6) *Goblet:* Cylindrical cells distended with mucin. (7) *Transitional:* When the cells are neither arranged in a single layer, like squamous, nor yet in many superimposed layers, like stratified, but in two or three layers.

PHYSIOLOGY AND CHEMISTRY.

1. Lymph is not a product of the lymphatic glands. *Formation of lymph:* There are three main theories: (1) Ludwig's theory, or the filtration theory, coupled with osmotic changes between the lymph and blood; (2) Heidenhain's theory of lymphagogues; and (3) Starling's theory of the permeability of the capillary walls. The subject is summed up by F. A. Bainbridge as follows: "Lymph formation is not a secretory process, but is brought about by purely physical processes, namely, filtration and osmosis; and the factors concerned in its production are (1) the capillary pressure, (2) the degree of permeability of the capillary walls, and (3) the metabolic activity of the tissues. There is no reason to suppose that in health the permeability of the capillaries alters, and therefore the formation of lymph is increased chiefly by variations in the first and third of these factors."

2. These conditions are found (with others) in locomotor ataxia, in which disease the lesions are situated in the posterior columns of the spinal cord and the posterior nerve roots.

3. The *circulation of the blood* is the course or cir-

cuit of the blood from the heart, through the body and back to the heart. Beginning at the left ventricle of the heart, the blood flows through the left semilunar valve into the aorta, from which branches are distributed to every part of the body, through the capillaries to the veins, from the veins to the venæ cavæ, thence to the right auricle of the heart. From the right auricle, through the tricuspid valve to the right ventricle, thence through the right semilunar valve to the pulmonary artery to the lungs, from the capillaries in the lungs to the pulmonary veins, then to the left auricle, and through the mitral valve to the left ventricle, to begin the circuit again.

Differences between the fetal circulation and that of the adult: In the *fetus* there is direct communication from the right auricle to the left auricle by the foramen ovale; the Eustachian valves are larger, the heart is relatively larger; there is communication between the pulmonary artery and the descending aorta by means of the ductus arteriosus; there is communication between the internal iliac arteries and the placenta by means of the umbilical or hypogastric arteries; and the presence of the ductus venosus which unites the umbilical vein and the inferior vena cava.

Changes that occur in the fetal circulation at birth: The hypogastric arteries dwindle and close, the foramen ovale becomes obliterated, the ductus arteriosus and ductus venosus become obliterated, the umbilical vein becomes impervious, and the Eustachian valve atrophies.

4. The *three portions of the stomach* are: (1) The *fundus*, which serves as a reservoir in which the food is gradually mixed with the gastric juice. (2) The *intermediate* or *prepyloric part*, in which the hydrochloric acid of the gastric juice is mainly secreted. The churning movements occur in this part as well as (slightly) in the fundus. (3) The *pyloric part*, which pushes the food through the pylorus into the duodenum; this part also takes the chief part in the trituration and maceration of the food. The peristaltic waves are most forcible here.

5. When a *biliary fistula* is present a large part of the fat of the food is not absorbed, and is found in the feces; digestion of proteins and carbohydrates is delayed.

6. An *insufficient supply of protein in the diet* leads to lowered power of resistance, imperfect tissue repair, and tendency to pallor and puffiness of the body.

7. *Myxœdema* occurs in an adult when the thyroid gland atrophies or when its functions become seriously impaired; also, sometimes, after removal of the thyroid.

Cretinism occurs in children when the thyroid gland is absent or atrophies at an early age.

Exophthalmic goiter occurs when the thyroid gland is greatly enlarged, or its functional activity much increased.

8. The *specific gravity of the urine* varies with the amount of urine voided in twenty-four hours, the gravity increasing as the quantity is diminished. In cold weather more urine is voided, so the gravity should be less in winter and greater in summer.

9. The *mercurie* salts are more irritant and poisonous than the *mercurous* salts.

Mercurous chloride, or calomel; mercuric chloride, or corrosive sublimate.

10. *Tests for starch:* (1) A dilute solution of iodine gives a violet-blue color with starch. (2) The microscope shows the characteristic starch granules with their concentric markings.

MATERIA MEDICA, THERAPEUTICS, AND TOXICOLOGY.

1. FIVE ANTHELMINTICS.—(1) *Thymol*, dose gr. x-xij; against hookworm. (2) *Santonin*, dose gr. j; against round worm and thread worm. (3) *Pelletierine*, dose gr. xxv; against tapeworm. (4) *Aspidium*, dose half a dram of the oleoresin; against tapeworm. (5) *Pepo*, dose 15 grains of the resin; against tapeworm.

2. FIVE PREPARATIONS OF MERCURY.—(1) *Hydrargyri chloridum mite* (calomel), dose gr. ss to x; used in syphilis, as a laxative or purgative, in congested or cirrhotic liver, in diarrhea, and as a diuretic. (2) *Hydrargyri chloridum corrosivum* (corrosive sublimate), dose gr. 1/60 to 1/30; used as an antiseptic, disinfectant, antiparasiticide, in syphilis, interstitial nephritis. (3) *Liquor arseni et hydrargyri iodidi* (Donovan's solution), dose ℥ij; used as an alterative. (4) *Hydrargyrum cum creta*, dose gr. ss to x; used in syphilis, diarrhea, biliousness. (5) *Massa hydrargyri*, dose gr. ss to x; used in biliousness, fevers, diarrhea.

3. *Cholagogue:*

℞ Resinæ podophylli.....gr. vj
Extracti belladonnæ foliorum.....gr. iij
Pulveris capsici
Pulveris sacchari lactis.....āā gr. xxiv
Pulveris acaciæ.....gr. vj
Glycerini
Syrupi.....āā q. s.

Fiat massa in pilulas No. xxiv dividenda.

Signa: Take one or two, as required.

4. *Action of Thyroid extract:* "It is a powerful vasomotor dilator, causing flushing of the cutaneous surface; large doses are apt to produce loss of appetite and diarrhea; it stimulates the cerebrum and, given to excess, produces headache, restlessness, insomnia, palpitations, hot flushes, sweating, tremors, and even convulsions; it is excreted by the kidneys, and the quantity of urine is uniformly increased by it; it induces a greatly increased oxidation in the system."—(Wilcox's *Material Medica.*)

Action of Suprarenal extract: "It is a strong cardiac stimulant, slowing the pulse rate and affecting the heart muscle in the same way as digitalis; it is a powerful vasoconstrictor and raises blood pressure more than any other known substance; it increases the tone of all muscular tissue; it causes diminution of peristalsis and a depression of the respiratory center, which may result in respiratory failure and death."—(Wilcox's *Materia Medica.*)

Action of Thymus extract: It is supposed to be concerned in the formation of bone salts, to be a reconstructive, and to have a hemostatic action.

Action of Pituitary extract: It stimulates the heart and contracts the blood vessels, but not so powerfully as the suprarenal extract does.

5. DIGITALIS.—*Physiological action:* It is a gastrointestinal irritant, it slows the rate of the heart, prolongs diastole, increases the force of the heart, it contracts the blood-vessels, and causes a rise in blood pressure, it also acts as a diuretic. *Therapeutic use:* Digitalis is indicated in diseases of the heart: (1) when the heart action is rapid and feeble, with low arterial tension; (2) in mitral lesions when compensation has begun to fail; (3) in nonvalvular cardiac affections; (4) in irritable heart, due to nerve exhaustion. Digitalis is *contraindicated* in diseases of the heart: (1) in aortic lesions when uncombined with mitral lesions (2) when the heart action is strong, and arterial tension high. Digitalis is also a diuretic; and it is also used in some forms of nephritis, exophthalmic goiter, pneumonia, chronic bronchitis, etc. *Dangers: Overdose or constant use* will cause irregularity of the heart, headache, vomiting; and hobbling dicrotic pulse, particularly when the patient changes from the recumbent to a sitting posture. In *cardiac conditions*, the tincture should be used; when it is employed as a diuretic, the infusion is indicated.

6. *Diuretics act:* (1) By increasing the general arterial pressure (as digitalis); (2) by dilating the renal vessels (as caffeine); (3) by drawing water into the blood (as potassium citrate); (4) by stimulating the renal epithelium (as calomel).

7. The *official bromides* are: Potassium bromide dose 15 grains; sodium bromide, dose 15 grains; ammonium bromide, dose 15 grains; lithium bromide, dose 15 grains; calcium bromide, dose 15 grains; strontium bromide, dose 15 grains.

Physiological action: "The bromides in concentrated solution are gastrointestinal irritants. They are directly depressant to the cerebrospinal axis, producing lassitude, drowsiness, and sleep (which, however, is never very deep), with marked diminution of reflex irritability and of the respiratory and sexual functions. They are diuretic, especially the lithium salt, and are excreted mainly in the urine, but to some extent also in the perspiration and milk, and probably by the bronchial and intestinal mucous membrane. Potassium bromide weakens the heart's action and is also more depressing to the central nervous system than the other. Lithium bromide is the richest in bromine and is thought to have the most pronounced hypnotic effect

The strontium and calcium salts are said to produce less digestive disturbance than those of the alkalies, but they appear to be absorbed more slowly. In bromism, or chronic poisoning, there are acne or other skin eruptions, a catarrhal condition of the mucous membranes, derangement of digestion, diminished sensibility, especially of the faucial mucous membrane, uncertain gait, dulled intellect, impairment of memory, and an apathetic expression of countenance.

"*Uses:* The bromides constitute our most valuable remedy for epilepsy, but as they must be continued for a long period, every effort should be made to minimize their injurious effects upon the system. They are much used also, either alone or in combination with other drugs, in the treatment of insomnia, nervousness, hysteria, neuralgia, migraine, delirium tremens, seasickness, seminal emissions, nymphomania, and various forms of convulsions. Except in cases of epilepsy they should not, as a rule, be given continuously very long, on account of the danger of the patient's contracting the bromide habit."—(Wilcox's *Materia Medica.*)

8. The *symptoms of poisoning by opium* are as follows: "At first there is usually a period of excitation, marked by restlessness, great physical activity, loquacity, and hallucinations. The patient then becomes weary, dull, and drowsy; he yields to the desire for sleep, from which at first he may be roused. The lips are livid, the face pale, the pupils contracted, and the surface bathed in perspiration. The condition of somenolence rapidly passes into narcosis. The patient cannot be roused, and lies motionless and senseless, with completely relaxed muscles. The pulse, at first full and strong, becomes feeble, slow, irregular, and easily compressible; the respiration slow, shallow, stertorous, and accompanied by mucous râles. The patient rapidly becomes comatose, and, in fatal cases, dies in from forty-five minutes to fifty-six hours, usually in from twelve to eighteen hours. In cases of recovery after the stage of narcosis the pulse and respiration gradually return to the normal, and the condition of coma passes into one of deep sleep, lasting twenty-four to thirty-six hours."

Treatment: "Wash out the stomach with a dilute solution of potassium permanganate, leaving about 500 c.c. in the stomach, and maintain the respiration. In the first or second stage the 'ambulatory treatment' should be adopted to prevent, if possible, the establishment of the third stage. If this stage develop, the main reliance is to be placed in maintaining the respiration by artificial methods, until the poison has been eliminated. Strong coffee or caffeine, by the mouth or rectum, are of benefit. The same cannot be said of atropine. The urine should be drawn by the catheter."—(Witthaus' *Essentials of Chemistry.*)

The coma of opium poisoning may be confounded with the coma of cerebral hemorrhage, alcoholic coma, uremic coma, and diabetic coma.

9. *Two neurotic poisons:* Opium, and hydrocyanic acid.

Two corrosive poisons: Mercury, and potassium hydroxide.

The effects of the *neurotic poisons* are most seen in the brain and spinal cord. The effects of the *corrosive poisons* are most seen in the tissues with which they come in contact—generally the mouth, esophagus, and stomach.

10. *Treatment for poisoning by opium:* See QUESTION 8. The chemical antidote is potassium permanganate.

Treatment for poisoning by carbolic acid: Sodium sulphate or magnesium sulphate, warm mucilaginous drinks, cardiac and respiratory stimulants by hypodermic, warmth to the body, emetics, are all indicated. Alcohol may also be administered. The chemical antidote is alcohol or a soluble sulphate.

Treatment for poisoning by bichloride of mercury: The antidote is white of egg, but too much must not be given at one time; this should be followed by an emetic.

Treatment for poisoning by nitrate of silver: Milk, mucilaginous drinks, and an emetic; the chemical antidote is sodium chloride.

Treatment for poisoning by iodine: Emetics, followed by washing out the stomach with a solution of starch. Starch is the chemical antidote.

PATHOLOGY.

1. *Plastic inflammation* "is characterized by the formation of a firm, false membrane, due to the coagulation of the plasma exuded from the vessels, the resulting fibrin being deposited on the surface. When involving a serous surface, such as the pleura, peritoneum, or synovial membrane, it gives rise to a layer of plastic lymph, which may organize into adhesions; it is also seen in the alveoli of the lungs in lobar pneumonia. On mucous membranes, such as the conjunctiva or that of the pharynx, it occasionally forms white, flaky masses, which can be readily detached, leaving an injected surface below, with merely one or more oozing points, and no loss of substance."—(Rose and Carless' *Surgery.*)

2. In *mitral stenosis* "there is an increase in the intra-auricular pressure toward the end of auricular diastole, due to the blood from the lungs flowing into an insufficiently emptied auricle; the consequent dilatation and stretching excite the auricle to very vigorous contractions, which become augmented in consequence of the obstruction to the discharge of blood. The result is an extraordinary enlargement (hypertrophy and dilatation) of the left auricle, which may attain dimensions three or four times the normal. Increased intrapulmonary pressure is followed by hypertrophy and dilatation of the right ventricle."

In *aortic regurgitation* "the left ventricle during diastole receives blood from two sources—the normal volume from the left auricle and a variable amount, the regurgitating stream, from the aorta. The intraventricular diastolic pressure becomes increased. The tension and stretching to which the ventricular musculature is thus subjected stimulate it to vigorous contractions, and ultimately induce more or less hypertrophy. The enlargement of the cavity of the ventricle (dilatation) and the concomitant hypertrophy may, and usually do, counterbalance each other. Ultimately the heart may reach enormous proportions, the largest seen."—(From Kelly's *Practice of Medicine.*)

3. The *degenerative changes of arteries* are: Fatty degeneration, amyloid degeneration, hyaline degeneration, and calcification.

4. In *inflammatory rheumatism* the pains and symptoms in general are in connection with the joints, whereas in osteomyelitis the shaft of the bone is more apt to be affected; there is no suppuration in the rheumatism, in osteomyelitis there is; in rheumatism the pain and fever can often be lessened by the administration of salicylates; this is not so marked in osteomyelitis.

5. *Necrosis* is death of a limited portion of tissue in the living body. It is generally due to want of nutrition due to the cutting off of the blood supply to the part (this may be caused by thrombosis, embolism, pressure, or ligature), and this accounts for the lack of hemorrhage in gangrenous lesions.

BACTERIOLOGY.

1. The *three basic forms of bacteria* are: Cocci, bacilli, and spirilla. *Cocci* are spherical or oval, and may appear singly, in pairs, in chains, or in groups. *Bacilli* are rod shaped, with the longer sides parallel and the short ends either straight, rounded or concave. *Spirilla* are spiral, with one or more curves.

2. *Immunity* is the power of resistance of the cells and tissues of the body to the action of pathogenic microorganisms. Immunity may be either natural or acquired.

Natural immunity is that power of resistance, natural and inherited, and peculiar to certain groups of animals, but common to every individual of these groups.

Acquired immunity is this resistance acquired (1) by a previous attack of the disease, or (2) by the person being made artificially insusceptible. The chief conditions which give immunity are: (1) A previous attack of the disease; (2) inoculation with the specific microorganisms in small numbers or of diminished virulence, so as to produce a mild attack of the disease; (3) vaccination; (4) the introduction of antitoxins; (5) the introduction of the toxins of the bacteria.

Immunity may be destroyed, by: Lapse of time, lessened resistance or vitality of the body, cold, wet, fatigue, improper or insufficient food, excesses of all kinds, certain drugs, and improper environment.

3. The cerebrospinal fluid should be received in a

sterile container, and then centrifuged. The *laboratory methods of diagnosis of tuberculous meningitis* are finding the tubercle bacilli in the cerebrospinal fluid, cultivating them from the same, and injecting rabbits or guinea pigs with the fluid or sediment, and causing tuberculosis in these animals.

The *cerebrospinal fluid* may be clear or turbid when drawn, but a slight deposit forms on its being allowed to stand. There is a decided increase in the lymphocytes and polynuclears in the fluid, and the tubercle bacilli may be found in the fluid or the sediment. The fluid is increased in quantity; its protein content is also increased.

4. *Specific microorganisms have been recovered from the blood,* in the following diseases: Typhoid, septicemia, pyemia, osteomyelitis, pneumonia, influenza, diphtheria, gonorrhea, tuberculosis, anthrax, bubonic plague, syphilis, leprosy, malaria, trypanosomiasis.

5. *In examining for malaria:* "Prepare some perfectly clean and very thin cover slips, and remove all traces of grease. Cleanse the skin of the finger-tip or ear with soap and water, and then with alcohol and ether. Make a *small prick* in the skin. Wipe away the first drop of blood, leaving a perfectly dry surface, so that subsequent drops will not run. Squeeze out a tiny drop about the size of a large pin's head. Touch the apex of this drop with the center of a cover glass, and immediately drop it, face downward, on a perfectly clean slide. Make several such preparations, and reject all those in which rouleaux are present. It is absolutely essential that the red corpuscles should lie flat. Examine with a 1/12 immersion lens and rather feeble illumination. Look in the red corpuscles for the presence of small black specks, often rod-like and showing slow movements of translation. These are surrounded by clear areas. One may also see in the center of some of the red cells clear ameboid areas which show no pigment. Rosette forms may also be visible. These forms of the parasite are always present in cases of malaria which have not had quinine. Other varieties are only met with in some chronic cases. Of these there are two chief forms: (1) The crescentic, (2) the flagellated. These are easily recognized. The crescentic bodies are highly refractile, rather longer than a red blood corpuscle, and about 2μ in diameter. Particles of pigment may be recognized in the parasite and also in some of the ordinary leucocytes."—(Hutchinson and Rainy.)

Further, in *malaria* the Widal test is negative.

In *typhoid* the Widal test will probably be positive, and there will be no malarial parasites in the blood.

The Widal reaction: "Three drops of blood are taken from the well-washed aseptic finger tip or lobe of the ear, and each lies by itself on a sterile slide, passed through a flame and cooled just before use; this slide may be wrapped in cotton and transported for examination at the laboratory. Here one drop is mixed with a large drop of sterile water, to redissolve it. A drop from the summit of this is then mixed with six drops of fresh broth culture of the bacillus (not over twenty-four hours old) on a sterile slide. From this a small drop of mingled culture and blood is placed in the middle of a sterile cover-glass, and this is inverted over a sterile hollow-ground slide and examined. . . . A positive reaction is obtained when all the bacilli present gather in one or two masses of clumps, and cease their rapid movement inside of twenty minutes."—(From Thayer's *Pathology.*)

(*To be continued.*)

BULLETIN OF APPROACHING EXAMINATIONS

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION†	
Alabama*	S. W. Welch, Montgomery	Montgomery	July 8
Arizona*	A. H. Williams, 219 Goodrich Building, Phoenix	Phoenix	July 1
Arkansas	T. J. Stout, Brinkley	Little Rock	May 13
California	C. B. Pinkham, Sacramento	San Francisco	June 23
Colorado	David A. Strickler, Empire Building, Denver	Denver	July 1
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	July 8
Delaware		Wilmington	
Dist. of Col'bia	E. P. Copeland, Washington	Washington	July 8
Florida*	W. M. Rowlett, Tampa	Jacksonville	June 16
Georgia	C. T. Nolan, Marietta	Atlanta	June 5
Idaho*	Ray H. Fisher, Rigby	Pocatello	
Illinois	F. C. Dodds, Springfield	Chicago	
Indiana	W. T. Gott, Crawfordsville	Indianapolis	
Iowa	G. H. Sumner, Des Moines	Iowa City	
Kansas	H. A. Dykes, Lebanon	Topeka	
Kentucky	J. N. McCormack, Bowling Green	Louisville	July 1
Louisiana	E. W. Mahler, New Orleans	New Orleans	July 1
Maine	F. W. Searle, Portland	Augusta	July 1
Maryland	J. McP. Scott, Hagerstown	Baltimore	July 15
Massachusetts*	W. P. Bowers, 1 Beacon St., Boston	Boston	May 13
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor	June 10
Minnesota	T. McDavitt, St. Paul	Minneapolis	June 3
Mississippi	J. D. Gilleylen, Jackson	Jackson	
Missouri	G. H. Jones, Jefferson City	St. Louis	June 9
Montana*	S. A. Cooney, Helena	Helena	Oct. 7
Nebraska	H. J. Lehnhoff, Lincoln	Lincoln	June 30
Nevada	S. L. Lee, Carson City	Carson City	May 5
N. Hampshire	Walter T. Crosby, Manchester	Concord	
New Jersey	A. MacAlister, Trenton	Trenton	June 17
New Mexico	R. K. McClanahan, East Las Vegas	Santa Fe	
New York	G. M. Wiley, Univ. of State of New York, Albany	New York / Albany / Syracuse / Buffalo	May 20
N. Carolina	H. A. Royster, Raleigh	Raleigh	June 23
N. Dakota	G. M. Williamson, Grand Forks	Grand Forks	July 1
Ohio	H. M. Platter, Columbus	Columbus	
Oklahoma	J. J. Williams, Weatherford	Oklahoma City	
Oregon	B. E. Miller, Portland	Portland	July 1
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia / Pittsburgh	July 8
Rhode Island	B. U. Richards, Pawtucket	Providence	July 10
S. Carolina	A. E. Boozer, Columbia	Columbia	June 10
S. Dakota	P. B. Jenkins, Wanbay	Deadwood	July 8
Tennessee	A. B. DeLoach, Memphis	Memphis / Nashville / Knoxville	June
Texas	M. F. Bettencourt, Mart	Austin	June 24
Utah	G. F. Harding, Salt Lake City	Salt Lake City	
Vermont	W. Scott Nay, Underhill	Burlington	June 8
Virginia	J. W. Preston, Roanoke	Richmond	June 17
Washington*	C. N. Suttner, Spokane	Seattle	July 1
W. Virginia	S. L. Jepson, Charleston	Huntington	July 15
Wisconsin	J. M. Dodd, Ashland	Milwaukee	June 24
Wyoming	H. E. McCollum, Laramie	Moorcroft	
National Board	J. S. Rodman, 1310 Medical Arts Building, Philadelphia	Philadelphia	June 2

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for all the details regarding the examination in any particular State.

Cysticercus Bovis in the Human Breast.—Fontan reports the following case. A woman aged forty-five years consulted for a small swelling in the left breast not larger than a cherry pit. It lay outside the nipple area, was hard and non-adherent. Five axillary lymph nodes were inflamed. Cancer, tuberculosis, and syphilis could be eliminated and the residual diagnosis was adenoma. The woman demanded to be freed from this infirmity, irrespective of the hazard. The examination of the stools chanced to reveal segments of a tenia saginata, and a tenifuge led to the complete expulsion of the worm. The cyst was excised and was found to contain the head of the parasite in question, corresponding in every way to the expelled parasite's head. The case was therefore one of so-called "ladrerie," that dread medieval affection, which is fortunately very rare at present."—*La Presse Médicale.*

On the So-called Graser's Diverticle in the Sigmoid Flexure.—Basilier describes a case of diverticle formation in the sigmoid flexure in a man of 49 who came to operation with pronounced symptoms of intestinal occlusion. The laparotomy showed the presence of a diverticle the size of the little finger and 10 cm long, the distal extremity of which was adherent to the abdominal wall and great omentum. It was also fused to the ileum in three different places as a result of abscess formation. The loops of ileum at the sites of adhesion were markedly narrowed. Moreover the sigmoid itself was stenotic at the point of origin of the diverticle. Its wall was thickened, with bulging into the lumen. The piece of sigmoid resected included the diverticle and stenotic area. For the first 10 days after operation the condition of the patient was excellent. The pulse was good, the bowel movements spontaneous and the temperature but slightly elevated; then after an enema the patient suddenly collapsed and on the 14th postoperative day died of diffuse peritonitis. Autopsy revealed a small, gaping opening at the site of origin of the diverticle. The microscopical examination revealed that in this Graser diverticle not all of the intestinal tunics were present. The wall consisted chiefly of dense connective tissue and the mucous layer was here and there necrotic. No muscle elements were present. This anomaly is doubtless responsible for much so-called perisigmoiditis.—*Finska Läkaresällskapets Handlingar.*

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 95, No. 18.
Whole No. 2530.

NEW YORK, MAY 3, 1919.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

THE ETIOLOGY OF PNEUMONIA AND ITS SERUM TREATMENT.

BY FENTON B. TURCK, M.D.,

NEW YORK.

EXPERIMENTAL evidence shows that tissue cell substance of the animal species to which it belongs, and not the ferments, determines the specific action on the organism. The ferments of microorganisms (trypsin, pepsin, and erepsin) must first digest the tissue of the "infected" animal before disease occurs, and so-called "specific infection" is but the reaction on the tissues or organ involved. As we have shown,[1] the injection or the absorption of the poison of self-digested tissue of the animal or of the tissue belonging to the same species causes definite lung lesions. The most classical form of lung disease occurs when products of autolyzed lung tissue of the animal or of an animal of the same species reach the lung by the bronchial tubes or the (capillary) circulation in the lung.

The following experiments with autolyzed lung tissue, made absolutely free from microorganisms, show that it is the products of digested lung tissue and not the microorganisms that produce lung disease.

Method.—Fresh normal cat's lung tissue was autolyzed in a sterile chamber of chloroform vapor for 48 hours. No bacteria were found, microscopically or by culture, in the autolyzed tissue products, which gave a strong biuret reaction. A special tube attached to a respiratory indicator was inserted into the cat's trachea and 0.5-1 gram emulsion of this sterile autolyzed lung tissue was insufflated into the trachea. By the animal's increased inspiration a small part of this lung tissue product was aspirated into the finer bronchi and caused death of the animal within four minutes. In other animals typical pneumonia occurred of both bronchial and lobar forms. In cases of immediate death the tissue changes in the lungs were focal in type, with disseminated hemorrhagic areas, while the entire lung was hyperemic; in some cases it was soaked with blood.

General Findings and Discussion.—A comparatively small amount of the lung toxin reached the finer bronchioles, but only a very small quantity was needed to cause these acute conditions and death. When the amount of fine lung tissue toxin was much diluted on reaching the lung tissue cells, death was delayed, and pneumonia of both bronchial and lobar types resulted. In those instances in which death was delayed, classical pneumonitides of bronchial type, with numerous focal lesions, becoming hard and resistant, were observed. If the pneumonic process continued for a week or ten days typical lobar pneumonia resulted, with hepatization. The interesting fact observed was that no reaction in the early stages was apparent in the trachea or bronchi, which appeared quite normal.

TABLE—CATS INSUFFLATED WITH AUTOLIZED CAT LUNG TISSUE

Cat. No.	Time of Death After Insufflation.	Time of Examination Made Under Anaesthesia.	Pneumonic Findings on Immediate Post Mortem.		Remarks
			Bronchial Type.	Lobar Type.	
P 1	4 min.			+	Intense congestion of both lungs.
P 2	3 min.		+		Lungs appeared soaked in blood.
P 3	5 min.		+		Liver lobes involved and lungs congested.
P 4	10 hrs.			+	Sneezing. Rales.
P 5	.....	45 hrs.	+		Rales.
P 6	24 hrs.		+		Coughing.
P 7	Shock	25 min.	+		Resection of lungs.
P 8	15 min.		+		
P 9	5 hrs.		+		Profound symptoms from the beginning.
P 10	10 days		.....	+	Pleuritic effusion.
P 11	8 days		.....	+	Coughing and sneezing.
P 12	.....	3 days	+		Coughing. Rales.
P 13	3 min.		+		
P 14	2 hrs.		+		
P 15	36 hrs.		+		
P 16	4 min.			+	Intense engorgement
P 17	5 min.		+		Reaction in both lungs
P 18	Shock	5 min.	+		Reaction in both lungs. with hemorrhages.

The pathological lesions in the lung produced by the absorption of autolyzed tissue products are similar in character to the lesion produced when the homologous tissues are autolyzed in *vitro* and injected intravenously into the animal. A glance at the finer histological elements in the lung alveoli and the relation to the capillary blood supply will make the pathology more clear. Each bronchiole branches into small ducts which widen out into several alveolar ducts and lead into the air sac or alveolar sac. Small depressions in the walls of the air sac are the saccules or alvei. The fine bronchioles, small ducts, and alveolar sacs and saccules are all lined throughout with thin squamous epithelium. Communication between one system of respiratory chambers and its neighbor is said to exist by small channels or pores. The capillary network of the blood supply of the air sacs from the pulmonary artery is the densest capillary plexus in the body.

The endothelial cells of the capillaries and the thin respiratory epithelium forms the thinnest partition between the air space and the blood which permits the instantaneous exchange of gases, and

also the absorption of nutrient matter as well as the excretion of waste. All the alveolar sacs, ducts and finer tissues are supplied by the pulmonary artery. The effete waste from the blood on one side and products within the finer bronchi and air sacs on the other have opportunity of prompt and ready reactions with the blood. The most effective reaction can be produced by autolyzed lung tissue. The injection of autolyzed lung tissue into the blood causes instant engorgement of all of the lung capillaries. If instead of injection in the blood vessels the autolyzed lung tissue is insufflated into the trachea it reaches the respiratory epithelium and the same instantaneous pulmonary congestion takes place, death occurring usually in three or four minutes. It is in this zone that the reaction takes place when autolyzed tissue products reach the lung by the blood stream and the respiratory epithelium appears to determine the reaction. But of great practical interest is the remarkable fact that autolyzed lung tissue insufflated into the bronchi causes no reaction of the respiratory tract until it reaches the respiratory epithelium which is in virtual contact with the endothelium of the capillaries. No pathological changes are seen in the trachea or the bronchioles, but the reaction originates in the distal portion of the bronchial alveolar system connected with the surrounding dense capillary plexus. When death is delayed the reaction extends up to the bronchial mucosa and classical pneumonitis of the bronchial type appears with acute catarrhal symptoms. This extension is secondary to the reaction in the alveolar system just described. The extension of the "catarrh" and congestion of the respiratory mucosa passed *upward* to the pharyngeal and nasal mucosa and into the nasal ducts and conjunctiva.

The method by which the autolyzed lung tissue may be carried into the trachea under more natural conditions is shown by the following experiments.

Cats Paws Covered with Thin Paste of Cat Autolyzed Lung Tissue.—The cat lung tissue was autolyzed under the same sterile conditions as in the previous experiments.

A group of ten cats was selected and examined to exclude any respiratory disturbance, and then placed in a large cage. The front paws of five of these animals were coated with a thin paste of the autolyzed cat lung tissue. The animals were tagged and placed back in the cage with the other five cats that had not had the application of "lung paste." Within two hours several of the cats began to sniffle and sneeze. Within twelve hours all the cats, those that had had their paws coated and the others in the same cage that had not had the application of paste, had symptoms of involvement of the lungs. Eight of these cats died from pneumonia within 48 hours to one week after the application of the lung paste. Some of the animals showed extensive respiratory pathological conditions. They also showed nasal discharge, eyes reddened, conjunctive discharging and extensive rales over both lungs. The temperature at first dropped and later rose, but the temperature records were no guide to the degree of lung involvement.

The post-mortem findings were similar in character to those in which the lung tissue was insufflated into the trachea. In some of these animals the lungs showed acute hemorrhagic pneumonitis. In others there was hepatization of lobar type with dense hardened nodules. In others again both types were shown in the same lung.

The early changes seemed to be confined to the capillary areas of the pulmonary arterial zone. High viscosity and clotting of the blood was found early, with blood stasis and areas of hemolysis.

These experiments have been repeated many times with different animals, but as would be seen by the controls the reactions were chiefly confined to the species.

Controls.—The insufflation into cats of autolyzed dog, beef, sheep, rabbit, and horse lung tissue did not result in pneumonia or death. The spreading on cat paws of autolyzed lung tissue from these animals did not result in respiratory disease or death; single intravenous injections of alien autolized tissue was likewise negative.*

Pneumonia organisms, Types I, II, III, and IV, insufflated into the trachea of cats or any of the other animals, does not produce acute pneumonia, provided, as is well known, that "flooding" the respiratory tract does not occur. The insufflation of large amounts of any ferments or enzymes that occur with bacterial cultures may cause destruction of lung tissue in the animal and excite pneumonitis. The spraying of the pneumonia group directly into the nostrils and throat of the animal did not cause pneumonitis and the animals did not die. One animal sprayed with hemolytic streptococci developed an abscess in the hind leg.

Chloroform insufflated into the trachea, or any chemical substance that caused destruction of lung tissue would ultimately produce in a certain number of animals a condition of pneumonitis. This was the same in effect, as I have shown, as when chloroform is injected into the skeletal muscle tissue of the body.†

The following are the different methods of producing pneumonia with autolyzed lung tissue products. (1) Tracheal insufflation by intubation and aspiration into the bronchi. (2) Intratracheal injection with needle syringe. (3) Intravenous injection. (4) Subcutaneous injection. (5) Spraying with nebulizer among the animals in the cage. (6) Direct spray into the animal's nostrils. (7) Application of "lung paste" to cats' paws.

Controls.—Dog, beef, sheep, horse lung tissue, bacterial cultures, pneumonia, Types I, II, III IV. Streptococcus hemolyticus, and staphylococcus No animals made immune with antiserum here described died from pneumonia when subjected to the same insufflation of lung tissue or paws covered with the lung paste.

Subacute and Chronic Conditions.—The value o this experimental work in lung pathology with autolyzed tissue of the species of the animals used is that the pathological conditions and death are so immediate, so dramatic, so intimately connected

*Jackson[2] found that bronchially-lodged bones and meat, though fine and soft with bacterial putrefaction caused but slight effect.

†Weiss, Kolmer & Steinfield found that normal human lung when injected into animals by various routes was one-fifth (1/5) as toxic as "pneumonia tissue." Weiss concludes that neither undigested pneumococcii protein nor albumin derived from lung tissue possessing sensitizing power are demonstrable in pneumonic exudate.

with the causative factors that there is no escape from forming a definite conclusion. The introduction of the autolyzed products by way of the bronchi and by the circulation gives practically similar prompt reactions and death.

In chronic conditions similar reactions may be traced, although the chronic status is always more involved than the acute condition.

Immunity.—The reason why it has been so difficult to immunize against most of these microrganisms is that effort has made to immunize against the bacteria and their ferments when in reality the determining direct active toxin is the digested tissue products of the host against which immunity must be established to be effective.

Lamb and Brannin[4] in their recent report on pneumonia arrived at the same conclusion of the Public Health and Allied Congress reports, which the writer recently quoted (1919)[1], showing the utter failure of the attempt to immunize specifically against any type of bacteria or their toxins. Wells and Osborne (1913)[3] show that a single protein molecule can act with and produce more than one antibody. According to Lamb and Brannin[4] there was no apparent specific action in any type of serum or bacterial filtrate. The same results were obtained from antimeningococcic, antitetanic, and antidiphtheria sera as from antipneumococcic serum. The final results were the same as others experience in pneumonia treatment as they conclude, "In view of our death rate which we know was about the average," but there was obtained from the free use of these sera and bacterial filtrates, a lessening of the hemorrhagic tendency. They also add, "No improvement resulted unless a reaction occurred." This is most significant confirmation in line with our experimental active immunity. I have frequently noted that these bacterial filtrates and "anti" sera, while nonspecific, do cause (by their enzymes) cell necrosis and autolysis in the injected animal. If these injections are repeated in small doses I obtained antibodies against the animals' own tissue poisons providing there was a reaction.[1] If autolized tissue is the specific toxin to the species it should be able to produce a specific antibody. This I have been able to obtain by repeated injection of autolyzed human tissue into horses. At the end of six months a protective and curative serum was obtained. While native autolized tissue may be specific poison, it is in a sense foreign because it is not only not living but is disintegrated. It therefore creates a reaction in the organism. The writer uses those agents that he can control to more exact doses to cause tissue autolysis, hence chloroform has been used in connection with use of the *specific antisera.*[1] The "antitoxin" or immune sera results in the brilliant specific immunizations against a variety of diseases that are associated with tissue autolysis.

Method of Preparation of the Specific Immune Serum.—For the animal experimental work, goats are used to produce the immune sera, and for clinical work we used horses.

The preparation of the antigen "A" is a nonbacterial autolized tissue under chloroform vapor, and kept sterile with tricresol. This is injected intravenously into the animal at regular intervals for six months. Antigen "B" is used especially in control work which represents the same as antigen "A" but with the addition of bacteria to hasten tissue autolysis.

The tissue selected for the autolysis in antigen "A" is the heart, "B" the lung and "C" the muscle wall of the stomach and duodenum. Goats for experimental work are intravenously injected first twice a week then once a week for six months. The horses for the production of clinical sera are injected intravenously with human autolyzed tissue three times a week and later once a week. This is continued for six months when a high titer of antisera is obtained.

The production of similar sera has been attempted but for somewhat different purposes. Weichardt (1912) claims to have demonstrated by muscular fatigue a toxin called kenotoxin against which an antitoxin may be obtained.

The "cytotoxin" or cytolytic antibodies that have been prepared have proven defective. Pierce describes the method as follows. "A rabbit is injected intraparietal with 'tissue cells' from various organs for only three doses, as subsequent doses increase the danger of losing the animal." The animal is bled one week after receiving the three injections. One of the uses of these "cytotoxins" was with the idea of treatment of cancer by destruction of the cancer cells. Wells concluded that owing to the uncertain state of the subject of "cytotoxin," it may be dismissed, which was similar to the conclusion of Kolmer, as "their use had been disappointing." Wells further remarks: "It may be said, however, that recent developments indicate that various tissues not only contain proteins which exhibit the species characteristic of the entire animal, but also other proteins or antigenic radicals which are more or less independent of these and characteristics to a certain degree for the tissue from which the antigen was obtained. This being the case, we cannot consider the problem of specific cytotoxins a closed chapter; improved methods for separating our antigens may yet enable us to secure antibodies specific for a single tissue or organ."

Zinsser says: "The cytolytic antibodies may be quite distinct from the albuminolytic amboceptors which are developed against unformed antigens."

In my experimental work and in the sera for clinical use it requires six months of carefully graded dosages and prepared human antigen to obtain the specific antisera that we now use.[1]

The success in all animal experiments has been well confirmed by clinical application of the sera to a large number of cases and variety of conditions.[1]

The reports from hospitals and private practice have rapidly accumulated so that a large statistical record confirms the valuable scientific comparative study in animal experiments.

REFERENCES.

1. Turck, F. B.: "Role of Cell Necrosis" MEDICAL RECORD, March 22, 1919, Vol. 95, No. 12; also "The Primary Cause of Shock" MEDICAL RECORD, June 1, 1918, Vol. 93, No. 22.

2. Jackson: "Observations in the Pathology of Foreign Bodies in the Air Passages," *Surgery, Gynecology and Obstetrics*, March, 1919, XXVIII, 3, pp. 215-6.

3. Wells and Osborne: *Journal of Infectious Diseases*, 1913, 12, 341.

4. Lamb and Brannin: *Jour. Am. M. A.*, April 12, 1919, p. 1056.

14 EAST FIFTY-THIRD STREET.

SYPHILIS OF THE LUNGS.*

By M. FORD MORRIS, Jr., M.D.,

ATLANTA, GA.

SYPHILIS has been in our midst for lo! these many years—so long, in fact, that "the mind of man runneth not to the contrary." It is possible that lues venerea made its début into human social and sexual circles soon after Madame Eve partook of the forbidden fruit. Anyway, about two centuries before the dawn of Christianity, a Chinese named King described the symptoms of syphilis. In the Bible the references to the "emerods in the secret parts, the unclean man with a "running issue of the flesh," and to the "itch whereof thou canst not be healed" are very suggestive of luetic infection. Syphilis may have been present when the daughters of Moab vexed the Israelites with their wiles; and surely it had a most excellent opportunity to become a skeleton in the closet of every member of the various so-called religious cults of Rome, Assyria, and Asia Minor, whose doctrines taught and encouraged the wildest license, and whose "holy" meetings were nothing more than sexual debauches. In any event, we know that some Spanish sailors contracted this disease in Haiti, in the fifteenth century, and that they soon syphilized Barcelona. At the end of the fifteenth century the syphilitic soldiers of Charless VIII carried this disease to Naples. And then the pox swept over Europe. Commenting upon the lamentable prevalency of syphilis at this time, Astruc made the oft quoted statement that every one, from the Roman pope to the lowest scullion in Christendom, was infected with syphilis. Since that time the pox has traveled to every latitude and longitude, and has left its mark upon some door in almost every community. In the war just ended syphilis played havoc with soldiers of every army.

Although the pale spirochete multiplies within the bodies of an appalling percentage of the earth's human inhabitants, and affects every organ and tissue, excepting possibly the prostate gland, this organism attacks infrequently the lung. In 1898 there were in the London museums but twelve specimens of this condition. In some 2,800 autopsies done at the Johns Hopkins Hospital, reviewed by Osler, there were but twelve cases of syphilis of the lungs, of which number eight were of the congenital type. Among 3,000 autopsies done at the Massachusetts General Hospital, Lord found only one case showing indurative pneumonia, with cavity formation. In a study of 4,880 autopsy protocols Symmers found the lung involved in twelve cases and the presence of syphilitic pleural scars in two more. Even though this condition is comparatively rare, it is probably recognized more frequently now than formerly it was.

Depending upon either the prenatal or postnatal beginning of the syphilitic process, pulmonary lues is usually considered from the hereditary and the acquired aspects.

Inherited Syphilis of the lungs is of two kinds: circumscribed and diffused, the former being known as "gumma" and the latter as "pneumonia." Hereditary pulmonary gummata are rare and differ in no way from the acquired form. The diffuse form is known either as "white pneumonia" or "interstitial pneumonia"—but these two lesions usually are combined. Virchow described a diffuse change in the lungs of stillborn children or those who lived only a few hours. To this condition he applied the name "white pneumonia." Lorain and Robin referred to it as epithelioma of the lung. In white pneumonia the lung is much larger than it is normally, and its surface often shows the impressions of the ribs; part or all of a lobe is usually affected, but even both lungs may be consolidated. The lung is usually of a white or greyish-white color, is heavy, dry, and in stillborn children the affected part is devoid of blood and air. The alveoli are enlarged and filled with masses of cells, and the alveolar walls are thickened. The small bronchi are also filled with these cells, which are usually undergoing fatty degeneration. As a result of capillary pressure, the blood supply to the lung areas affected is greatly diminished in the cases that have lived a short time. Characteristic signs of congenital syphilis elsewhere are usually present, and the baby is usually born before full term.

Interstitial Pneumonia often is associated with pronounced prenatal luetic lesions elsewhere. The life of a child with this condition is not prolonged. The most characteristic features of interstitial pneumonia are a small-celled infiltration of the interalveolar connective-tissue and a marked increase of the interlobular connective-tissue. In some cases the interalveolar strands enclose a network of dilated and tortuous capillaries. There is an increase of connective-tissue around the vessels and bronchi, and the tunica intima of the small arteries is also thickened.

Hocksinger summarizes the morbid processes affecting the lungs of syphilitic children as follows: "(1) A round-celled infiltration and proliferation of the interlobular and interalveolar connective-tissue, originating in the cellular tissue around the bronchi, and leading to marked thickening of the lung; and (2) an isolated perivascular cell proliferation, which begins around the small arteries, and is accompanied by changes in the tunica intima." The lungs of syphilitic children contain an enormous number of the spirochetes of Schaudinn and Hoffman; and these cases are of interest chiefly to the pathologist.

In *acquired syphilis*, the chief pulmonary lesions are (1) Gummata, (2) bronchopneumonia, (3) fibroid induration or chronic interstitial pneumonia and (4) a progressive destructive disease—the so called "syphilitic phthisis."

Gummata in the lungs are similar to gummata elsewhere. They range in size from that of a millet seed to that of a hen's egg; and they occur in all parts of the lung, but most frequently within the substance of the lung near the hilus. In early stages of their development, gummata are grayish red or grayish-white in color, somewhat translucent and have a surrounding zone of congestion. Later these gummata become opaque and somewhat caseous, and have a surrounding envelope of thick fibrous tissue. Occasionally gummata of the lung caseate, and may then empty into a bronchus, thus forming a pulmonary cavity. But usually these gummata tend toward the formation of cicatrical

*Read, by invitation, before the Fulton County, Ga., Medical Society, March 6, 1919.

tissue which causes a shrinkage of the surrounding lung substance as well as a dimpling of the lung surface and the adherent pleural surface. Fowler describes two of the specimens in the museum of Guy's Hospital as follows:

No. 255.—The lower lobe from the left lung of a man, aged twenty-seven, who died from erysipelas of the larynx. The specimen shows at its hinder part, a large yellowish mass partially separated from the surrounding tissue. Smaller nodules are seen in the adjacent lung. The pleura over the gumma is much thickened. Histologically, the nodule consists of fibrous tissue which stains with difficulty. There were many gummata in the liver. With exception of the above lesions and some bronchitis, the lungs were healthy. Suppurating buboes and a chancre on the penis were present.

No. 256.—A portion of lung showing scattered through it several small masses of irregular shape, yellowish in color, and firm on section. The masses are easily separable from the surrounding lung, which is healthy. Histologically, the nodules show a central area of caseous material surrounded by a narrow zone of fibrous tissue in which are many small round cells. The liver contained a single gumma, and was in a condition of diffuse syphilitic hepatitis. There were several small gummata in the testes. From a man, aged thirty-nine, who had suffered from cough and dyspnoea for six months and who was admitted for hepatic ascites and slight jaundice.

Bronchopneumonia is one of the pulmonary manifestations of syphilis. Delepine and Sisley recorded a most remarkable case in which an enormous gumma of the right lobe of the liver, measuring 5½ by 4½ inches in extent, and adherent to the diaphragm, pushed up and extended through the diaphragm and involved the lower lobe of the lung. In addition to sclerotic induration there were patches of lung tissue resembling catarrhal pneumonia and there were patches of caseous pneumonia. This condition resulted from direct extension and surely was not an ordinary bronchopneumonia. Pavlinoff described a bilateral syphilitic bronchopneumonia with patches of consolidation interspersed between areas of normal tissue. The alveoli were filled with desquammated epithelium, leucocytes, and erythrocytes, and the pneumonia patches were dull slate-colored on section.

Fibroid induration or chronic interstitial pneumonia is another type of pulmonary syphilis. An inflammatory reaction follows the lodgment of spirochetes in the lung. This inflammation takes the form of an extensive cellular infiltration, together with an overgrowth of the connective tissue in the interlobar and intralobular septa and a proliferation and desquamation of the alveolar epithelium. The alveolar walls and the blood-vessels become greatly thickened. The result is that long strands of connective tissue which usually radiate from the hilus of the lung and which more or less surround the bronchi and blood-vessels, but which may originate in the pleura, divide the lobes and groups of lobules. In addition, there are frequently patches of sclerosis and diffuse fibrous changes affecting a lobe or even an entire lung.

Syphilitic phthisis is probably the rarest of the luetic lesions in the lungs. This condition is usually the result of a gumma caseating and emptying into a bronchus. In order to be sure of the existence of so-called "syphilitic phthisis," Fowler says the following conditions must be fulfilled: "(*a*) The case must be complete, that is, the symptoms observed during life must be considered in connection with the lesions discovered on post-mortem examination; (*b*) the evidence of syphilitic infection must be undoubted; (*c*) repeated examinations of the sputum must have been made, and tubercle bacilli invariably absent, and the absence of tubercle from the lungs (as the cause of the lesions) must be proved by postmortem examination; and (*d*) syphilitic lesions, about the nature of which there can be no doubt, must be found in other organs." This same author cites, among other cases, the following case as illustrative of this *luetic* consumption:

At the age of eighteen the patient had a sore on the penis, for which he was treated for several months. In 1890, he suffered from cough and expectoration and had an enlarged gland in the inferior triangle of the neck on the right side, dullness at the right apex, with feeble breath sounds, and bronchial breathing in the right supraspinous fossa. The liver was large, nodular, and very tender. He took potassium iodide in gradually increasing doses and obtained some relief. In April, 1893, he noticed edema of the legs and scrotum. He had a troublesome cough, with the expectoration of large quantities of extremely fetid pus. The breath was fetid.

Physical Signs: Expansion deficient on the right side. Relative dullness at right apex, front and back; breath sounds feeble over dull area. Absolute dullness from level of fifth interspace in nipple line and axilla to base; behind from angle of scapula to base. Vocal fremitus and resonance diminished, and breath sounds audible over dull area. Urine, sp. gr. 1004, contained albumin and fatty casts. The expectoration consisted of frothy, greenish pus, forming thick masses in a watery fluid, and did not contain tubercle bacilli. On May 17, the chest was explored in the axillary and submammary region. No pus was found. May 19, the liver was exposed by an incision below costal arch, and a depressed cicatrix seen. The expectoration continued copious, green and fetid. Absolute dullness appeared over the whole of the right side up to the clavicle. June 15, offensive pus was evacuated through a cannula inserted in the third right interspace in the mid-axillary line; a portion of the fourth rib resected, more pus evacuated, and a drainage tube inserted. June 19 and 20, hemorrhage from wound. June 21, death.

Necropsy: Abstract of Notes—Old syphilitic scar in trachea, six rings above the bifurcation; more recent scar at bifurcation producing stenosis of the main bronchi to the right upper and lower lobes. One bronchial gland enlarged. Pleura over right lobe adherent and much thickened. Bronchi much dilated beyond the site of stenosis. At the base of the upper lobe were two large irregular cavities with sinous outlines communicating with large bronchi, lined by a distinct membrane, and containing sloughy portions of lung tissue. The anterior cavity had been opened by the incision. The section of the lung was smooth and presented a finely-speckled yellow appearance. No pus exuded from the yellow spots on pressure. In the anterior part of the lower lobe there was a large irregular cavity, the walls of which showed no signs of any mucuous membrane; these walls were covered with a yellowish-gray sloughy material. No tubercle present and no cascation. The lung puckered in many places and was fibrous throughout. Liver enlarged (76 oz.). Large puckered cicatrix on the upper surface of the left lobe and many similar cicatrices elsewhere. A cretaceous and caseous gumma on the posterior aspects on the right lobe. Liver substance fatty and amyloid. Kidneys were large, pale, lardaceous, and fatty.

In addition to the four types referred to, Landis mentions another form in which the lesions consist of an area of consolidation and catarrh, which may occur around the root of the lung or at one apex. Landis and Lewis have reported six cases in which the physical signs pointed to a focal lesion in the

apex and in which the evidence seemed to be conclusive that a latent syphilitic process was present. May I describe briefly just one of these cases?

A male, aged thirty, was admitted to the White Haven Sanatorium, several years ago, with a history of having been ill for some months. He had lost about twenty-five pounds in weight; he had a cough, expectoration, slight fever, and a marked hoarseness. Examination of the lungs showed impairment of the percussion note, feeble breath sounds and a few fine râles at the left apex. The case seemed to be clearly one of pulmonary and laryngeal tuberculosis. Two weeks after his admission, the trouble in his larynx was found to be specific in nature. Under mixed treatment, he made a complete recovery, the pulmonary signs entirely disappearing.

The *symptoms* of syphilis are not characteristic or distinctive. Coughing is probably the most common symptom—which results from irritation of the respiratory tubes or from changes within the lungs. The coughing usually produces offensive, yellowish or greenish-colored sputum. Hemoptysis also is a common symptom. Sometimes the blood is just sufficient in amount to tinge the sputum, but at other times it is more profuse. Loss of weight and of strength occurs in practically all of the cases. Night-sweats are not infrequent. Dyspnea occurs in some of the cases. Fever is present in many of the cases; often this pyrexia is of the tubercular type.

The *physical signs*, like the symptoms, are neither characteristic nor distinctive. The physical findings are, of course, dependent upon the character of the lung lesion.

The diagnosis of pulmonary syphilis is made by exclusion. Tuberculosis must be ruled out. In order to rule out tuberculosis as the cause of such symptoms as were mentioned, one must resort to every valuable test—especially the staining of sputum which has been digested by sodium hypochlorite, the inoculation of guinea-pigs, and the complement fixation test for tuberculosis. One should not give potassium iodide as a therapeutic test until all other tests have been given negative results. Patients who have syphilis of the lungs may give a syphilitic history; they usually have evidences of syphilis elsewhere than in the lungs; and they practically always have a strongly positive Wassermann. Fowler draws attention to the chief points of difference between the pulmonary lesions of syphilis and tuberculosis as follows:

"1. Tuberculosis usually affects the apex of the lung, and, subsequently, the apex of the lower lobe, and tends to progress along a certain route. The primary lesion of syphilis is often about the root and central part of the lung; the disease follows no definite line of march, and gummata may be found in any position.

"2. Both gummata and tubercles may undergo either necrosis and caseation or fibrous transformation; but with caseous tubercle the tendency toward softening and cavity formation is the rule, whereas a caseous gumma very rarely breaks down.

"3. The progressive destruction of the lung by a process of disintegration leading to a gradual increase in the size of a cavity, a change so commonly observed in tuberculous disease, is rarely, if ever, observed in syphilis, except as a secondary result of stenosis of one of the main bronchi.

"4. In nearly all cases of advanced destruction of the lung occurring in the subjects of syphilis, stenosis either of the trachea or of one of the main bronchi is present, whereas this lesion is very rare indeed in tuberculosis.

"5. The cavities found in cases of pulmonary syphilis are usually bronchiectatic, but not invariably so; whereas, in tuberculosis, they are commonly due to progressive destruction of the lung, but may be bronchiectatic.

"6. The tendency to the formation of pulmonary aneurysms, which is so marked a feature in tuberculosis, is rarely observed in pulmonary syphilis.

"7. Pulmonary lesions in tuberculosis are very common, whereas in syphilis they are extremely rare."

The coexistence of syphilis and tuberculosis in the same lung occurs probably more frequently than we suppose. A long standing syphilitic infection may lower one's bodily resistance so that tuberculosis may easily develop. In such a case the tuberculosis does not differ from that occurring in non-syphilitic individuals. But if the two diseases develop simultaneously or within a short time of each other, the association is especially vicious and usually overwhelms the patient, the tuberculosis running a very rapid course. Distressing examples of this are often seen in young prostitutes who have developed tuberculosis in the early stages of the secondary period of syphilis. In 191 Keilty reported a case of syphilis and tuberculosis in the same lung. The subject was a colored male aged 23 years, who showed a progressive loss of weight, with cough, and a profuse, fetid expectoration of three weeks' duration (seven weeks before death). The physical signs pointed to infiltration and cavity of the lower left lung, with infiltration in the right. In the absence of tubercle bacilli in the sputum, and with a history of a rapid course, diagnosis of pulmonary gangrene led to operation when the tuberculous nature of the case was revealed. At autopsy, syphilis in the form of chronic interstitial pneumonia with bronchiectasis, and tuberculosis in the form of miliary and conglomerate tubercles with caseation were found in the left lung, and tuberculosis almost alone was found in the right lung. Both the tubercle bacillus and the spirocheta pallida were demonstrable in appropriately stained preparations.

The treatment of syphilis of the lungs is the same as the treatment of syphilis in other parts of the body. The best treatment is the prophylactic. Arsphenamine, either intravenously or orally, and the classical mixture of mercury and potassium iodide are our remedial stand-bys. The treatment should be thorough and prolonged.

In the treatment of syphilis, we physicians have a great opportunity to render real humanitarian and life-saving service to the afflicted mortals about us. We may not make this life all poets and weariness a name, as one poet dreamed; but we surely can prevent many of the saddest, never-told tales of blighted lives, ruined homes, and graves of unnamed babes.

BIBLIOGRAPHY.

Cabot: "Differential Diagnosis," Third Edition, Vol. I, p. 602.

Councilman: Johns Hopkins Hospital Bulletin, 18, Vol. II, No. 11.

Delepine and Sisley: Tr. Path. Soc., London, 1891, Vol. XLII, p. 141.
Fowler: Fowler and Godlec's "Diseases of the Lungs," Chap. XXXVII.
Fowler: Allbutt and Rolleston's "System of Medicine," Second Edition, p. 420.
Hocksinger: *Wien. med. Blaetter*, 1894, Vol. XVII, p. 255.
Janeway: Tr. Assoc. Am. Physicians, 1898.
Keilty: *N. Y. Med. Jour.*, Aug. 5, 1916.
Landis: Norris and Landis' "Diseases of the Chest."
——— and Lewis: *Amer. Jour. Med. Sciences*, Aug., 1915.
Levin: "Practical Med. Series," 1917, Vol. I, p. 190.
Morris: "Medicine and Surgery," Nov., 1917.
———: *Amer. Jour. of Syphilis*, April, 1918.
Osler: "Principles and Practice of Medicine," Eighth Edition.
——— and Churchman: Osler and McRae's "Modern Medicine," Vol. III.
Rose: "Physical Diagnosis," p. 149.
1010 CANDLER BUILDING.

THE SPECIAL TREATMENT THAT SHOULD BE GIVEN MILK INTENDED FOR INFANT FEEDING.

BY J. M. W. KITCHEN, M.D., M.S.,
EAST ORANGE, N. J.

INASMUCH as milk is now generally conceded to be of vital national importance as a food, and especially in connection with securing adequate nutrition for the entire growing population; and as a pure supply that is assuredly safe and wholesome is most desirable for all who are consumers of that food, the question may be raised as to why *all* milk should not be so produced and treated as to be good milk. The answer is that adults can usually, temporarily at least, stand up against a poor character in milk that infants as a rule cannot. Of course those of all ages should enjoy the benefits of pure foods; but in the pursuit of "life, liberty, and happiness," many, under the influences of peculiar "kulturs," feel at liberty to subject themselves to chronic poisoning; and the world has not advanced far enough yet to feel warranted in sumptuary interference with the dietary habits of the individual in other matters than alcohol consumption. We have to acknowledge that the peculiar damages done to society by alcohol gives special reason for intervention in that particular case; and if we hold it to be a duty of the individual to do his utmost for the benefit of the State, some other ingestive indulgences also should be prohibited. But as long as consumers think that decayed milk, butter, and cheese are good enough for them, they are not likely to be willing to pay the extra cost of really good milk. I am assured by prominent intelligent milk dealers that it is not the most wealthy classes that are the largest buyers of the "certified" grade as a rule.

When it comes to milk for the babies, the very poorest classes buy it. At a matter of fact, the less affluent classes have been better informed through special community instruction than the wealthier classes. I made a special effort to do a little educational work among my élite women neighbors. One charming simpleton wrote me that she did not want to know anything about the matter, for *her* milk and butter were "delicious." There ought to be some strongly effective natural influence continually at work in weeding out the more foolish units of the race.

Every baby who is brought into this world of struggle ought to be given a square deal, and not be poisoned to death as unnumbered millions have been through the ignorance and indifference of those who have had their feeding in charge. The very best of milk that it is possible to produce should be delivered to the consumer at a cost of not more than two cents a quart over the price that has to be charged for grade B milk. Grade B milk is *not* good enough for anyone, much less for delicate infants or delicate adults. Unmodified cow's milk may be an excellent food for some who have ostrich-like stomachs, or for the calf with its four stomachs, having special power of digestive liquefaction; but if any intelligent person will experiment a little with the coagulative effect of rennet and heat on plain milk and on milk modified by any agent that secures flocculency in the coagulated milk, they ought to see that the leathery, hard lumps of the unmodified milk are unsuitable as food for a delicate infantile stomach.

In this paper I do not propose going deeply into the subject of milk modification. When I consider that no man who has ever lived has had sufficiently expert foresight to prescribe a meal that will surely meet in the best manner the unknown metabolic requirements of the individual in the period immediately succeeding the ingestion of the meal, I begin to think what a guessing problem is up to every pedriatrist when he undertakes the artificial feeding of an infant; and I feel that if I can tell him how a safe and wholesome milk of standard quality as to its nutritive constituents can be secured, I have done *my* duty, and can then let the further burden of duty be borne by him. It is astonishing to consider the dietary practices of even the more intelligent members of the race—practices that unquestionably more or less shorten the lives of every living human being, and usually more than less. It is difficult to control the nutrition even of a baby over whom we have mandatory control, and when one realizes how the available supply of milk for artificial feeding is produced and treated, it is disheartening. No wonder that those who understand the situation are urging mothers to nurse their infants to the extent of their mammary ability. Yet the fact is obvious that with mental evolution and later day civilized methods of life, women degenerate as milk producers. A medical missionary has told me that the wild negro women of Africa are splendid milk producers; that they nurse their children for several years; and that in case of necessity a woman without having had a child may be able to stimulate her breasts into activity and feed orphaned infants.

Many of us still living can remember when we did not know why the bottle-fed babies died as they did. We did not know what caused the atrophic marasmus from which so many died. Hundreds of millions of relatively intelligent individuals still alive do not know yet. Part of these ignoramuses do not believe in the existence of microorganisms. But when the compound microscope was evolved and was used by Pasteur and other men of genius, we had the microorganic world, including the milk-borne bacteria, disclosed to our view. Then sus-

picion was aroused. Suspicion was followed by the clean-milk movement, which was initiated in harmony with our scientific knowledge of that day; but which in view of our present knowledge and our further suspicions, does not go far enough. Individual cows may be seeding whole dairies with tubercle bacilli without being detected. My own herd was largely infected without having shown any outwardly observable symptom. I do not remember now just why I ordered the herd tested, but when I did, one-third reacted, and it took three years of slaughter to free the herd. Yet tuberculosis was my specialty. Personally I do not attribute so much importance to the pathogenic menace of specific germs as I do to the possible bacterial poisons that may and do accumulate in milk. Nevertheless, we should not permit pathogenic bacteria of any kind to be fed to any one.

Healthy cattle, unobjectionable cattle feeds, and cleanliness in production are all excellent factors in securing the best character in milk for infants; but other factors in the way of protection against infection, purification, and preservation should be practised. Many illustrations of disease outbreaks that have been traced to "certified" herds could be cited. Many infections occur that are accidental, unanticipated, and unpreventable. Many infections of individual bottles, during the bottling of the milk, and in the pouring of the milk, must occur. Every individual's hands are hopelessly infected, and, very generally, with intestinal bacteria. The bottle tops are regularly infected by the distributors' filthy hands. Every commercial milk bottle closure now in general use is a bacteria trap; and an avenue of infection of the milk is the bottle. Proliferation of countless numbers of infecting bacteria occurs before pasteurization; and considerable numbers from the undestroyed residue of bacteria and spores that survive pasteurization. No milk now used has all of its volatile putrefactive constituents sufficiently eliminated. This is the kind of milk that most artificially fed babies consume today. Such a situation is a sorry comment on the intelligence of the civilization of the day.

The solution of this problem is largely through an application of temperature influences of sufficient intensity, at right times, and sufficiently prolonged. In addition, milk for babies should be distributed in hermetically sealed containers that also protect the pouring surfaces and closure from infections. All milk should be pasteurized, but no part of babies' milk should be allowed to have contact with heat higher than 150 deg. Fahr., nor longer contact than is needed to secure desirable results. Milk that has been heated to 212 deg. Fahr. can be digested by individual babies having strong gastric organs; but, from what we know, all heating of milk at temperatures above the temperature of the body more or less changes its character. But moderate changes in character appear to be of negligible moment.

Various volatile matters of bacterial putrefactive origin are diffused from the cow's body into the milk at the time of its production. The usual method of coincident aeration and cooling does not get rid of all of such contaminants. A forced elimination by the aid of moderate heat is needed, and, preferably, under the influence of a partial vacuum. Preferably this purification should be done immediately after the production of the milk and before the milk loses its inhibitive power against germinal proliferation; and, preferably, this shall be done by a further heating of the milk while still naturally warm, and through securing a circulation of the milk in aerial exposures in such manner that the volatile matters are driven off and removed by a mechanical exhaust and without allowing any infection of the milk to occur during its purification such as generally does occur during aeration and cooling. The milk should be preheated by low temperature heat, and, if possible, bottled while quite warm; and then, after the container has been hermetically closed, the milk and the container should be subjected to a pasteurization, and then quickly cooled. At all other times the milk should be kept at a temperature so low that practically no fermentation of any kind can occur in it; and at so much lower temperature that there is a reserve source of frigidity in the milk itself to meet and overcome heat absorption from outside atmospheric and other conditions. I am only stating the principles that should be applied. There are various essential details that must be practised, but all of them are easily carried out with simple means.

In securing preservative intensity of temperatures, degrees other than temperatures between 120° Fahr. and 35° Fahr. should be aimed for. Sufficiently low degrees can be secured only by mechanical means, or by ice and salt brine. Iced water is not cold enough; it is rarely cooler than 40 deg. Fahr. However, a can of iced water containing considerable unmelted cracked ice and held in the family ice-chest is a convenient means for holding bottles of babies' milk for the twenty-four hours that some of the supply must be held. Even with certified supplies, a large part of the milk used for babies is not consumed until more than seventy-two hours after its production. Hence non-fermentative temperatures in it should be maintained prior to and up to the time of its delivery to the home of the consumer. Unless the milk is delivered during the day so that it can be immediately iced it should be delivered in closed ice-packed delivery cases. Most modified milk plants have the cases but frequently they do not properly use them. I do not know of one where a fully intensive refrigerative practice is carried into effect.

There appears to have been an unwarrantable degree of apprehension felt as to the possible destruction of enzymes in milk through its heating. There is no evidence in hand going to show that moderate heating does destroy any of the small amounts that may possibly be present. Some writers contend that cow's milk has no enzymes in it and state that the calf has no use for them. The experts of the Bureau of Animal Industry at Washington assure me that if there are any in milk, the effects they produce are so slight that it is perceptible only when the milk is held under favorable conditions for several days, and that the effect therefore is infinitely less than the effect of the digestive juices in the stomach. There is no occasion for heating babies' milk so much as markedly to change its smell, color, taste, and ease of digestion. But enough heat should be applied to pur-

it and render it safe against pathogenic infection. Ninety five per cent. and over of milk bacteria can be destroyed by moderate heating without changes in the milk that could possibly induce scurvy or rickets. Bad milk and overheated milk may possibly be causative of those troubles to some degree, but not good milk that has not been unduly heated. A vast prewar experience in Europe, where they boil their milk, shows that in a nine months' course of artificial feeding, although breast-feeding shows best effects at first, babies are better nourished on boiled cow's milk than by breast-feeding.

In regard to modification, I do not accept the views of those who think that cow's milk is all right if it is only diluted with water. In view of our lack of full information as to the uses for the albuminous principles in the body, we should not be too positive as to the best nutritive requirements of the infant in regard to the protein elements in its food. Nitrogenous matter is the spring of vital action. Without it no life is manifested. We know that it is needed in muscular and other structural developments and their functioning. It is required for secretory purposes, and especially in milk formation. The carnivora and the wild races of man may have to adjust themselves to meat as food because of its availability; but albuminous matters are not absolutely essential to the production of force or to form fat; and the production of urea is only a sequence to prevailing conditions. It is possible that a generous presence of nitrogenous matters in the body may be essential in securing a general stimulative nutritive and functioning effect; but from what we know of the effect on adults of ingesting excessive amounts of proteins, it seems desirable that we should exercise considerable caution in including large amounts of proteins in the food of our infant dependents. Excessive amounts may be expected to result in more acidulous gastric products than the alkaline intestinal juices can neutralize; and possibly such excess may set up more or less putrefactive intestinal activity; both of which results are objectionable. A baby that sleeps most of the time and takes very little muscular exercise certainly does not need a large nitrogenous content in its food, and it can get its force very conveniently from the carbohydrates. But a reasonable nitrogenous supply is of unquestionable importance. There should be a proper proportion of albumin, but not an excess of casein. That special nitrogenous constituent should be modified as to its natural coagulability. At each time of feeding, water, albumin, earthy salts, sugar, and a flocculating constituent can be easily, conveniently, and safely added to a standardized, cream enriched milk that is sufficiently water-free to furnish an adequate concentration of nutriments for a twelve-months'-old child. The precaution needed is that the basic milk is pure and safe. All the modifying agents, other than the cream, can be thoroughly heated without damage to them. But the basic milk cannot be sterilized without injury to it. Dextrinized oatmeal gruel seems to be unequal as a modifier when a laxative effect is desired. Probably some of its specific effect is due to the mechanical action of the large cellulose content that resists dissolution from heat in the making of the modifying gruel. Dextrinized barley has been such a standby for so long a time that it seems almost unfriendly to think that there may be something to take its place that is better; but as the result of some of my research work, I am inclined to think that concentrated whey, if properly prepared, may be better than barley, because the latter, along with oats, has a large content of cellulose detritus.

So far as I am able to judge, concentrated whey flocculates milk as well as or better than barley. Rennet-treated whey and milk resist the hardening effects of unmodified milk coagulation when heated. It is possible that all babies' milk should have more or less of concentrated whey added to it prior to its feeding. Whether the albumin, earthy salts, and milk sugar in milk whey are better than those from cereals, I have no knowledge. Further study in this connection is desirable.

I am against the general use of any of the standardized prepared baby foods if fresh, uninfected, and purified milk with a sufficient amount of butter fat in it can be secured. The growth principle that is in butter fat must always be remembered in the future. However, there are situations in which it is not possible to procure good fresh milk. It is theoretically possible to meet that need partly in a modified dried milk powder, that in conjunction with an intelligent auxiliary modification may be serviceable. But so far I have not examined any entirely satisfactory dried preparation. Deficiency in butter fat content, over-heating, insolubility, objectionable taste, large bacterial content, and quick decomposition after dissolving seem to be usual defects. Most of them have much unconverted starch. But sufficient boiling changes hydrated starch into dextrin. I am undecided as to whether vegetable albumin and casein may successfully replace animal constituents of like nature; but it is certain that the vegetable oils will not supply the growth principle that is in butter fat, and they are not as digestible; this defect in vegetable oils may be due to irritating matters in them, as those which markedly exist in croton, castor, cotton, and other oils. Manufacturers of dry milk powders, so far, have not been able to overcome the decomposition action in butter fat in their preparations when exposed to air, and when held at fermentable temperatures, if largely present.

The race has a big task before it in educating its individual members as to what to eat and what not to eat. It is questionable whether moderate gustatory indulgence for adults should be preached in this connection; but with infants we should be radical in our control, because as trustees we are in honor bound to so act.

94 Prospect Street.

DISEQUILIBRIUM OF MIND AND NERVES IN WAR.

By ARTHUR MAC DONALD,

WASHINGTON, D. C.

HONORARY PRESIDENT OF THE INTERNATIONAL CONGRESS OF CRIMINAL ANTHROPOLOGY OF EUROPE.

Disequilibrium from psychological troubles in war is essentially individual, but it does not necessarily mean insanity; the war seems to have produced a large number of cases in an intermediate zone between insanity and sanity. Soldiers are selected

with much care so far as their physical side is concerned, for they are liable to be exposed to unusual hardships, to exhausting periods in battle maneuvers, to extreme changes in temperature, and to infectious diseases. In 1,072 mental cases in St. Elisabeth's Hospital of Washington, D. C., from 1899 to 1908, the recovery was 57 per cent., while 30 per cent. is a good average in civilian cases. Soldiers show more frequently acute mental diseases of short duration. The hope for recovery is mostly in the early stages, before permanent damage is done to the brain.

Those whose mental troubles arise from the war are not the real insane, and should be distinctly distinguished from those; their mental aberration is due to an emotive shock; they are no more insane than a person whose aberration is due to typhoid fever or pneumonia or uremia or some surgical traumatism. Many of these return to the front. It would be not only an injustice but very foolish to intern such in an insane asylum. Imagine what the effect would be if it were said, "Our commander has just come from the insane asylum."

The soldiers attacked with insanity needed more care than wounded soldiers in the Russo-Japanese war. Estimating the Russian army at one million, there were 350 cases of insanity for every thousand men, 1.9 per cent. insane. In one of the hospitals the officers constituted 21 per cent. and the soldiers 79 per cent.

It is to be noted that slight mental aberrations are observed in the army that are met in civil life. On the other hand, men in the army are specially selected, while civil life is dotted with many defectives. Young men, who are failures in civil life, often join the army in the voluntary service, making it a sort of refuge. As soon as military service becomes compulsory, the mental status of the army improves.

Mental disorders may be caused by the general fatigue of duty, long marches, exposure, loss of sleep, terror, and shock. Where cases are studied carefully, those of malingering are usually few and not important.

Normal War Psychology.—Before entering into further consideration of mental and nervous disequilibrium in warfare it may be well to recall the conditions of normal war psychology.

A man with intellectual tastes may find it difficult at first to only obey and ask no questions, but training gradually overcomes this, and the intellectual will realize the necessity of it, if the squad are to be efficient fighters, obeying orders instinctively; thinking and initiative are not desirable, if not dangerous, for the common soldier. Only officers are allowed to do any thinking. The intellectual man may become an officer, and his difficult experience in learning to obey will now help him to understand better how to make others obey. The private soldier must be taught inhibition; he must yield to strict discipline and suppress and repress all counter wishes, especially the feeling of self-preservation. If he is an intellectual man he will understand the reasons without asking them, and take things philosophically. Such a man is on the road to promotion, and is apt to become an officer, if not leader. Good health and sound body, well developed, give physical and mental equipoise and self-control, and are necessary for every soldier, and the more so the higher his rank.

Conditions Near the Front.—When the soldiers continue training in the rear within the sound of the guns, the discipline is much more severe. Those who have fought in the trenches seem indifferent, and seldom talk of the battle a few miles away. However, the feeling of personal safety is indicated by the word "Blighty," which is a slight wound, necessitating removal to a hospital. The trench men are not only indifferent but are confident and self-possessed, while the men soon to go to the front for the first time are restless and fearful. However, the behavior of those experienced in fighting showing resoluteness and composure, has a good effect on the inexperienced soldiers.

At the front the new soldiers are curious to see the enemy, and they are often reckless; at the least disturbance they man the loopholes and fire everywhere, using more ammunition in a day than veterans do in a month. The first and lasting impression from the trenches is continual movement and great noise; the sensations of heat, cold, pain, and fatigue are secondary to noise. But as man, more than all other animals, is noted for his power of adaptability to environment, the new soldiers soon accommodate themselves to conditions and count the shells, guessing where they will fall, often distinguishing them by the sound. Some are called "Whistling Willows" and others "Black Marias." Some fight the enemy for a month without ever seeing him. Continual danger and constant attention to defense make a soldier hungry. When badly fed, a soldier is liable to lose confidence, grumble, if not revolt. Plenty of food, with tobacco, tends to make him ready for the fray and indifferent to danger. Just as in civil camp life, the meals are the great events of the day. After a battle, at meals the gaps are evident, but yet they are a part of war, and why worry? It is all in a lifetime. The soldier seldom thinks he will be killed; he may receive a slight wound. Danger is present for all, and unites the men, massing them together in a common cause with a leader. It gives them great power for endurance and effectiveness. Officers are almost always superior; in fact, true merit is recognized in war more than anywhere else. Since this was a long war under very different conditions from all previous wars, war psychology will doubtless become an independent branch of study.

After a few days, the soldier's life in the trenches becomes monotonous. The necessary restriction of his movements, the often uncomfortable conditions as cold, wet feet and rheumatism as a result, take his attention, but he must watch, and be ready for anything; yet he adapts himself gradually to almost everything; he becomes indifferent and may be cheerful and contented. He has fear at times; if he is a veteran he confesses it afterwards.

It is said that soldiers in the trenches feel detached and do not think much of home and friends. As to religion, it is estimated that some sixty thousand priests served with the belligerents; yet most of the men seem to become fatalists. There are, however, a few who serve and fight with lofty religious ideals. Also there is little hatred of the enemy manifested, especially among the British soldiers. The soldiers do not delight in killing; the

fighting is impersonal and mechanical; if they don't kill the enemy, he may kill them; both want to get home, but they cannot. Some feel that every one killed may save a comrade. In the bayonette charge soldiers often feel that the more men they kill the less liable they are to be killed, they are not shocked by killing a man, at least at the time.

Heavy artillery has changed warfare work; the contending armies seem somewhat evenly matched, and are seldom put to flight, though repeatedly repulsed. In retreat the men may become discontented, tired, and fatigued through loss of sleep, which becomes so powerful that they sleep while marching, and when tottering too much the soldiers punch them a little to keep them from falling.

It has been said there are four types of soldiers: (1) The muscular, which has a rectangular face, strong symmetrical limbs, constituting about 47 per cent. of the French people, and comes from the country districts. (2) The digestive type has a flat pyramidal head, large digestive apparatus, long body and short legs, and small chest. (3) The respiratory type has a large chest and hexagonal head. (4) The cerebral type has a brachycephalic head, small in figure, supplying only 7 per cent. of the soldiers before the war.

The four types above noted are seldom pure, but more often mixed. Two general classes of soldiers may be contrasted, according to their bringing up in the country or in the city.

Fear.—After this brief statement of normal psychological war conditions, we may note various points and phases of mental disequilibrium, as fever, dreams, simulating, and shellshock emotions.

The bravest soldiers experience fear, but the most of them suppress the expression of fear. Then there are many men with absolutely no taste for war, and when exposed to physical and mental exhaustion, combined with fear, they are suggestible, though in civil life they would not be suggestible. There is a conflict between the instinct of self-preservation and the moral sense. Amidst the roar of shells, such persons may gradually lose their self-control, and if shocked or bruised easily come to believe that they may have some grave disease, and may not be fit to fight any more.

There are certain individuals of limited mental powers who are useful in military service regulated by times of peace, but when war comes, they appear to be wholly incapable to meet the more complicated conditions. Many of these persons are not only abnormal, but sick, and cannot be benefited by repressive methods. They are irresponsible and not adapted to military service.

Sometimes, when new conditions suddenly arise, separating the soldier from comrades, he may have fear; also when isolated. After all, the feeling of fear varies in degree and kind with the individuality of the soldier. The men may suffer from fright when men near them are killed and often shockingly, but they can become accustomed to even this, and be indifferent as to death.

Dreams.—It is mainly since the South African and Russian-Japanese wars that mental troubles of soldiers have been studied. The wounded returning from the front almost always dream, either little or much, of fighting. This is true of those who before did not dream. Certain dreams are natural; others are morbid, which occur only when some reality forces them, when the sleeper veritably lives them. This precipitates a second state of nocturnal somnambulism, going from silent dreams to dreams in action.

The frequency of horrible dreams in shell shock cases indicates that a psychic trauma influences greatly the mind by the thoughts reverting to the terrible experiences, and that the continuous influence on the sub-conscious mind may account partially for terrified vacant expressions, cold blue hands, feeble pulse, respiration, sweats, and tremors.

Nervous Disequilibrium.—In war, or when war is thought near, there is a sort of wildness prevalent in the public mind; everyone seems ready to believe almost anything. People can be made to think that they will soon be invaded by the enemy three thousand miles away. People usually conservative seem to lose their equilibrium. Thus it was published that Russian troops had landed in Scotland, and that the Russian fleet had been captured in the Kiel Canal.

The appearance of nervous and mental troubles in the present war is a result of nervous tension, overwork, fatigue, and especially numerous emotions to which the soldiers have been subject. It also causes apprehension of serious psychopathic disorders in future warfare, due to the intensity of modern explosives. While on the firing line, these disorders are not frequent, yet back of the lines in the rear, in the hospitals, and still further in the interior, mental disorders find a more favorable soil for their development. Most diverse forms appear. If it be said that this war has created nothing new in the psychonervous troubles, it is none the less true that their multiplicity is surprising, especially in France.

Simulation.—Simulation is often used in the army to designate all morbid manifestations, especially nervous ones, where there is no organic lesion. Thus a trembling or deaf soldier is called a simulator. This is not only an error, but often a grave injustice. The real simulation is a voluntary, conscious, determined, and rational act, which is intended to mislead and deceive the judgment of those around. There are different forms of simulation, as an affection provoked, created, exaggerated, or prolonged. Provoked affections, like conjunctivitis (by tobacco), are not in the medical realm. A created simulation is an objective trouble, vicious, motor, or nervous, or subjective phenomena, as pain and troubles, that attract attention, commiseration, or pity. It is a functional trouble, a nervous condition, organic paralysis which the simulator is forced to reproduce, in seeking to conceal his fraud and give it the appearance of reality. This is the most common form of simulation observed in the army, but in this war this kind of simulation was rare.

The simulation by exaggeration is to amplify the symptoms of a real injury in order to deceive. The simulation by prolongation is the worst; it is the voluntary continuation of an attitude or symptom connected with a real alteration, when it has disappeared or is manifestly healed.

The simulator never succeeds in producing a contracture exactly. The movements of the simulator when trembling become less rapid, less regular;

often, believing he is not observed, the simulator ceases altogether to tremble. If it is a simulated muscular contracture, if the member be placed in an inconvenient position, the signs of fatigue become evident and the contraction may cease. It is exactly the reverse when the contracture or trembling is of a psychonervous origin. The simulation is marked by excessive incoherence of manifestations, the reactions do not correspond to the mental state which it is desired to imitate.

The simulations by exaggeration are much more difficult and sometimes impossible to detect, as pains, lumbago, and other subjective conditions; but a prolonged and repeated examination will often succeed in detection.

There are many little ways in which the soldier will try to deceive the physician, to avoid the service, or some duty. There is a natural skepticism as to trouble, with no objective certain cause.

The simulations in the army in times of peace are organic diseases, especially functional troubles, pains, impotencies, paralysis, strictly nervous crises; but seldom do they try to imitate mental troubles, for they fear the asylum almost as much as going to the front; also it is too difficult to simulate insanity. The soldier who simulates always wants to get his liberty and be free from military service. There are fewer guilty deserters than excusable ones.

Trench Environment and Disequilibrium.—Soldiers in trenches and dugouts, exposed to wet, cold, and often to hunger and thirst (from shelling of communication trenches), are dazed by the terrible noise of the guns, disgusted by foul smells and rats, tortured by flies, fleas, bugs, and lice. All these, combined with gruesome scenes of comrades suddenly struck down, mangled, or shattered to pieces, the memories of which are continually recurring, suggested by some little thing, perhaps, but acting as a premonition, may cause dread of coming death or being blown to pieces by a mine or buried alive. These, and other terrible experiences, depress the vital resistance of the nervous system, and may force the strongest to succumb, so that the next shell may bring disaster, as the last straw on an already exhausted nervous system, worn out by trench warfare and the lack of sleep.

Shell Shock Emotions.—One of the fundamental elements in these psychonervous troubles is the emotion from shell shock, but however intense it cannot alone explain the results; nor are these results apparent at the time of the shock, due probably to the painful visceral perturbations, reaction being instinctive rather than voluntary. But when the neuropath is transported out of danger into a quiet place, symptoms appear, as contracture, paralysis, trembling, convulsions, etc.; the instinct of self-preservation no longer prevents their manifestation. But the emotions tend to escape the control of consciousness and to enter the realm of the unconscious or subconscious. But the patient cannot be made to understand this, because he lacks critical power.

Some of the motor troubles are contractions of the hands, feet, and trunk. The place of the injury has nothing to do with the location of the paralysis; also the intensity of the wound has little relation to the intensity of the paralysis; often the most insignificant injuries provoke the most serious paralysis.

There are many who simply through good fortune and friends have been able to adapt themselves to conditions. In military life, fortunate surroundings fail for the most part, and there appear a large number of inferior individuals. In actual fighting, mental diseases rise quickly. Owing to the new methods of warfare, as continued shell fire, the mental damage of war has become great. Twenty per cent. of the discharges are due to "shell shock," which is applied to nervous symptoms exposed to shell fire, that cannot be explained by some obvious physical injury:

1. Where exploding shells cause death without external signs of injury.

2. Neurological symptoms suggesting power of mechanical forces.

3. Familiar symptoms of neurosis in civil life.

4. Weak, nervous symptoms, where men are abnormally sensitive. Thus many soldiers who have not been exposed to battle at all show symptoms of neurosis.

A soldier who bayonets another in the face may develop a hysterical tic in his own face; one bayoneting enemies in the abdomen may have abdominal contractures in himself. Hysterical blindness may follow from seeing horrible sights; hysterical deafness when the cries of the wounded are unbearable. Not only the rising of the feeling of self-preservation, but horror of ghastly sights and yearning for home have great power. For those there is no method of escape except a wound; if severe, the war is over. Being captured is also a relief.

A man buried by a shell crawls out, but on seeing the mangled bodies around him becomes unconscious. This is not due to a physical injury.

The high explosive shell, by the mere explosion and sudden alteration in the atmospheric pressure produces grave effects on the nervous system; this concussion may affect the mind or spinal cord, causing temporary paralysis.

One of the results of high explosives in huge shells, besides direct material injury to the central nervous system, is the moral effect of continued anxious tension of what may happen; this, with the terror from horrible sights of death and destruction tends to exhaust if not shatter the strongest nerves. Of course, any soldier with a previous nervous weakness will succumb easier to the stress of trench warfare.

The great aërial compression from high explosives may be transmitted to the cerebrospinal fluid about the base of the brain, and cause shock to the vital centers, resulting in instantaneous arrest of the functions of the cardiac and respiratory centers causing death. It has been shown that such explosions cause an atmospheric depression of about 35 millimeters of the mercury tube, corresponding to a dynamic pressure of about 10 tons to the square yard. One effect is to liberate air suspended in the blood and transform it into bubbles of gas, which are driven into the capillary vessels, causing instant death.

Some of the results of shell shock are lack of power of sustained attention on account of mental fatigue; rest is imposed by a feeling of weariness and headache. Irresolution and indecision are al

results from shell shock aggravated by insomnia, anxiety and worry, for the soldiers are conscious of their disability, and fear making mistakes. Loss of memory may be complete; loss of power of recognition may follow.

An explosion not more than from 8 to 10 meters distant can cause organic lesions without any wound or contusion of any sort. The anatomical substratum of these invisible causes is microscopic.

The Agony of War.—The agony of war is a disease of civilians in direct relation with a state of war. It seldom appears among soldiers. The symptoms are usually the same; it develops in persons who have loved ones in the army. It is accompanied with insomnia; there are special anxieties, which increase greatly at the least impression from without, as ringing of the doorbell, telephone, delivery of a letter or telegram, when bad news is thought of. The subject looks to see if there is fighting in the sector where the loved one is; this increases the anxiety, insomnia becomes very persistent, the mind becomes unstable, appetite lessens, the patient grows thin.

There are vascular troubles, arterial tension is always lowered; there is exaggeration of the rotulein and reflex achilles; there are changes in the color of the skin, or thorax, abdomen, finger, or soft body parts, sometimes red, sometimes white; in most cases there is an increase in pulse beats.

The agony of war is in direct relation with the military and diplomatic situation; thus it increases with great military action. It is a diseased nervous condition, observed in all great catastrophes, as earthquakes, great fires and epidemics, causing an intense mental shock to the individual. It has been very prevalent in belligerent Europe.

REFERENCES.

Auer, E. M.: "Some of the Nervous and Mental Conditions Arising in the Present War," *Mental Hyg.*, Concord, N. H., 1917, 1383-88.

Bird, C.: "Psychological Study of the Soldier," *Amer. Jour. of Psychology*, July, 1917. This work has special bibliography of 72 books and articles.

Cygielstrejch: "Consequences Mentales des Émotions de Guerre," *Annales Médico-Psychologiques*, Paris, 1912. This gives analyses, statistics, and bibliography of the subject in the Russian-Japanese war.

Depouy: "Notes Statistiques et Cliniques sur les Troubes Neuropsychiques, etc.," *Ann. med. Psych.*, Sept.-Oct., 1915.

Dumas, G.: "Les Troubles Mentaux et la Guerre," *La Revue de Paris*, June 15, 1916, pp. 758-784; and July 15, 1916, pp. 270-303.

———: "Les Troubles Nerveux et la Guerre," *La Revue de Paris*, March-April, 1917, pp. 85-113.

Eder, Montague D.: "Warshock; the Psychoneuroses in War Psychology and Treatment." London, 1917, 154, p. 80.

Farrar, C. B.: "War and Neurosis, with Some Observations of the Canadian Expeditionary Forces," *Amer Jour. of Insanity*, Baltimore, 1917, Vol. LXX, pp. 693-719.

Hurst, A. F.: "Observations on the Etiology and Treatment of the War Neuroses," *Brit. Med. Jour.*, 1917, Vol. II, pp. 409-414.

Grassett: "Les Névroses et Psychonevroses de Guerre," *Revue Neuralogique*, Paris, 1916, Vol. XXIII, pp. 767-774; 777-788.

Lépine: "Troubles Mentaux de Guerre." Paris, Masson. 1917 (Collection Horizon). Has a most recent and full bibliography on mental troubles in military life and the war.

Marie, A., and Rochèt, A.: "La Loi Rélative a la Reeducation des Mutilés de la Guerre," etc., *Progrès Méd.*, Paris, 1917, Vol. XXXII, pp. 269-71.

Régis, A.: "Les Troubles Psychiques et Neuropsychiques de la Guerre," *Revue Philosophique*, Paris, August, 1915, pp. 105-117.

Roussy, G., and Thermitte, J.: "Les Psychonévroses de Guerre," *Ann. de Méd.*, Paris, September-October, 1916, pp. 525-566.

Russel, C. K.: "A Study of Certain Psychogenetic Conditions Among Soldiers," *Canadian Med. Jour.*, Toronto, Can., August, 1917, pp. 673-683.

Smith, G. Elliot, and Pear, T. H.: "Shell Shock and Its Lessons," N. Y., 1917, 146, p. 120.

Von Vogl, A.: "Die Armee, die Schulentlassene Jugend und der Staat," 80, München, 1911.

Wallenberg, R.: "Zur Lehre von den Traumatischen Neurosen," *Beitr. z. klin. Chir.*, Tübingen, 1916, CI. 343-357.

Wright, H. P.: "Suggestions for a Further Classification of Cases of So-called Shell Shock," *Canadian Med. Assn. Jour.*, Toronto, 1917, Vol. VII, pp. 629-655.

One should consult *La Revue Neurologique*, Paris, 1914-15; also *Annales Médico-Psychologique* and *Le Caducée*, all published in Paris.

The Congressional, 100 East Capitol Street.

SHOULD HYPNOTISM BE USED TO CORRECT STAMMERING?

By ERNEST TOMPKINS, M.E.,

PASADENA, CAL.

Dr. Clarence G. Godfrey's article in the *Medical Journal of Australia* (reviewed in the Medical Record of December 7, 1918) in favor of the use of hypnotism on stammerers is such a reversal of accepted views that a criticism of his recommendation seems imperative. Chervin, Makuen, Bryant, and practically the whole field discourage the use of hypnotism. Bryant says, "The sufferer may speak well while under the hypnotic spell, but its influence soon passes away and he feels weaker than before." To allow a reversal of this sound conclusion would be decidedly unjust to the public and to the profession, especially when it is comparatively easy to clarify the situation.

In order to be perfectly fair to Dr. Godfrey, let us base the discussion on the facts which he cites. He mentions cases in which stammering "has been revived after years of disappearance" and others (or possibly some of those just mentioned) in which the stammering "after disappearing entirely for some time will return, but always in a less degree." It is the confusing of this temporary disappearance with the alleged "cure" which is at the bottom of most of the chaos which exists in the field of stammering. How easily the confusion can occur is readily seen from consideration of the circumstances which bring about the temporary disappearance.

In order to simplify those circumstances let us number the two elements of stammering; (1) the fear of disability, (2) the misdirected effort. The fear of disability is the result of accumulated memories of speech failure. For instance, I have just been telephoning; but, although I spoke fluently, a vague fear of disability was with me as I went to answer the call. The details of that fear were not present in my mind, but as I sit here writing I can recall many of them. As vividly as if it had happened only yesterday I can hear a crash and a scream; can hear my mother commanding me go to my uncle's house and telephone for a doctor to come and care for the cook's scalded arm; and can feel myself writhing and perspiring at the telephone in

a vain effort to make the doctor understand. I can recall a volume of such incidents, the influence of which brings a speech doubt to my mind every time I see a telephone. But how is it that I can telephone now, whereas I could not telephone formerly? Simply because I have formed the habit of declining to make the misdirected effort which impeded my speech and which intensified the doubt. For a considerable period I declined to telephone at all. Then when I again tried to telephone it was with the resolution that I would have myself excused if I began to make the convulsive speech efforts. The consequence was that, instead of building up speech fear, I was building up speech confidence; and now the confidence so preponderates that I telephone quite readily.

The circumstances of all the speech of the stammerer are essentially the same as those which have just been narrated for telephoning. The fear of speech difficulty (element No. 1) possesses the stammerer in proportion to the extent of time and to the degree in which he has indulged in the impeding efforts (element No. 2). Each further indulgence in the impeding effort intensifies the fear. It would seem from this that the stammerer would progress to muteness; and so he would, *if he was not frequently distracted from his fear.* And here we have the crux of the whole situation. When the fear is allayed the speech is fluent. Temporary allayment may look like cure; but only long continued declination to indulge in the impeding efforts, and persistence in the fluent talking which occurs when the fear is allayed will bring about recovery. And this recovery is so slow for confirmed stammerers that the name "cure" can not properly be applied to it. Indeed, traces of speech doubt will generally remain with the recovered stammerer long after others have forgotten that he ever had an impediment.

Now that we have explained the two elements involved in stammering we may list some of the characteristics of the temporary disappearance which so frequently passes as "cure."

The temporary disappearance is largely under the control of the stammerer. For instance, after I took a certain treatment the man who treated me never heard me stammer again, and he could have said truthfully that to all appearances I was cured. But the fact was that I had relapsed. However, I dreaded so much to admit my relapse that I carefully refrained from indulging in the convulsive efforts whenever I was in his presence. The old speech doubt had revived with increased intensity, but I studiously evaded the words to which that doubt applied. There is overwhelming evidence that most of the reported cures are no more real than was that one of mine.

The temporary disappearance is subject to artificial control. I use the word artificial advisedly, for the artifices to which the stammerer resorts in order to hide his affliction are legion. Some of the artifices are practised on him by others. Anything which allays the speech doubt will produce temporary fluency. Some stammerers, when they desire to speak particularly well, indulge slightly in liquor. The exhilaration caused by the liquor allays the speech doubt and the stammering disappears. Similarly, when a promotion comes to the poor stammering clerk who could not ask for the bread or the sugar at the breakfast table, he rushes home to dinner and announces his good luck fluently and volubly. The disappearance of his impediment is due to the fact that good luck and not speech doubt is uppermost in his mind. Suggestion, in its multitudinous forms, controls stammering even to the degree of total disappearance for a time. Autosuggestion is commonly used. A friend of mine who stammered but who was gradually recovering under the influence of a favorable environment and much determination was flabbergasted one day by the announcement that he had to meet in consultation the head of the great corporation for which he worked. All his speech doubt came back to him with overwhelming force. But he summoned his determination and reasoned that he was made of as superior clay as the head of the concern and would meet him on terms of equality. In this self-assumed attitude of confidence he passed through the interview swimmingly. That great success contributed largely to a real confidence which further contributed to his recovery; whereas, if he had succumbed to his doubts the colossal failure which would have resulted would have intensified his doubts to such an extent as to put him back a long way in his struggle for speech freedom.

From what has just been said it is evident that there can be no difference with Dr. Godfrey as to the relief afforded by hypnotism, for such relief is unquestionably supported by both observation and reason. The only difference is to the extent, rather the permanence, of that relief; and the overwhelming opinion is that, even if some light cases do recover ultimately under the treatment, the benefit to the speech does not offset the undesirability of long submission of the will of the stammerer to the suggestion of another person.

The duration of the temporary disappearance is indefinite. In the cases of recurrence first cited by Dr. Godfrey the disappearance must have extended for years, probably from early youth to the time that the shock of battle revived the impediment. What better evidence is needed of the persistence of the speech doubt; or of the inadvisability of announcing stammering cures? Yet we frequently hear of the instantaneous cure, the "he-never-stammered-again" kind, and the three-week cure is almost indelibly stamped in the popular mind by advertising as mendacious as it is persistent.

It will probably be sufficient to consider two subjects in conclusion, namely an academic one and a practical one. The academic one is the classification of the disorder. Dr. Godfrey rejects neurosis and considers psychosis surely established. In order to avoid any suspicion of bias or dogmatism let us state the conditions and then let whoever wishes to do so draw his conclusions from the conditions. The origin of the disorder is accidental or incidental interference with newly acquired automatic speech. (If the inducing cause is severe even well established speech may be upset, as by the shock of battle.) The continuing cause is the fear of ridicule prompted by the interference. Notice that the interference is purely voluntary; and that the fear being the result of experience, is perfectly logical. Now will someone—anyone—make out of that neurosis, psychosis, or any recognized disease?

The practical subject is to get rid of the disorder

Since the inducing cause increases in intensity with every convulsive effort, it should be evident that those efforts should be prohibited as soon as they appear, that is, in childhood (excepting war shock). At that stage of the disorder no further treatment is needed because the fluent spells which naturally occur will supply sufficient normal speech to dissipate the fear of disability. As long as society rejects this tame and unremunerative remedy in its persistent search for the mythical cure, just so long will this cruel affliction continue; for, although those stammerers who are fortunately situated may recover by the exercise of determination and persistence, the great majority of confirmed stammerers have no chance of recovery under our present organization of society in which the stammerer is forced to talk in order to make a living.

610 N. El Molino Avenue.

Medicolegal Notes.

Accident and Pre-Existing Disease—Strangulated Hernia.—In a proceeding for compensation under the Indiana statute there was evidence that the injured employee had submitted to a surgical operation for hernia in 1914. Shortly after this he had typhoid fever, which prevented the results of the operation from being entirely satisfactory. He went back to work and was not bothered on account of hernia, but several years after he saw a lump in his side and quit work for a week. On the morning of the accident he lifted a bale of wire weighing about 150 pounds up to a reel about even with his shoulders, when he "suddenly became pained and sick, and unable to work." He went home and called a doctor, who found his condition to be protrusion of the intestine into the hernial sac with resulting intestinal strangulation, which necessitated an immediate surgical operation to save his life. A medical witness for the employer testified in effect that where there is an opening or hernia sac pressure is liable to cause a protrusion; that assuming there was such an opening, and that the employee immediately before the accident lifted a dead weight of 150 pounds to a height of 4 feet, he would say that it was the pressure from lifting that caused the protrusion; that he would have no doubt about it.

On appeal from an award of compensation the employer correctly conceded that where an employee affected with disease receives a personal injury under such circumstances the act in question would entitle him to compensation had there been no disease involved. When such disease is materially hastened to a final culmination by the injury, there may be an award if it is shown that such injury was the result of accident; that in such cases the court will not undertake to measure the degree of disability due respectively to the disease and to the accident, but the consequence of the disease will be attributed solely to the accident.

It was insisted, however, that these propositions of law did not apply here, because the board's finding showed that the employee was afflicted with a disease or disabling physical condition which rendered him susceptible to the injury for which compensation was awarded upon exposure to "some slight incident," either within or outside of the employment, and that in such cases the disease or condition, rather than the accident, will be treated as the cause of the disability. The court said that both the condition and the injury from which the disability resulted in this case—that is, both the hernial sac or aperture and the protrusion and strangulation of the intestine therein—might have been the result of the accident complained of, in which case liability for compensation could not be disputed. However, under the board's finding, the condition, viz., the existence of the hernial sac, was present before the accident occurred; but the disability upon which the award was predicated resulted from the protrusion of the intestine into the sac and the resulting intestinal strangulation. The board expressly found that the protruding of the intestine into the hernial sac with the resulting strangulation was caused by the lifting of the bale of wire.

The Indiana court affirmed the award, holding that the mere fact that the claimant's condition made him more susceptible to the particular injury which resulted in his disability furnished no ground for holding that the disease or condition, rather than the accident, was the proximate cause of the injury. It recognized that there is a line of compensation cases in other jurisdictions which give to the word "accident," used in the respective compensation acts, a restricted meaning which in a measure justified the employer's contention; but it thought the weight of authority and the better reason favor the adoption of the popular meaning of the word, which includes "any unlooked-for mishap or untoward event not expected or designed."—Puritan Bed Spring Co. v. Wolfe, Indiana Appellate Court, 120 N. E., 417.

Accident—"Poison Voluntarily or Involuntarily Taken"—In an action on an accident insurance policy exempting the insurance company from liability where death results from "poison voluntarily or involuntarily taken, administered, absorbed, or inhaled" the case was tried, on a second appeal (the first having resulted in reversal of judgment for the defendant), upon an agreed statement of facts. The insured, on January 16, 1912, went to a drug store owned and conducted by a regularly licensed and practising physician and surgeon, and stated to him that he was still suffering from a bowel trouble, for the alleviation of which he had previously obtained Squibb's Cholera Mixture, and requested the doctor to mix him up a "hot one," by which the doctor understood him to mean a strong dose of Squibb's Cholera Mixture. The mixture was poured by the druggist into a graduate, from which it was drunk by the deceased. It was stipulated that Squibb's Cholera Mixture did not contain strychnine, or other drug producing the effect thereof, but that it did contain tincture of opium and chlorofrom, both of which are poisonous. In less than an hour after taking the mixture, the insured went into convulsions and died. It was conceded his death was due to poison received in the mixture. The presence of strychnine in the mixture was not accounted for.

Many different clauses in policies providing indemnity for accidental death have been considered by the courts of last resort, but the language used in the exception above quoted appears to have been considered in but few cases. The Supreme Court of Illinois, in Travelers' Ins. Co. v. Dunlap, 160 Ill. 642, 43 N. E. 765, in considering a clause in an accident policy providing exemption for liability in case death resulted "wholly or partly, directly or indirectly from . . . taking poison, contact, with poisonous substances, inhaling gas," etc., held that this language referred to death from poison voluntarily or intentionally taken, and did not include a case where death resulted from accidental poisoning. Other cases are in harmony with this decision, but the language of the policy involved in none of them was identical with that in the case at bar. The basis for the holding in each of this line of cases is that the clause excepting the insurer from liability was designed to cover only cases where the poison was consciously or voluntarily taken. Nothing is contained in any of them to indicate that the conclusion would not have been different if the clause had specifically exempted the insurer from liability for death resulting from poison voluntarily or involuntarily taken.

The court said the deceased could not have intended to take a fatal dose of strychnine. He did not voluntarily do so. Its presence in the mixture was unknown to him. There was no exercise of the volition or will in the act of taking the poison, except in so far as it was a necessary part of the taking of the concoction. The poison was taken independently of his will or volition, and therefore involuntarily. Thus contrasted, the language employed in the exception contained in the policy is given its usual and necessary meaning. "We cannot therefore escape the conclusion that the poison contained in the mixture and which caused the death of deceased was involuntarily taken by him, and that the facts bring the case clearly within the exception of the policy, and that no recovery can be had thereon."—Riley v. Inter-State Business Men's Acc. Assn., Iowa Supreme Court, 169 N. W. 448.

Medical and Surgical Lessons of the War.

WAR WOUNDS OF THE GENITOURINARY ORGANS.

By GEORGES LUYS, M.D.,

PARIS, FRANCE.

MÉDECIN MAJOR DE PREMIÈRE CLASSE; PHYSICIAN-IN-CHIEF OF THE UROLOGICAL SERVICE OF THE MILITARY HOSPITAL DOMINIQUE LARREY, VERSAILLES.

SOLDIERS wounded by war projectiles in the region of the genitourinary organs are first directed, like all other patients, toward the "aid-post," a sanitary formation near the firing line, from which the evacuation of the wounded must take place as rapidly as possible on account of the enormous influx of cases at the time of attacks.

The treatment of wounds of the urinary organs can be carried out only in sanitary formations far removed from the firing line, and prepared to receive serious cases. These patients are then transferred either to a surgical automobile ambulance, or to a large hospital in a near-by town. Some days later, when the patient is out of danger, he is evacuated to a urological center in the interior.

Having created four such centers, in Dôle, Besançon, Amiens, and Versailles, I have had the opportunity of treating a large number of these war wounds, and it is upon the experience thus gained that the present article is based.

We will take up in order: (1) Wounds of the urethra; (2) Wounds of the bladder; (3) Wounds of the kidney; (4) Wounds of the testicle.

I. WOUNDS OF THE URETHRA.

Wounds of the urethra may be more or less extensive, according as they are produced by shell splinters, which cause considerable destruction, or bullets, which may give rise to much less serious wounds.

I have observed seton a wound of the penis, a bullet having passed straight through the penis at the level of the glans while the soldier was in a stooping position. This wound had hardly any bad results, and the patient made a very prompt recovery.

In other cases, wounds of the urethra are much more considerable, often destroying several centimeters in length of the canal. A distinction must then be made between the immediate treatment and the secondary treatment.

When the patient arrives with extensive damage, and there is difficulty of urination, the first thing to be done in such a case is undoubtedly the deviation of the urine by the hypogastric section. This is a rule which must never be disregarded, for whenever it was not followed the sufferings of the wounded were greatly prolonged, even if their condition was not actually aggravated.

The hypogastric incision, in cases of wounds of the urethra, presents the following advantages: (1) It prevents the urine from reaching the infected focus, thus permitting a more rapid cicatrization of the wound. (2) It protects the patient against continued suffering at the time of micturition. The condition of all patients treated in this way has been rapidly improved. The supplementary treatment of these urethral wounds should not be carried out until considerably later, when the wound has almost completely healed and the fibrous and cicatricial tissues have become more flexible. Whatever repair of the urethra may be necessary should now be undertaken, advantage being taken of the preceding hypogastric section. In consequence of the preliminary deviation of the urine, all plastic operations now performed on the urethra are successful in much larger proportion than if a permanent catheter had to be utilized.

As regards the operative procedure which I have always found most successful for the radical cure of pubic or scrotal fistulas following war wounds, the method of Duplay undoubtedly offers the best security. The extensive liberation of the margins of the fistula, followed by secondary fixation with silver wire, yields very noteworthy results. The flaps are not pulled upon, their vitality is not diminished, they are neither cut nor torn by the sutures.

The other methods which have been advocated for urethral fistulas following wounds due to war injuries are: *Cutaneous inversion*, in which the margins of the fistula, after having been freed and turned down like a collar, are everted inward and a second suture is applied above the first. This inversion method seems to yield favorable results only in cases of small fistulas. The other procedures, in the form of *autoplasties with flaps*, or *transplantation of the mucosa*, may likewise be employed in suitable cases.

In the course of these autoplastic procedures it is advisable to be very guarded from the viewpoint of intraurethral manipulations. If a permanent catheter is applied, the wound of autoplastic repair is practically certain to suppurate, and healing is endangered. For this reason, unless a hypogastric section has been previously made for the deviation of the urine, it is recommended not to leave the catheter *in situ*, but to resort to intermittent vesical catheterization (four or five times in 24 hours).

Under all circumstances, and when the operative procedures have led to closure of the urethra, it will be necessary later on to restore the caliber of the canal by means of gradual systematic dilatations with sounds.

In cases with extensive loss of urethral substance several plastic operations will certainly be required, the interval between which should usually be quite long.

The urethral wounds so far discussed concern only wounds of the penile or scrotal urethra. Wounds of the deep urethra are entitled to special attention, being much more difficult to heal.

Wounds of the deep urethra are more difficult to cure and require multiple interventions. The best attitude to be observed at first, in the presence of a wound of the deep urethra, is to effect a deviation of the urine by the suprapubic route. Exceptionally, when grave concomitant lesions of the intestine are present, a colostomy for the purpose of deviating the feces may be indicated, but this indication is altogether exceptional. I have found an occasion to apply it during the entire duration of the war, for the wounds of the rectum, which were observed with some frequency in association with

wounds of the deep urethra, usually healed of their own accord, without intervention.

The subsequent treatment of wounds of the deep urethra is much more complicated, but must as a rule not be undertaken in these as in the preceding cases, unless a hypogastric incision has permitted the deviation of the urine, thereby providing the possibility of attacking the urethrorectal fistula under more favorable conditions.

Various procedures have been advocated for the cure of this urethrorectal fistula; the most simple consisting in the liberation of the rectum from the deep urethra through a long perineal incision, followed by separate suture of the urethral gap and the rectal gap.

Another procedure consists in lowering the rectum so as to make possible a complete separation of the fistulous rectal segment, then shifting the rectal wall as a whole in such a way that only a perfectly healthy portion of the rectum comes to lie opposite the urethral gap.

Finally, a last and most interesting operation, proposed by Professor Rochet of Lyons, is the ischiopubic separation of the insertion of the middle perineal aponeurosis, in order to gain access to the wounded deep urethra. This operation has the advantage of permitting the destruction of the urethral adhesions following the rather common fractures observed in the course of these wounds, more particularly fractures of the ascending ramus of the ischium. It offers the additional advantage of replacing the canal in the axis of the anterior urethra and of exposing sequestra or foreign bodies behind the ramus of the ischium.

I have seen four patients with wounds of the deep urethra, treatment proving successful in only two of these cases. A case which received special attention concerned a patient with a urethrorectal fistula situated very close to the membranous portion of the urethra. The fistula had been located, not only in the urethra by the urethroscope, but also in the rectum by the proctoscope. Four operations were performed: twice, simple suture of the urethral opening combined with separate suture of the wound in the rectum proved unsuccessful. Two other times, lowering of the rectum even combined with resection of the rectal fistula yielded no good result. The patient, worn out by all these operations, finally remained in about the same condition as before, urinating in part through the canal and in part through the rectum.

In another patient with complete destruction of the anus and of the prostatic urethra, hypogastric section was first made and maintained for a long time, then in a later operation a curtain of rectal mucosa was lowered to cover the gap in the prostatic urethra, according to the method indicated by Professor Gayet of Lyons. This patient had a fairly good result and was enabled to leave the hospital after his urethra had been dilated with curved Béniqué sounds. He passed practically no urine by the rectum. As the anus had been very extensively damaged practically no sphincteric fibers were left; nevertheless there was no incontinence of feces.

In conclusion it must be admitted that these urethrorectal wounds cause lesions which are very rebellious to treatment, their cure being exceedingly difficult to accomplish.

II. WOUNDS OF THE BLADDER.

Among the wounds of the genitourinary organs, those of the bladder are with those of the urethra the most frequently observed. Vesical wounds are met with either associated with lesions of the neighboring organs or separately.

Associated bladder wounds are almost invariably combined with fractures of the bony pelvic girdle, more particularly fractures of the pubis, or with intestinal perforations; and in these cases the wound in the bladder is merely secondary, for the peritonitic symptoms which accompany intestinal injuries create such an alarming condition that the vesical lesions are relegated to the background. In other cases, the intestinal injuries are much less serious and the patients may survive. Adhesions develop and the patient may void his urine through points at a great distance from the bladder. Of three patients under my observation, one passed nearly all his urine through an opening in the upper part of the right thigh, and the two others passed their urine through an orifice situated on the posterior aspect of the buttock.

Wounds of the bladder may sometimes remain undetected, and they should be very carefully looked for. Thus, when a patient complains of having had no natural micturition, while a catheter introduced through the urethra shows the bladder to be perfectly empty, and at the same time there is a suprapubic swelling, there is reason to assume the presence of a vesical lesion, and in this case immediate intervention becomes imperative. Hypogastric section should be performed at once as offering the only prospect of a successful outcome for the patient.

The most important rule for the guidance of the operator in the treatment of the bladder wounds through war injuries is primarily the *absolute necessity* to insure a good drainage of the urine, first by freely exposing the wound and next by securing easy evacuation of the urine through vesical drainage. This also adds to the patient's comfort by preventing wetting of the bed.

The diagnosis of a wound of the bladder having been established, it is necessary in the first place to locate the opening into the bladder so as to introduce a drainage tube which guarantees the complete evacuation of the urine. It does not suffice, however, simply to insert a drainage tube into the wound, but we should assure ourselves that it is properly introduced into the bladder itself. In order to comply with this imperative indication, surgical intervention is usually required, with free exposure of the wound under local anesthesia, so as to ascertain that the drainage is thoroughly established.

After a good vesical drainage has been allowed to exert its effect for a fairly considerable time (often a month or two), the borders of the wound may be seen gradually contracting, the suppurating tracts drying up, and the perivesical fistulas closing, while the neighboring wounds heal. It now becomes easy to reestablish the normal course of the urine by means of a properly functioning permanent catheter.

Primary suture of a bladder wound seems to be hardly ever practicable in cases of war injury, on account of the associated lesions. Drainage is all

that is left to do, the best drainage being by the anterior median route. Wounds of the lateral walls of the bladder do not necessarily call for a median cystotomy; the surgical treatment of the entrance wound and its tract guarantees a sufficient drainage in the majority of the cases; the later application of a permanent catheter will facilitate the closure of the urinary fistula.

Among the observations collected by the author, the following represents, as it were, the most ordinary conditions in the course of perforations of the bladder:

Private J. H., 26 years of age, was wounded on Aug. 10, 1914, at Burnhaupt, by a bullet which entered at the upper portion of the left buttock, three fingers' width to the left of the crest of the gluteal fold, perforating the rectum and the bladder, and fracturing the pubis. On his admission to the hospital he was found to pass urine by the rectum and gas and fecal matter through the wound of entrance of the bullet. Three days later the patient was catheterized and cystostomy was performed. The urine escaped through the hypogastric incision, a considerable amount also escaping through the rectum; the patient passed nothing through the penis. At the end of three weeks, a permanent catheter was tried but could not be tolerated. Ten days later the cystostomy incision was enlarged and a large drain was applied. After these several operations the wound of entrance closed entirely.

On Sept. 20 the findings were as follows: The wound of entrance of the bullet was closed. The urine no longer escaped through the rectum, but was all evacuated through the hypogastric opening, not a drop passing through the urethra. A permanent catheter was now introduced and vesical irrigations were regularly carried out. But some days later, pus collected at the external angle of Scarpa's triangle on the right side and at the end of fifteen days it was found necessary to make two parallel incisions along the internal aspect of the right thigh. On injecting water into the drains placed in these incisions a communication was found to exist between the right femoral lesion and the bladder, water injected through the thigh returning through the hypogastric opening. There existed, therefore, at this time a double vesical perforation, the first establishing a communication between the right thigh and the bladder through the obturator foramen; the second being represented by the hypogastric opening. An effort was now made to insert a catheter into the urethra, but this was found to be absolutely impossible. A catheter was then introduced through the hypogastric opening and the urethra was entered from behind. The catheter was left in place and daily irrigations of the bladder were carried out. On March 4 a new permanent catheter was passed through the natural passages. Under its influence the vesical capacity gradually increased, rising in two weeks from 20 to 80 grams, and the two perforations of the bladder progressively closed. Early in May the bladder was completely closed. However, the patient constantly complained of passing fecal matter and gas through a rectal fistula. In order to verify the actual existence of a rectal fistula, proctoscopy was performed on May 13, and the fistula was plainly visible on the anterior wall of the rectum. Its exact location was ascertained and when a grooved catheter was introduced into the fistula it was distinctly seen in the rectum. An operation for the purpose of closing the rectal fistula was performed on May 22 with the assistance of Dr. Senn. After a triangular lance-shaped incision, at the level of the fistula, the superficial parts were freed, followed by exposure and resection of the coccyx. A quantity of fibrous tissue was reached, which completely surrounded the posterior rectal wall. The latter was next freed from the fibrous tissue, and the rectal mucosa, which had previously been dissected up, was sutured with catgut. Above this suture two other tiers of sutures were applied, a pledget of iodoform gauze was placed at the level of the coccyx, and a small drain was inserted in the opposite angle of the wound. Horse-hair suture of the wound ("crin de Florence"). The stitches were removed on May 31. A week later, June 8, the wound in the lumbar region was completely cicatrized. But although all was now well on the part of the bladder and rectum, there still remained a small oozing fistula in the right pubic region. Therefore, on June 12, by means of a new operation, several large splinters from the pubic fracture were removed. On July 13 two minute fistulas persisted on the side of the coccyx, through which still oozed some purulent matter and intestinal gases. The urinary fistulas were completely closed. On July 17 a grooved sound passed into the wound of the buttock, through which the patient passed gas, could not be made to enter the rectum. A few drops of a concentrated silver nitrate solution were now injected into the small fistula, and the procedure was repeated several times at intervals of a few days. On Aug. 5 the fistulas were completely closed, and the patient left the hospital cured, on convalescent leave.

In a general way, it may be said that the prognosis of bladder wounds due to war injuries is far from gloomy; and that, provided good urinary drainage has been secured, recovery will follow—after considerable time, but almost with certainty in the vast majority of the cases.

Among the complications which may be observed in the course of gunshot injuries of the bladder is the presence of bony splinters due to fractures of the pelvis, which enter the bladder, and, after this has become closed, may form the nuclei of vesical calculi.

A very interesting case of this kind was observed in a Senegal trooper, 18 years of age, who on June 4, 1918, suffered an extensive rupture of the bladder with perforation of the rectum, caused by a shell splinter. The wound of entrance was at the level of the left horizontal ramus of the pubis and that of exit was situated in the right buttock. The shell splinter had opened the bladder, shattered the pubis, divided the left spermatic cord, ruptured the left testicle, and perforated the rectum, which resulted in the escape of fecal matter through the wound in the buttock.

The wall of the pubic fistula had been cleansed in the first place from all gangrenous masses and pubic bone-splinters had been removed. A permanent catheter No. 20 had been fixed in the urethra; two drains had been placed in the bladder and another drain in the space of Retzius. The patient's local condition had very rapidly improved under the influence of this treatment, and some time afterwards, the radical cure of the now considerably retracted vesical fistula could be performed. In the following September the patient was enabled to get up, and he urinated spontaneously. Soon afterwards, however, he began to complain of dysuria and pain at the level of the penoscrotal angle. On urethral palpation a thickened induration could be felt at this point. A metal catheter was arrested here by a hard substance which gave a sensation of "choc."

A urethroscopic tube was now inserted and the bone splinter was pushed back into the bladder, where it could be seized with forceps introduced through the tube; it was then drawn out in railway train fashion together with the urethroscopic tube.* This bone splinter measured 2 centimeters in length by 1 centimeter in width, with extremely sharp points. The same treatment had to be carried out in this case on two other occasions, so that three bone-splinters of pubic origin were thus extracted through the natural passages.

Extraction Through the Natural Passages of Projectiles Which Have Penetrated Into the Bladder.—The arrest of projectiles in the interior of the bladder is relatively rare, for multiple associated conditions must be realized for a bullet coming from a distance to arrive with the reduced velocity a

*For the technique of all these manipulations, s Luys' "Traité de Cystoscopie et d'Urethroscopie," Par 1914.

projectile force required for its penetration into the small pelvis and its final landing precisely in the bladder. Only a combination of exceptional circumstances permits the observation of similar cases, for, as a rule, projectiles pass directly through the bladder, perforating its walls and frequently also those of the rectum as well.

In view of the fact, however, that simple penetration of a bullet into the bladder has once occurred in one very clearly defined instance, it is permissible to assume that other similar observations might be collected. The dangers threatened by foreign bodies left behind in the bladder are well known; these bodies invariably become incrusted with lime salts and serve as nuclei for vesical calculi.

Aside from such considerations, the question arises what should be done for the extraction of a foreign body which has penetrated into the bladder? In the first place, its presence in the bladder must be ascertained, and contact with it be attempted either by means of an ordinary explorer or a metal sound; or better still, one should try to see it directly with a cystoscope.

The extraction of the foreign body is more difficult, however. When it is small, lithotrites may be utilized. Although small foreign bodies, chiefly hard, have been occasionally successfully extracted with these instruments, it is nevertheless true that the grasping of these bodies between the branches of the lithotrite is attended with considerable difficulty. In the case of an irregular, trabeculated bladder, it is a difficult matter to differentiate the grasping of the wall or of a vesical trabeculum from the hold on a foreign body. Moreover, the practically constant position assumed by the long and rigid foreign bodies in the bladder corresponds, for those whose length does not exceed 7 to 8 centimeters, to the transverse diameter of the bladder, the only diameter which does not vary according to the state of fullness or emptiness of the viscus. A mere grasping of these foreign bodies cannot effect their extraction, for all blind manipulations are insufficient to attain this end, and obviously visual control alone permits a rapid, reliable, and effective seizure and withdrawal.

In the past, when these simple measures proved unsuccessful, there remained only the last resort of opening the bladder by hypogastric section; but one must concede that this operation, although harmless in skilled hands, is here out of proportion to the gravity of the trouble.

The author's "direct-vision cystoscope" (see Luys' Traité de Cystoscopie et d'Urethroscopie, 1914) seems to be destined to become a valuable adjuvant in the extraction of foreign bodies from the bladder. It permits a distinct view of the foreign body, its accurate localization, its efficient seizure under the control of the eye, and its rapid extraction. This was the course of events in the following case:

Private François, 33 years of age, of the 41st batallion of infantry at Cirey-sur-Vesouze, was wounded on Nov. 17, 1914, while in the recumbent position for shooting, by a bullet from a gun discharged obliquely and at an approximate distance of one thousand meters, striking in the center of the right buttock. Immediately after this injury he was able to walk a distance of 4 kilometers (2½ miles) supported by two comrades, to the Bresmenil ambulance, where he had to be catheterized on account of complete urinary retention. Bloody urine was withdrawn by the catheter and for five days it was passed spontaneously. Bloody stools were also observed during two days. The patient was first evacuated to the Baccarat hospital where he remained from Nov. 17 to Dec. 16; while he was under treatment in this sanitary formation the following very characteristic symptom of foreign bodies in the bladder was noted on several occasions. When he endeavored to urinate, and especially at the time of defecation, the urinary stream was suddenly cut off; and in order to permit continued micturition catheterization was necessary for the purpose of pushing the foreign body which was lodged in the posterior urethra into the bladder.

On his next evacuation to the Auxiliary Hospital No. 104, in Dôle, on Dec. 17, 1914, the patient presented three very characteristic symptoms, suggestive of the probable existence of a foreign body in the bladder; namely: (1) Absolute impossibility of urinating in the upright position, micturition being possible only while recumbent; (2) Sudden arrest of the urinary stream during micturition, with pains radiating to the extremity of the penis; (3) Sometimes, as a result of straining at stool, the foreign body became lodged in the urethral canal, but readily returned to the bladder through simple elevation of the pelvis. No symptom of cystitis was demonstrable, the urine being merely slightly turbid when passed. Catheterization of the urethra, performed with a soft catheter, did not reveal the presence of any foreign body in the urethra. The wound of entrance of the bullet was situated in the center of the right buttock, where it presented a small completely cicatrized orifice, ½ centimeter in diameter. A radiogram, taken on Dec. 18 by M. Blandin, showed very clearly a bullet situated in the median line; it was exactly vertical, with the point turned downwards, and retrosymphyseal. The radiograph showed no trace of fracture or of perforation of the ileum, rendering it highly probable that the bullet had passed through the great sciatic notch. The performance of "prismatic" cystoscopy on Dec. 19 showed the presence of a rifle bullet in the bladder. This bullet occupied the right lateral portion of the bladder, resting in a bed-like depression of the vesical mucosa; the point was directed to the left and downward behind the level of the ureters; it was bright and glistening, apparently not incrusted with salts. Under these conditions, in view of the positive presence of a bullet in the bladder, the extraction of the projectile became urgent and indispensable and was accomplished successfully by means of the author's direct-vision cystoscope.

Operation, Jan. 2, 1915. The urine being clear, and after passing a curved Béniqué, No. 59, the bladder was completely emptied. The patient was then placed in a sharply inclined position and the Luys direct vision cystoscope No. 29½ (Charrière) was introduced into the bladder. The mandrin having been withdrawn and the lamp placed in position, it was found that the bladder of the rather stout patient did not readily unfold. However, under the influence of vertical drawing on the abdominal wall by an assistant, the unfolding of the bladder could be observed to take place under excellent conditions. The bullet was at first in plain view with its base forward, but by means of long claw forceps placed in the interior of the cystoscopic tube, it was rotated and its tip after having been turned into the lumen of the cystoscope tube was firmly grasped in the teeth of the endoscope forceps. The lamp of the cystoscope was now withdrawn, and then the patient's inclined position being changed to a horizontal one, the tube was gradually withdrawn from the urethra, holding in its interior the bullet which was half embedded and held by the claws of the endourethral forceps. The bullet was now set in the lumen of the tube, surpassing the diameter of the same by only a few millimeters; it was held in place by friction of its grooves on the walls of the tube, and was withdrawn after the fashion of a railroad train. When the tube had been removed from the urethra, the bullet was easily extracted by means of claw forceps. Irrigation of the bladder was now made with a silver nitrate solution. The operation lasted eight minutes and was done without general or local anesthesia.

The examination of the bullet withdrawn from the bladder by the endourethral route showed it to be an

undeformed German rifle bullet. Its color was grayish black throughout, except at its anterior half, where glistening grooves caused by the jaws of the forceps were seen. The grooves in the bullet contained scanty lime salt concretions, encroaching in no way on the smooth surface. These concretions were of slight thickness and rather friable. The base of the projectile was free from all concretions.

Summarizing, we may say that by means of the direct-vision cystoscope the foreign body was easily and rapidly withdrawn from the bladder, so that the patient was spared the surgical opening of the bladder through hypogastric section.

Another observation, very similar to the preceding, concerns a soldier who had been wounded on October 14, 1914, in the Apremont forest, several shell splinters entering at the level of the bladder. When he was transported to the Besançon Military Hospital, seven shell splinters were removed from his buttocks, but in view of the difficulties experienced by him on urinating he was sent to my Urological Service. Exploration of the urethra showed at once that the lumen of the canal was considerably retracted, admitting only a filiform bougie; on the right lateral portion of the penoscrotal angle there was a tumor the size of a large cherry. The performance of urethroscopy later on showed the presence of a calculus encased in the lower wall of the urethra, at the level of the penoscrotal angle. This was of a distinctly white coloration, interspersed with a few black spots, suggesting a mulberry calculus. Several attempts were made to grasp the calculus with forceps and guide it toward the urethral opening, and finally we seemed more successful, and the tube was gently withdrawn, but just as the foreign body was apparently about to emerge the forceps slipped, the calculus escaped and disappeared. A second insertion of the urethroscope immediately afterward failed, to my great surprise, to reveal the calculus in its former location, at the penoscrotal angle. But as the swelling at this point had decreased it was assumed that the calculus had escaped into the bladder. Therefore, cystoscopy was at once performed, and the calculus was found at the fundus of the bladder; its diameter was estimated to be 1½ cm. It was quite uniformly white in color and seemed to be rounded. As its volume apparently exceeded the normal dimensions of the urethra, lithotrity was decided upon. This operation was attempted on April 28, 1915. After 24 hours' permanent catheterization, the lithotrite was introduced with ease, but when a good grip of the calculus was obtained between the jaws of the lithotrite, I found that in spite of considerable muscular efforts, the calculus was not fractured. A second grip under the same conditions likewise failed, and then suddenly the jaws of the instrument locked and refused to come apart. The situation thus became somewhat embarrassing, but fortunately the jaws of the lithotrite unlocked after a little manipulation, and the calculus dropped back into the bladder. The performance of cystoscopy immediately afterward showed the remarkable and unexpected fact that the lithotrite had scraped off the entire external white coating, which was composed of salts, leaving a blackish mass, evidently metallic in character, and undoubtedly a shell splinter.

Two methods of extraction now entered into consideration—either hypogastric section or an attempt at extraction through the natural passages. The latter method was decided upon, and was carried out most successfully in the presence of several physicians from the St. Jacques Hospital. The patient, having been placed in a sharply inclined position, the Luys direct-vision cystoscope was introduced, and the calculus, which was plainly visible in the vesical cavity, was at once grasped in the jaws of forceps passed through the cystoscope, and the strongly gripped shell splinter was immediately withdrawn, at the same time as the cystoscope.

III. WOUNDS OF THE KIDNEY.

Gunshot wounds of the kidney are relatively not very common. They may be associated with lesions of other organs or be limited to the kidney.

In the former case, *when the kidney is only incidentally damaged by a projectile, the injuries involving other abdominal organs as well,* the performance of a lateral or median laparotomy becomes imperative in order to carry out the operative measures indicated by the lesions present. The following case is of unusual interest:

The patient was a soldier who had been struck by a projectile in the region of the left flank. He presented, in addition to hematuria, a bad general condition, and symptoms of suffocation which attracted special attention. An exploratory puncture made in one of the left intercostal spaces brought only a little blood, but immediately after the puncture the patient collapsed and died suddenly. The autopsy showed the presence of extensive lesions, characterized in the first place by rupture of the upper pole of the kidney, next by perforation of the diaphragm, through which the herniated spleen projected into the interior of the thoracic cavity. These various lesions were hidden by large hematomas.

In those cases where the renal wound is limited to the kidney a distinction must be made between several varieties. In the first place, there are very mild cases, in which the projectile has passed through the kidney without causing any permanent damage. The following case is offered in illustration:

A young soldier was wounded in 1914 by a bullet which had passed through the kidney, giving rise to hematuria, which rapidly subsided under the influence of rest alone. Having the opportunity of examining this man four years later, I found in the region of the right kidney two cicatrices, one anterior, the other posterior, evidently the wounds of entrance and exit of a rifle ball. Examination of the separate urine from the right kidney showed function of the latter to be perfect, and not notably different from that of the left kidney.

The kidney accordingly behaves like the other organs, the lung, for example, in which a bullet may pass through the organ without causing any appreciable permanent lesions. Hence, when there is reason to suspect a wound of the kidney, in the course of a war-traumatism, expectant measures are in order before interfering, and in favorable cases the originally profuse hematuria will be seen to subside progressively. However, in the presence of a voluminous perineal hematuria, indicated by a thickening in the lumbar region, a radiograph should be taken, and if the presence of a foreign body is discovered intervention is indicated.

A case of this kind came under my observation at Amiens. A patient who had been wounded by a shell splinter in the right renal region, presented some time afterward a well-marked thickening of the lumbar region, and radiography showed a shell splinter in the region of the kidney. A long lateral lumbar incision was made, but in spite of the radiographic localization of the projectile, the foreign body was not found at once. The patient had to be placed upon a radiograph table where it was found that after the removal of numerous blood clots and of pus due to the presence of a perinephritic phlegmon, the shell splinter localized by the radiograph near the ribs, had descended nearly down to the iliac fossa, and it was only by means of the radioscopic screen that it was discovered and removed.

Operative indications in the course of war wounds of the kidney are positive also when the renal hemorrhage, instead of stopping, becomes aggravated, when these hemorrhages occur, or finally

when the kidney presents a well-marked pyonephrosis.

I had occasion to examine, with Dr. Senn, chasseur S. R., 25 years of age, who had been wounded on June 17, 1915, in Metzeral, receiving a shell splinter in the left side. On admission to the hospital, he presented a rather serious condition, a weak and rapid pulse, facial pallor, and blanched integuments. A sharp pain was felt at the level of the twelfth left rib; there was an irregular wound, situated at the free end of the tenth rib, five centimeters in length by three centimeters in width, directed downward and inward, and from behind forward. The urine was very dark, and the patient said he had passed blood two hours after the injury. Examination of the abdomen afforded no information. Directly after his arrival, the patient was carried to the operating room. The wound was exposed and enlarged, in order to see if a shell splinter had been left behind. After an unsuccessful exploration, a stream of red blood suddenly appeared, the incision was extended in the direction of the anterior-inferior iliac spine, and the wounded left kidney was felt in the hand; the pedicle was compressed between the fingers, in order to make hemostasis, but after examining the renal parenchyma, it was decided to preserve the kidney, which was placed in a Marcille net. After good drainage was established the superficial parts were sutured. By July 20 the patient began to get up one hour daily, and his wound promptly healed under excellent conditions.

It was of interest to ascertain the functional capacity of this ruptured and sutured kidney. The necessary investigations were therefore carried out on August 18. In order to examine the condition of the ureter, catheterization of the left ureter was performed with a No. 6 catheter, which was introduced without difficulty to a length of 30 centimeters. The urine from each kidney was separately collected; the result of the analysis, as summarized in the subjoined table, shows that although the quantity of urine from the left kidney was slightly less, its quality was superior to that of the urine from the right kidney; plainly showing the importance of the preservation of this kidney for the patient.

	Right Kidney.	*Left Kidney.*
Quantity	61 c.c.	45 c.c.
Urea (per liter)	3.64 grams	6.40 grams
Chlorides (per liter)	10.53 grams	12 grams
Phosphates—The quantity of urine was insufficient for this estimation.		

In cases of secondary pyonephrosis the treatment is the same as in all pyonephroses, interference with the diseased kidney being permissible only when its fellow has been ascertained by segregation of the urines to be perfectly healthy and capable of taking sole charge of the urinary excretion.

Sometimes the lesions on the part of the kidney do not manifest themselves until a remote date. I have observed an illustrative case of unilateral suppurative nephritis following a gunshot wound at the base of the left lung. This interesting observation follows:

Unilateral Suppurative Nephritis, Abscess of the Prostate, Suppurative Vesiculitis, and Perivesiculitis Following Purulent Pleurisy Due to a Shell Splinter; Left Nephrectomy and Perincotomy.—Private S., aged 34 years, admitted October 8, 1917, to the Urological Service of the Dominique Larrey Hospital in Versailles, with the diagnosis of tuberculous cystitis. On September 25, 1915, he had been wounded at Souain by a shell splinter at the base of the left lung. After a temporary dressing at the first aid station, he was sent directly by hospital train to the temporary Hospital No. 5 in Montauban, where he was treated during several months for left-sided purulent pleurisy following his wound. On February 18, 1916, his condition had sufficiently improved for his being discharged on convalescent leave for three months. On his return to his post, as he continued to complain of pain in the left side, he was sent to the Hôtel Dieu of Laval, where a shell splinter was removed which had lodged at the base of the left lung. Notwithstanding this operation, the pains in the side still persisted, and on August 10, 1916, he was transferred by the Advisory Board to the auxiliary service.

On admission to the urological ward, he was still complaining of pains in the left thoracolumbar region, which for the past ten days had become associated with painful crises in the hypogastrium. Micturition was of normal frequency during the day, but during the night he urinated three or four times. A slight burning sensation was felt during micturition. He denied ever having had gonorrhea. The urethra admitted a No. 18 sound, and showed no trace of stricture. The prostate was normal, the right seminal vesicle could not be felt, but the left vesicle was thickened and painful. Lumboabdominal palpation showed an absolutely free right lumbar fossa, whereas on the left side a large and very hard mass was felt, fluctuating slightly, and passing up under the ribs. This mass was apparently referable to the kidney, surrounded by an area of perinephritis. The urine was turbid, and analysis showed the presence of pus, but the absence of tubercle bacilli.

On October 12 catheterization of the left ureter was performed, with a No. 7 catheter, which easily passed a distance of 30 cm. The capacity of the renal pelvis was 10 c.c. The analysis of the separate urines showed a normal right kidney, whereas the left kidney showed an insufficiency and contained pus.

On October 19 the patient was suddenly attacked by complete urinary retention, the nature of which was recognized by the rectal touch, in the form of a large resisting and very painful prostate. The patient was now treated with regular catheterizations and warm irrigations. On the 22d the prostate was felt yielding under the finger, on rectal examination; a flow of pus appeared at the meatus, the prostatic abscess having opened into the posterior urethra.

On December 23, as the temperature remained high, the patient was again examined. The prostate was found to have resumed its normal dimensions, but a large supraprostatic mass was felt, especially marked on the left side. The retrorectal region was infiltrated and edematous. On the next day, the physical signs persisting and the temperature remaining very high, an operation was decided on. The perineum was incised, and the finger passed up to the left of the bladder opened into a pocket, from which a large amount of pus was discharged. A drain at the level of the vesicula seminalis was inserted, and the operation was terminated, leaving the perineum temporarily open. Examination of the pus, collected in a sterile pipette, showed it to contain staphylococci. The temperature dropped slightly on December 24 and 25, but rose again on the 26th, and rectal examination showed that a new collection of pus had appeared at the site of the right vesicle. On the same day the patient was anesthetized, and this new collection was opened with the finger through the original perineal wound. The temperature still remained high for a few days and then dropped. The drains were removed December 31. On January 5 left-sided parotitis appeared, which subsided in a few days without suppuration. On January 16 all dressings were removed, the perineal wound having completely healed.

The patient's general condition remained bad, however, and his urine was always very turbid. The performance of another cystoscopy, showing a normal right ureteral orifice and a gaping left orifice with swollen margins, surrounded by a greatly inflamed and edematous area, confirmed the findings of the preceding urinary segregation. Ambard's constant was excellent, 0.067.

Radiography proving negative, the performance of nephrectomy was indicated. Under these conditions another intervention was decided on. Subcapsular nephrectomy, rendered necessary on account of the severe perinephritis surrounding the kidney, was performed on January 6. In the course of the operation, the kidney having been removed, a fistulous tract was discovered at the upper and posterior portion of the renal recess, at the level of the diaphragm, apparently

connecting the pleura with the renal recess, presumably representing the route followed by the infection in its propagation from the pleura to the kidney, first infecting the perirenal fat.

The excised kidney was large and nodular. On incision a suppurative nephritis was found, the renal pelvis and the calyces being intact; only miliary abscesses were seen in the cortical substance, and five or six purulent foci the size of a hazelnut. Bacteriological examination showed the pus to contain staphylococci.

The operative sequelæ were normal, and at the time of this report the patient is steadily improving, and on the highroad to recovery.

This observation is of twofold interest. In the first place, the genesis of the complications presented by the patient is somewhat unusual, and the assumption is apparently justified that the pulmonary lesion was the starting point from which originated the infection, first becoming propagated through the diaphragm to the perirenal space and then to the renal parenchyma. From here, by way of the ureters, it reached the prostate gland and the seminal vesicles. Bacteriological examination showed the same infectious agent, the staphylococcus, in the prostate-vesicular pus and in the renal pus.

Furthermore, this observation is noteworthy because of the rare occurrence of the lesions discovered in this patient—double perivesiculitis and suppurative nephritis without involvement of the calyces and the renal pelvis.

IV. WOUNDS OF THE TESTICLE.

Gunshot wounds of the testicles are not uncommon. As a rule, they are associated with other lesions of the urethra or the bony walls of the pelvis, and frequently they are accompanied by wounds of the thighs. In exceptional cases the injury is limited to the testicles alone.

The treatment to be adopted in this class of injuries must be *preeminently conservative*, unless the organ has been completely destroyed and its preservation is absolutely impossible.

The utmost care should always be exercised to preserve, if not the entire organ, at least the larger portion of the testicle. In other words, castration is to be performed as rarely as possible, and only as a last resort.

In view of the fact that wounds of the testicles occur in young men, well-marked disturbances of a general character are bound to follow. I have observed the case of a young soldier, 23 years old, who was wounded by a bullet which passed through both testicles, so that after the wound had healed only two small stumps were left, evidently without any testicular secretion. In consequence of this injury the patient sank into a state of extremely pronounced neurasthenia, with intellectual, moral, and physical depression of a very marked type. No internal treatment proved successful in restoring his previous state of health. He remained in a completely apathetic condition, unable to make any physical effort, stretched out on his bed throughout the day, and crying nearly all the time. Testicular medication, which had been administered, as well as injections of sodium cacodylate, and injections of physiological salt solution produced practically no effect.

Other cases have come under my observation in which only one testicle had been destroyed, and where the above described phenomena did not occur.

20 Rue de Grenelle.

Military Medical News.

Retaining of Men in the Medical Service.—Surgeon General Ireland, in a letter to the enlisted men of the Army Medical Department, made public on April 21, explains that it is not possible to discharge men in that department as rapidly as in other departments. He says that in spite of recruitments from organizations being demobilized it is necessary to retain in the service many enlisted men who have given long and faithful service and who can present good reasons for asking for release. He points out that all officers and men now in the service came in for the emergency, and that so far as the Medical Department is concerned the emergency is not yet over.

Little Insanity in the Army.—Statistics from the Medical Division of the War Risk Insurance show that only three out of every one thousand men called into the service were discharged for nervous or mental disorders, and many of these have since been restored to normal health. Of the 960 soldiers, sailors, and marines suffering from such ailments, who are undergoing treatment by the Government, 249 cases are of mild psychoneuroses, 126 are cases of epilepsy, 85 organic nervous diseases, and 501 are more serious nervous and mental disorders.

War Honors for Physicians.—At ceremonies held recently on Governors Island, Distinguished Service Medals were bestowed on Col. Grayson M. P. Murphy of the General Staff, and Col. James S. McKernon and Col. Charles H. Peck of New York.

Fourteen members of the American Red Cross Mission to Greece have been decorated by King Alexander for services rendered in relief work. Lieut.-Col. Edwin P. Capps of Chicago, head of the mission, has received the cross of the Royal Order of the Redeemer, which is the most important order of knighthood conferred in Greece.

The French Government has bestowed the Medaille de Reconnaissance upon Dr. M. Louise Hurrell of Rochester, N. Y., head of a unit of the American Women's Hospitals at Luzancy, France, and upon all other members of the unit, including nurses and chauffeurs. All the members of the unit have been made citizens of Luzancy.

Deaths in the Service.—Capt. Russell Cisney Parson, M. C., U. S. Army, of Ambridge, Pa., a graduate of Jefferson Medical College in 1914, who served with Evacuation Unit No. 13, and later as roentgenologist in the Toul sector, and in December was transferred to Hospital No. 91 at Le Banle, died there from epidemic lethargic encephalitis on March 1, aged 27 years.

Col. William Henry Comegys, U. S. Army (retired), a graduate of Miami Medical College, Cincinnati, in 1876, died in the Presbyterian Hospital, New York City, on March 31. He entered the army as acting assistant surgeon in 1879, and served in the Geronimo campaign. In 1881 he was appointed major and paymaster, serving in that department until 1911, when he was retired at his own request.

Lieut. William Latimer Hall, M. C., U. S. Army, of Freedom, Okla., a graduate of Emory University, Atlanta, Ga., on service with the Expeditionary Forces, died at Marseilles, France, from bronchopneumonia, on February 10, aged 29 years.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, May 3, 1919.

THE DIAGNOSIS OF ACIDOSIS.

ACIDOSIS has for years past been one of the fields of romance in Medicine. The term has lacked a satisfactory definition but has been used glibly in explanation of obscure conditions, often without a very clear conception of its real significance, and at times has been applied to conditions in which real acidosis can play no part. Moreover, unless the acidosis is marked, the diagnosis may present extreme difficulty. It is a great pleasure, therefore, to find such a clear and sanely critical review of the subject as that presented by Macleod (*Journal of Laboratory and Clinical Medicine*, 1919, iv, 315). He recounts the development in the use of the term, which was at first limited to the undoubted acidosis existing in cases of diabetic coma, then gradually extended to include all cases of acetonuria, and later included those conditions in which the acid production or retention involved entirely different types of acids. The difficulty in early diagnosis depended partly upon the lack of an adequate conception of the disease process, but chiefly upon imperfections in technique of the methods used.

The desideratum is an estimation of the total alkaline reserves of the body. The author points out the difference between hydrogen ion concentration and titrable acidity, explains the errors inherent in titration methods when applied to blood or body fluids, and shows the superiority of the colorimetric method, using phenolsulphonephthalein and a set of solutions of known hydrogen ion concentration. The total alkaline reserves of the body are the alkalinity of the plasma, the alkalies of the corpuscles, the protein of the blood, and finally the alkalies and proteins of the tissue cells. The "buffer action" of these alkalies depends in the plasma on the ratio H_2CO_3:$NaHCO_3$ and in the corpuscles and tissue cells also upon the ratio between the dibasic and monobasic phosphates. Now the percentage of CO_2 in the alveolar air must be a measure of the available $NaHCO_3$ in the blood, but in the methods now used "the alveolar CO_2 can serve as an accurate index of the acid base equilibrium of the blood only under certain controlled conditions," and these conditions are difficult of attainment. Direct examination of the blood as to its content of $NaHCO_3$ avoid certain errors, but still yields figures short of the total alkaline reserve of the body. The author prefers the method of Haldane, which employs whole blood, to that of Van Slyke, which uses only the plasma. Methods combining blood and alveolar air examination are scarcely more accurate or informative. Another method whose value is still to be determined is to estimate the output in the urine of acid salts, salts of ammonia, and free acid, for when foreign acid is added to the body a corresponding amount must be eliminated by the lungs and kidneys.

In the opinion of the author "the best test of acidosis at present available in routine clinical work" is to determine "how much alkali can be added to the organism without causing the urine to assume an alkaline reaction." Normally, this is very small, about 5 gm. $NaHCO_3$, but in acidosis may be as high as 100 gm. a day. The value of this test seems to be established by experimental work. It is easy of application under all conditions, and should be extensively employed in practice. Comprehension of the principles set forth, and an appreciation of the relative value of the methods discussed, will serve to eliminate much loose talk concerning acidosis. It is to be hoped that the paper will be widely and carefully read, for only in this way can its value be fully realized.

THE COST OF TUBERCULOSIS.

IT is slowly but surely being borne in upon the public in general that disease is economically injurious to a country, and that self-interest dictates that disease, and especially contagious disease, shall be got rid of as effectually as may be. The classical contagious diseases, of which syphilis and tuberculosis are the most destructive, are an economic incubus on a country. They paralyze to a great extent its industrial efforts and militate against prosperity and comfort. Therefore it is incumbent upon those in authority that, even from material motives, they endeavor to eradicate these diseases as far as is possible. The war has increased the prevalence of and emphasized the need for dealing with syphilis and tuberculosis. In order to obtain fairly satisfactory results each of these infections must be attacked at their roots. The problem of syphilis can perhaps be successfully solved only by preventive measures, and the problem of tuberculosis, in a lesser degree, can be properly dealt with only in a similar manner. The question of the remedial treatment of tuberculosis is not simply or chiefly one of medicine and hospital beds. Institutional treatment is all very well so far as it goes but it is a broken reed on which to lean when the aim of treatment is eradication. Of course, the difficulty to overcome in providing effectual preventive methods is to initiate treatment before the disease has gone too far. The working classes cannot afford to be ill and the disease has often passed beyond the early stages before the consumptive artisan or laborer is willing to give up work. Consequently in existing circumstances

preventive measures cannot be really effective, for the very obvious reason that they cannot be enforced.

As matters stand at the present time, as an editorial writer in *Reveille* for February, 1919, points out, the problem resolves itself into how to create conditions under which the consumptive can go on living and what is economically equally important can go on working. The first thing then to do with the tuberculous is to teach them to live as consumptives. This is the true function of the sanatorium, for work is essential to successful treatment. Prolonged unemployment means boredom, depression, and rapid moral and physical degeneration. It is almost impossible and very undesirable to procure work for the consumptive in the outside world, and medical authorities are fast coming to a full realization of this fact, and are in consequence advocating the adoption of the plan of industrial colonies for consumptives. Treatment and training must be linked together as was demonstrated in the clearest manner during the discussion on the tuberculous at the International Conference on Rehabilitation of Disabled Soldiers held recently in New York. At this meeting Captain Roddick Byers of Ste. Agathe des Monts, Quebec, and Dr. Bayard Crane of Rutland, Mass., dwelt insistently upon the benefits to be derived from occupational training for the tuberculous. Dr. Crane, in particular, urged strongly the establishment of industrial sanatoria and agricultural and industrial colonies for the tuberculous. Indeed the sentiment of all the speakers at the meeting appeared to be agreed upon this. In Great Britain a considerable amount of progress has been made in the carrying out of such views, and Dr. Varrier Jones has now in excellent working order at Papsworth, Cambridgeshire, England, an agricultural and industrial sanatorium and colony for consumptives. Owing to the diminished, ofttimes greatly diminished, earning capacity of consumptives, Drs. Jones and Bardswell, writing in the *Lancet* of August 3, 1918, insist upon the necessity for subsidizing consumptive labor. In the case of discharged soldiers this subsidy already exists in the shape of a pension, but they contend all labor of this kind should be subsidized. The argument for this procedure is as follows: On economic grounds the subsidizing of consumptive labor is justifiable, because otherwise the consumptive must inevitably cease to be a producer. The war has taught the value of man power as nothing else could. Thus it is patent that the worker who ceases to produce is a loss to the community. Ergo, the worker who dies slowly long after he has ceased to produce is a two-fold loss. The community loses not only what he might have produced but what he consumes after he has ceased to be a producer. It is cheaper in the long run to subsidize the consumptive worker even to the extent of 30 or 40 per cent. of his earnings if he can thereby be enabled to go on producing. Last, but not least, the consumptive is a constant source of danger to his fellow beings and because by spreading infection he is the means of incapacitating numerous other workers, he is a menace from the economic point of view. From whichever side the question is regarded, it is to the incalculable benefit of the community that the tuberculous shall be segregated in colonies where they may be partly self-supporting.

However, when all has been said that can be said concerning remedial schemes for the consumptive the essential facts of tuberculosis must not be minimized. The colony system, although necessary under present conditions, is only a makeshift, and by it tuberculosis will never be wiped out. It is a compromise plan devised to meet the situation until radical preventive means are carried into effect and we must not delude ourselves by the belief that it is anything else. So long as people are badly or inadequately fed, badly housed, and allowed or compelled to work under unsanitary conditions, just so long will tuberculosis flourish.

The main object of preventive medicine is to remedy present conditions of living in large cities. When this has been properly done, consumption will gradually vanish, but in the meantime steps must be taken to protect the public from infection and to render the consumptive as self-supporting and comfortable as circumstances permit. It is necessary to bring home to the laity the truth that to allow consumptives to dwell and work among a healthy community is bad for themselves and worse for others. When the public understand this there will be less indifference shown in the matter.

THE CONDITIONS WHICH PRECEDE BRIGHT'S DISEASE.

If one were to select from medical literature all of the alleged symptoms which antedate Bright's disease one would have as a result a fearful and wonderful procession of subjective and objective phenomena and doubtless would lose considerable respect for didactic medicine. The reason for this polysymptomatology is not far to seek. So long as the action of the kidneys is compensated the hundred and one symptoms which are present cannot be prodromes or early manifestations of insufficiency, but must be purely fortuitous happenings. On the other hand, when compensation is once affected one does not depend on subjective and rational evidence at all, but proceeds at once with laboratory tests. Realizing that students always want positive information, many teachers of the past have laid down statements concerning the initial manifestations of the disease which they only half believed and which could be found only in certain cases and were moreover vague at best. We are referring naturally to the chronic forms not attended by such obvious symptoms as edema and albuminuria. Honest clinicians have admitted that two weeks are often required for a diagnosis and some have placed reliance on slight enlargement of the heart shadow as the earliest laboratory

find, this of course being present in the still compensated case. Disturbed metabolism is also said to be discoverable during this period.

In *La Presse Médicale* for March 20 Nathan has discussed the problem of the conditions which precede Bright's disease. His angle is rather a novel one but his quoted cases are evidently past the compensated period. Nevertheless they throw light on the polysymptomatology of writers. Briefly, the slow approaches of retention of nitrogen form a strong predisposition to the revelation of weak points in the physical makeup. The alleged prenephritis dyspepsia is to be looked for in the predisposed subject. Some more advanced patients may be found to digest their food well by laboratory tests, while indigestion may be corrected by regimen as in normal subjects. If the patient have hyperchlorhydria, for example, he may respond to the proper treatment. Tuberculosis and bronchiectasis may mask nephritis as shown by blood tests. A case of the former is cited in which the blood nitrogen was 1.70. Apparently these patients have a high tension pulse. In many cases of labyrinth disease nephritis may be present. In a word, by lowering the general defense the personal equation of morbidity is revealed in late manifestations of heredity, to say nothing of infections. Nearly all cases of Bright's disease are masked by the individual or personal reaction.

Data about the Deafmute.

Interesting data about the deafmute are to be found in reference volumes, but the discrepancies are often notable and the absence of proper controls is at times significant. Institutional life for example may be responsible for some peculiarities ascribed to the disability. In the *Svenske Läkaresällskapets Handlingar* for December 31 the entire issue is devoted to an exhaustive study of deafmutism from the pen of Bergh. One Swedish province alone is concerned—Malmöhus, and the entire material, urban and rural, is analyzed, the total amounting to 383. There are about 8 deafmutes for each 10,000 inhabitants. Males outnumber females and as the proportion of female to male inhabitants is 106 to 100 this cannot be accidental. In regard to origin about 28 per cent. of cases were congenital and 63 per cent. acquired, while in 9 per cent. the origin could not be determined. Certain alleged uneugenic factors such as illegitimacy and discrepancy in parents' ages could be excluded as causes. Direct and indirect inheritance was of minor importance and abuse of alcohol in ascendants could be almost if not quite eliminated as a factor. Consanguineous marriages, like inheritance, played a small but assured rôle. In general, attempts to connect well known factors in the production of disease and malformation with deafmutism seem to have broken down. On the other hand certain data seemed quite meaningless, as a notable tendency to involve the left ear. The author analyzes his material from almost every possible angle, but in the end we arrive only at the conclusion that the deafmute is a defective *sui generis* and also a chance victim of infections in which there may of course be a predisposition. The number would diminish if we could banish smallpox, typhoid fever, cerebrospinal meningitis, and other infections and be authorized to treat promptly and continually all middle-ear disease in the young child.

Autoserotherapy of Influenza.

Aguirre, writing in *El Siglo Medico* for February 8, gives credit for this idea to Valero, who caused the formation of cantharides blisters near the foci of disease and then injected the serum subcutaneously. The technique of the operation goes back to Moduos, according to the author, who injects about 12 c.c. of the blister serum and repeats it soon if no good result is experienced. The presence of a large amount of albumin in the urine is a contraindication, according to Valero, but Aguirre believes that, on account of the great frequency of albuminuria, this may be going too far. If adopted, this restriction would automatically exclude most severe cases of grippe and the balance might be relied on to recover without such treatment. Aguirre tested the remedy on a series of cases in which albumin was absent and saw in from fourteen to thirty-six hours development of crisis or lysis. He is not prepared to say that the treatment offers advantages over other plans, but holds that its use is rational and that a remedy thus grounded should be given a trial.

News of the Week.

Ground Broken for Bronx Hospital.—Ground was broken for the new Bronx Hospital, at Fulton Avenue and 169th Street, on April 20. It was announced that the Bronx Hospital Society already owns the site and two buildings now standing on it. One of these buildings will house the hospital wards containing 100 beds, while the other will be used as a nurses' home and dispensary. The new building for which the ground was broken will contain the operating room, reception ward, and laboratories. A total of $60,000 has already been contributed toward the $100,000 needed for the erection of the new building.

Lenox Hill Hospital Needs Funds.—The report of the Lenox Hill Hospital, recently submitted by the board of trustees, makes an urgent appeal for funds and a drive for 10,000 members. An emergency fund of $100,000 is imperative in order that the hospital may meet the increased cost of maintenance, service, and equipment.

Improvements at Montfiore Home and Hospital.—At the annual meeting of the directors and others interested in this institution it was announced that the frame buildings at the country sanatorium for consumptives at Bedford Hills will be replaced with modern fireproof structures. It was also announced that Jacob H. Schiff had donated $150,000 for the erection of a cottage near the present institution on Gun Hill Road for patients who have reached a state of health where they do not require additional treatment but still remain helpless.

Philadelphia Leper Escapes—A leper found in a Syrian boarding house in Philadelphia disappeared on April 20, before the arrival of an ambulance

which was to convey him to the leprosarium of the Municipal Hospital. The police authorities feel satisfied that the leper fled to New York.

St. John's Guild Seeks Funds for Nurses' Home.—St. John's Guild, which for the past fifty-two years has been operating the Floating Hospital in New York harbor and the Seaside Hospital at New Dorp, Staten Island, has begun a campaign to raise $150,000 for a nurses' home at the Seaside Hospital. The records of the Guild show that the Floating Hospital has treated 1,680,000 patients, while at the Seaside Hospital 750,000 patients have been cared for.

Permanent Exhibition of Safety Appliances.—Park Commissioner Francis D. Gallatin has signed a lease giving the Safety Institute of America the right to occupy the Arsenal in Central Park, New York, for the purpose of a permanent exhibition of safety appliances for the prevention of accidents to working people. The building will be restored to its original condition at a cost of about $125,000. The Institute plans to expand its work by visualizing the best type of playgrounds and recreational centers through models. In announcing these plans, attention is called to the fact that there are some twenty safety institutes and museums of safety in Europe, while this is the only one of any size in the United States.

Dr. Foster Kennedy, late Major Royal Army Medical Corps, British Expeditionary Force, has returned to this country and resumed his practice at 20 West Fiftieth Street, New York City.

Dr. James T. Pilcher, having been mustered out of the United States Army, will resume his private practice at 145 Gates Avenue, Brooklyn.

Dr. Daniel N. Eisendrath having been released from military service, has resumed his practice at 4840 Woodlawn Avenue, Chicago.

Dr. W. N. Hunt of Burlington, Wash., has been appointed county physician of Skagit County.

Gives Library to Medical Society.—Dr. Russell M. Cunningham, formerly Lieutenant Governor of Alabama, has donated his medical library, which was one of the best private medical libraries in the South, to the Jefferson County Medical Society.

New York Neurological Society.—A stated meeting of this society will be held at the Academy of Medicine on Tuesday evening, May 6, at 8.30 o'clock. Papers will be read on "Encephalitis Lethargica," by Drs. Bernard Sachs and Isador Abrahamson, and on "Gunshot Wounds of the Head," by Major K. Winfield Ney, M. C., U. S. A.

Federal Positions Open to Physicians.—The United States Civil Service Commission announces the following examinations to be held June 3, 1919, in various cities in the United States and in the Canal Zone, to fill the following positions: *Assistant epidemiologist*, male, to fill vacancies in the Public Health Service, at a salary ranging from $2,000 to $2,500 a year. Applicants will be rated on general education and medical training, laboratory experience, experience in epidemiological work, and publications or theses. *Consulting physiologist*, male, to fill a vacancy in the Bureau of Mines, Washington, D. C., at $10 per day when employed. The duties of the employee will be to study the physiology of gas poisoning with special reference to gases in mines and manufactures associated with mining. A degree of M.D. or Ph.D. from an institution of recognized standing, and at least two years' experience in the physiology of respiration and poisonous gases are prerequisites for consideration for this position. *Assistant to medical director*, male, to fill a vacancy in the United States Employees Compensation Commission, at a salary of $2,000 a year. Applicants must be graduates in medicine and have had at least one year's experience in Federal, State, or municipal employ. Applicants desiring to take these examinations should apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C., where further information may be obtained.

The Relation of Venereal Disease to Crime.—Dr. James A. Hamilton, Commissioner of Correction of New York City, has issued a statement commenting upon the relation of venereal disease to crime, and raising several questions as to methods of dealing with the criminals infected with these diseases. He states that a great majority of male prisoners give a history of venereal infection at some time or other, and among female prisoners practically every case gives a venereal history or shows a positive Wassermann. The question raised is whether a prisoner shall be liberated when he shows a 4 plus Wassermann, or whether it is safe to allow such prisoners to mingle in the workshop or to sleep with healthy ones. In discussing the first question, Dr. Hamilton expresses the opinion that it would be abviously unjust to keep a prisoner in jail until the Wassermann became negative; but on the other hand, if salvarsan is administered the Wassermann may become negative for a few months and then become positive again. He suggests that these individuals be paroled, and compelled to take treatment, and report at stated intervals, bringing proof that they are being treated.

National Association for the Study of Epilepsy.—The eighteenth annual meeting of this organization will be held at the Craig Colony for Epileptics, Sonyea, N. Y., June 6-7, 1919, under the presidency of Dr. William T. Shanahan. In addition to an interesting scientific program there will be a reorganization of the society to meet the demands of the post-bellum period, and plans will be discussed for a union of the investigators of the epilepsies in allied and neutral countries with those of America.

Rabies in England.—An outbreak of rabies in England, the first in twenty-one years, is reported to have reached almost epidemic proportions, and has caused the authorities to issue a muzzling order affecting 700,000 dogs, which went into effect on April 24. England has for many years enjoyed practical immunity from hydrophobia, and it is assumed that preoccupation with the war has led to carelessness in enforcing the regulations which have hitherto enabled them to control the disease so successfully.

Influenza Sweeps India and the Belgian Congo.—According to a report to the Associated Press, almost 5,000,000 persons have died in British India from influenza and a million others are believed to have perished in the native states from the same cause. The mortality rate from the disease is said to have been 20.6 deaths per 1,000. The figures show

that within a period of a few months the influenza epidemic claimed half as many victims as did the plague in twenty years. A great loss of life among the natives of the Belgian Congo is reported in despatches received from Brussels. Estimates place the number of deaths at 500,000.

The Allied Blockade Decreased German Births.—The Imperial Health Ministry of Germany has issued a memorandum on the results of the Allied blockade, which states that from 1915 to 1918, as a result of undernourishment, 763,000 persons died in Germany, and an additional 150,000 died of influenza because of lowered power of resistance. The fall in the number of births during the war is said to exceed 4,000,000 for the empire and more than 2,500,000 for Prussia. The memorandum calculates the financial damage done by the blockade at $14,075,000,000, in which are included such curious items as unborn children, and the loss of wages due to decreased earning power.

Smith Memorial Maternity Hospital.—At the graduation exercises of the Training School for Nurses of the Lankenau Hospital, Philadelphia, held April 9, announcement was made that a sum in excess of $125,000 had been donated by Mr. Charles Smith for the construction of a new maternity hospital to replace the present building, also the gift of the same donor.

Charitable Bequests.—By the will of the late Ellen Craig of Philadelphia the sum of $5,000 is bequeathed to the Episcopal Hospital.

By the will of the late Miriam H. Wolf of Philadelphia the sum of $5,000 is bequeathed to the Jewish Hospital Association of Philadelphia for the Home for the Aged, and the residuary estate to the Hospital of the University of Pennsylvania for the establishment, maintenance and equipment of a ward for incurables as a memorial to her husband, the late Abram Wolf.

Obituary Notes.—Dr. BENJAMIN G. ALLEN, a graduate of Beaumont Hospital Medical College, St. Louis, Mo., in 1888, died suddenly of heart disease at his home in Chattonooga, Ga., on April 11, aged 51 years.

Dr. CALVIN SLOANE MAY, a graduate of the Medical Department of Yale University, in 1873, died suddenly at his home in New York City on April 26, aged 71 years. He was a member of the American Medical Association and the New York Academy of Medicine, and was at one time acting superintendent of the Connecticut Hospital for the Insane.

Dr. FLOYD S. CREGO, a graduate of the Cincinnati Medical College in 1879, died suddenly at his home in Buffalo, N. Y., of angina pectoris, on April 23. He was a member of the American Medical Association and the Buffalo Academy of Medicine. He was consulting neurologist to the County, German, Mercy, Emergency, and Children's Hospitals. For some years he occupied the chair of nervous diseases at the Niagara University.

Dr. GREENVILLE M. WEEKS, surgeon in the United States Army and Navy during the Civil War, and the last survivor of the *Monitor*, died at the Soldiers' Home in Kearny, N. J., on April 26, aged 82 years. He was a graduate of New York University Medical College, in 1861, and formerly resided in Newark, N. J.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, April 2, 1919

Causation and Prevention of Industrial Accidents.—The publications of the Health of Munition Workers Committee, as well as various public pronouncements made before the Royal Society of Medicine and other scientific bodies, have let a flood of light in upon the causation of industrial accidents, and the circumstances which promote or decrease their frequency. Dr. H. H. Vernon, who is official investigator to the Industrial Fatigue Board, has recently stated that every year in England alone a thousand workers are killed in industrial accidents, this figure being exclusive of accidents to miners—while over 100,000 suffer injuries which incapacitate them for a longer period than a week, and as many as two million suffer minor injuries. At a fuse factory employing 9,000 workers, the accidents were tabulated for a quarter of the year 1915, and for the whole of the years 1916 and 1917, the varying factor in the periods being that during 1915 the operatives were working 75 hours a week, whereas in 1916 the working hours only amounted to 64½ per week, and in 1917 to 54½ per week. The first thing noticed was that of three-fourths of the accidents, namely, the cut hands, the number was at a minimum at the first hour of the morning's spell of work, increasing steadily throughout the morning. This, however, was only when the operatives were working on the 12-hour day, or 75 hours a week. On the 10-hour day there was no such rapid increase of cuts during the morning's spell. Among women this difference was also marked, but with this variation, that, even when working 10 hours per diem, the morning increase of cuts occurred. In the afternoon spells of work in both sexes, the accidents were three and a half times more numerous in the 12-hour day than in the 10-hour day; and the influence of fatigue was further proved by the fact that the women were treated for faintness more than twice as often in the 12-hour day as in the 10-hour day.

Other factors in the causation of industrial accidents which have been debated are the speed of production, the temperature and illumination of the factories, and among operatives, the hours of rest and the habits of temperance. Both in the morning and in the afternoon spells of work at the munitions factories, the output was speeded up toward the end of the shift, presumably in order to attain to some guaranteed figure of production. The number of accidents rose concurrently and was certainly influenced by the pace as much as by the concomitant fatigue. The temperature of the factories played an important part. Accidents both to men and women were far more numerous in inefficiently warmed factories, and somewhat more numerous when the temperature of the building rose above 70°F. It would seem that accidents in factories are at a minimum when the temperature of the workrooms ranges between 60° and 70°F. There is no need to insist

on defective artificial illumination as a cause of industrial accidents, but here cuts of the hand appear not so much to be in question as actual injury of the face, and possibly to the eye, owing to the operative getting too close to his or her work.

While much attention has been paid to the conditions of labor as influencing the occurrence of accidents, the individual habits of the operatives are certainly not without their share in the causation. Through 1916 and 1917, when the average sobriety was greatly increased by the restrictions on the sale of alcoholic liquids, both among men and women there appeared a steady diminution in the excess of accidents usually incurred during the first spell of night work, *i.e.* the work immediately following upon the most likely time for alcoholic refreshment. Accidents, moreover, were always found to be at a maximum on Monday, following on the opportunities given by the week-ends for alcoholic excess. With regard to the time at which rest is taken, the incidence of night shift accidents appears, according to Dr. Vernon, to be the reverse of that observed in the day shift; that is to say, the accidents are at a maximum when the workers first come on. The suggested reason is that the workers do not come on immediately after a night's rest, but subsequent to three or four hours social contact, housework, shopping, amusements, and so on.

The war has certainly provided social workers with an enormous amount to think about in the future. In every direction masses of information and statistics, based on irreproachable evidence, are finding their way to public notice. The risk of course is that a feeling may arise that there is so much to be done that it is hardly worth while to begin to do it yet. The hope of the medical profession of course is that voluntary workers will keep alive in the mind of the Government the necessity for manysided and immediate reforms.

Death of Sir James Mackenzie Davidson.—The death is announced, as I write, of Sir James Mackenzie Davidson, the pioneer of applied radiology in medicine, as far as England is concerned. Born in Buenos Ayres of Scottish parents, educated in Edinburgh, and practising in Aberdeen and London, he was a fine example of the cosmopolitan medical man. His first bent was toward ophthalmology, and at Aberdeen he was assistant to the professor of that subject as well as university lecturer, and ophthalmic surgeon to the Royal Infirmary. But in 1897, after fifteen years of first class ophthalmic work, he came to London and devoted his attention to the application of the newly discovered *x*-rays to surgery. He promptly invented the precise method of localization by means of *x*-rays for foreign bodies in the orbit, which is still in everyday clerical use, and from his work there have arisen many developments for the localization of bullets which have proved of infinite service during the war. He was at the time of his death consulting radiologist to many military hospitals as well as to Charing Cross Hospital in connection with the Roentgen Ray Department, and president of the Roentgen Society. At the International Medical Congress, which met in London in 1913, he was president of the radiology section. Sir James Mackenzie Davidson was 63 years of age.

The Position of Ireland under the Ministry of Health Bill.—The proposed exclusion of Ireland from the most important piece of domestic legislation which has been contemplated in this country for at least 50 years has led and is likely to lead to considerable parliamentary debate. This exclusion of Ireland from the operation of the ministry of health bill appeared very important, but it was of course not intended to be permanent or designed to show that there was any less desire to promote the public health of Ireland than that of England, Scotland or Wales; the sensible idea on the part of the Parliamentary draftsmen was to get as much constructive legislation as possible into one bill. The local conditions in Ireland are such that clauses necessary for Ireland would have no meaning in other parts of the Kingdom, while clauses necessary for other parts of the Kingdom might not be required in Ireland. The Attorney General for Ireland, Mr. A. W. Samuels, has now asked Dr. Addison, as Minister in charge of the Ministry of Health Bill, to insert a clause in the bill constituting an Irish Public Health Council to give advice and assistance to the Chief Secretary for Ireland in taking steps to secure measures conducive to the health of the Irish people. The clause proposes to constitute the Irish Public Health Council as follows: three officials from the Local Government Board for Ireland, one or more from the Irish Insurance Commissioners, the Registrar General of Irish statistics, and three registered medical practitioners, one of whom shall be a woman and one a diplomat in sanitary science. Certainly the body proposed is not a democratic one; there is no provision for any professional voice in the matter. The registered medical practitioners, it is suggested, shall be nominated by the Chief Secretary for Ireland, and the other five or six officers are already in State employ. There is no room for general medical opinion in the Attorney General's proposals. Nor does it seem certain whether a body so constituted would be competent to take the steps to carry out and coordinate measures for the prevention and cure of disease, the treatment of physical and mental defects, the training of persons for health service, and so on. But these are matters that will be gone into by the Standing Committee of the House of Commons who will report upon the Ministry of Health Bill at an early date. It must be hoped that drafting difficulties will be surmounted, and that reclaim will obtain what all Irish medical practitioners want.

There are strong reasons why a Ministry of Health Bill should be formulated for Ireland. To begin with, the County Councils in Ireland have not the sanitary authority that they possess in England; secondly, public health legislation in Ireland is permissive not mandatory, and consequently is largely ignored. Notification of tuberculosis for example, being permissive in Ireland is carried out in only 69 out of 311 sanitary districts. Again, when in 1917 measures for combating venereal diseases were extended to Ireland, the consent of the Irish County Council

was required before the Local Government Board for Ireland could make provision in accordance with the Public Health Act. Few of these County Councils have consented, some have definitely refused, and others must be presumed to be making up their minds—they have not answered and, for practical purposes, may be considered as having refused to combat venereal disease in the country. Thirdly, there is no proper medical sanitary service in Ireland. There are hardly any wholetime and independent medical officers of health, and the work of such officers is discharged by medical men who are also in general practice and are dependent for their positions on the votes of the minor local government officials, District Councils, members of Boards of Guardians and so on, in whose hands the appointments, such as they are, are vested. It is the business of these people to keep down expenses, and a reforming medical officer of health would very soon be told to leave the district lest his zeal should eat up the public revenue. There is a good deal of hospital accommodation in Ireland, probably more buildings than are required, but a large proportion of the institutions are unfitted for modern scientific work. Great economy would be effected and greater efficiency by scrapping such places. There is in Ireland no provision for the medical inspection of children. There is a poor law medical service which is over-worked and terribly under-paid; and there is a general presence of illness and of liability to illness which requires strong preventive measures. Such are in brief the arguments for applying the Ministry of Health Bill to Ireland. It will be a thousand pities if the amendment to the bill concerning Ireland falls short of practical effectiveness.

OUR LETTER FROM PARIS

(From Our Own Correspondent.)

PARIS, March 20, 1919

A Memorial Hospital in Paris.—Colonel House has just communicated to M. André Tardieu, High Commissioner for Franco-American War Affairs, the details of the plan for a Paris hospital, to be maintained by American donations in commemoration of the soldiers of the United States who died in France during the war. The plan was originally submitted by Dr. Kenneth Taylor, who during the past four years has specially devoted himself to the question of hospitalization in France and who is now director of the American hospital of the rue Puccini. As to the scope of the proposed memorial institution, it is understood that its primary object will be to give French and Allied indigent invalids the medical care which their condition may necessitate. A further object will be to create closer relations between the French and American medical corps by enabling American students to acquire a thorough knowledge of French methods and by demonstrating American methods in clinics open for French students. Finally the hospital will be a center for French and American medical information and also a training school for French and American nurses.

The Hospitalization of American Soldiers in France.—When the American troops began to arrive in France in force measures were taken to ensure the proper hospitalization of sick and wounded men. A number of buildings were provided by the French authorities, while the American army authorities put up base hospitals and camp hospitals at suitable points. It was arranged that provision should be made in France for hospital accommodation for ten per cent. of the effectives, if required. On July 13 last, a request was made to the French Government that 45,000 beds should be placed at the disposal of General Pershing. In military hospital barracks, hotels and other buildings 50,000 were prepared and arrangements were made for 200,000 to be ready by January 1, 1919. Owing to the conclusion of the armistice it was not necessary to utilize more than 63,000 of these beds. It is considered, in view of these figures, that the difficult problem of hospitalizing American soldiers in France was dealt with satisfactorily from the outset.

The Jewish Welfare Board, which has rendered a broad service to the army and navy of the United States since America entered the war and which has maintained a large personnel in France for the last nine months, has embarked on an extensive reconstruction program through which the organization hopes to be of great aid to the demobilized soldier and sailor in his effort to resume his prewar status. For the purpose of carrying out this plan Colonel Harry Cutler, of New York, chairman of the executive committee of the Jewish Welfare Board, has come to Paris as head of the staff of workers in France, which will be largely increased. Through its field representatives with the army in Germany and at most of the large army centers in France, the Jewish Welfare Board is prepared to concentrate its resources on provision for the comfort and happiness of the soldier. Additional canteens are to be opened, many men and women field workers will be sent to the various camps and ports of embarkation, and assistance will be given the men on their journey homeward. Special attention is being given by the Board to the large ports of embarkation such as Brest, Bordeaux, and Marseilles. Large staffs are being maintained at these places to give every assistance to the troops as they leave for home. Through the Board's work in the United States and France every member of the Jewish faith in the service has been reached and helped; the aim of the Board is to continue that assistance until the men are again established in civil life. To make this possible, the Jewish Welfare Board is cooperating with the United States Employment Service and a Central Committee composed of representatives of all welfare bodies. Throughout the war, special attention also has been given to the hospitals. The Board has maintained workers in most of the large hospitals in France, and the United States. They wrote letters for the men, provided delicacies, and furnished entertainment; this in cooperation with the American Red Cross.

The Hospital Founded by the Women's Apparel Unit of the American Women's Overseas Hospitals at Labouheque, Landes, for refugees and civilians

during the war has been handed over with 100 beds, the need for its work being finished, to the French War Ministry for the use of convalescent soldiers. The director, Dr. Marie N. Formad, and her associate, Dr. Mabel Seagrave, who have left for America, have been awarded the Medaille d'Honneur pour les Belles Actions by the French Government.

Vital Statistics of Coblenz.—In noting figures in the rationing of the population of Coblenz, the following figures on the death and birth rate taken from the records are interesting to consider: On a basis of 10,000 population (the population of Coblenz is 57,000), the death rate in 1914 was 204, while in 1917 it was 291. The death rate from tuberculosis on the same basis was approximately 14 per cent. in 1914 and 29 per cent. in 1917. The birth rate in 1914 was 221 and 156 in 1917—a slight increase over 1916. The death rate for children under five years of age on the basis of 1,000 population was 392 in 1914 and 681 in 1917.

Closing of the American Field Service.—Four years of work with the French armies will be concluded with the closing of the American Field Service headquarters at 21 rue Raynouard on April 15. On this date the building occupied by the headquarters and the club for the old members of the service will be closed and transferred to New York, where a new American Field Service club is to be opened. The American Field Service was the first volunteer help to France in the early days of the war, and during four years has rendered valuable service to the French. When the United States entered the war it turned over its ambulance and ammunition transport service to the American army. The American Field Service, or the American Ambulance, as it was formerly called, had its start in September, 1914, when the battle line surged close to Paris. A dozen automobiles were hastily extemporized into ambulances, and, driven by American volunteers, ran back and forth night and day between the western end of the Marne valley and Paris.

During the following autumn and winter more ambulances were given and more Americans volunteered to drive them. Later they were placed in service between front-line dressing stations and the evacuation hospitals. From this time the American Field Service grew until ten ambulance sections had been organized, and these saw service on every part of the front from the North Sea to the Balkans. It was through the efforts of Colonel A. Piatt Andrew, inspector general of the service, that the Ambulance Service was given a trial at the front and its reputation was established.

In the spring of 1917 the French asked the Field Service to supply personnel for transport sections to carry ammunition, troops and shells. This request was complied with, and at the end of the summer of 1917 sixteen transport sections were serving with the French on the Chemin des Dames. At the same time thirty-two ambulance sections were serving on various sectors of the front.

The American Field Service turned over both services to the American army in the autumn of 1917, and they became the United States Army Ambulance Service and the Mallet Reserve. The U. S. A. A. S. was later increased by personnel from the ambulance school at Allentown, Pa., and the Mallet Reserve was increased by the 407th, 408th, and 409th trains which were sent over in February and March of 1918.

Of the old volunteer members five have been awarded the Medaille Militaire by the French Government. Two hundred and fifty ambulance drivers have been awarded the Croix de Guerre. The Mallet Reserve has been cited in French army orders and the French Government has more than fifty times cited the Ambulance Sections for distinguished service. The success of the service is in no small measure due to the efforts of Mr. Henry D. Sleeper, who as director of the American Field Service and representative in America, formed committees to rouse interest in the service both in regard to finance and recruiting. In recognition of his services the French Government awarded him the ribbon of the Legion of Honor.

146, Avenue des Champs Elysées

HEALTH INSURANCE AND THE STATE MEDICAL SOCIETY.

AN OPEN LETTER TO THE MEMBERS OF THE HOUSE OF DELEGATES, MEDICAL SOCIETY OF THE STATE OF NEW YORK.

Gentlemen:—Two years ago your members who were to elect a president of the Medical Society of the State of New York were petitioned on behalf of two candidates for this office, Dr. Alexander Lambert and Dr. James F. Rooney. Dr. Lambert was advocated as the "logical candidate" on account of his labors for the State Society, Dr. Rooney for his services as chairman of its legislative committee. In discussing these nominations it was said at the time that the profession had fallen upon evil days through drug legislation, compulsory health insurance promotions, and the iniquitous provisions of the medical fee bill of the workman's compensation law.

Dr. Lambert was elected president of your society, a step which secured his subsequent elevation to the presidency of the American Medical Association. Except for a brief interval, Dr. Rooney has continued to serve as chairman of your legislative committee. He also has been honored meanwhile by your body in his elevation to the vice-presidency of the State Society. While both these candidates have grown in honors and distinction what has been the status of the great body of the profession which you represent during this period? It has been steadily going from bad to worse. For the fourth time we have just emerged from a life-and-death struggle against a "Health Insurance" law which, if enacted, would have meant the extinction of medicine as an independent profession and the sinking of the private practitioner in this State into the position of a health officer of the State, under the jurisdiction of the State Industrial Commission.

Against the united opposition of the medical profession of this State to this measure we have had arrayed in favor of it the Democratic Party, the Governor of the State, the Republican Senate, the

State Federation of Labor, and the well-nigh omnipotent influence that comes from no one knows where, but which is determined to force the "Socialization of Medicine" upon the American people. Added to these was the president-elect of the American Medical Association and your late president, Dr. Alexander Lambert, the only physician in private practice who appeared among the proponents of compulsory health insurance at the legislative hearing at Albany, where he offered in evidence the findings of the committee on health and public instruction of the American Medical Association, of which he is the chairman.

A less courageous, but far more dangerous, opposition than that enumerated exists within our own ranks, which, while opposing compulsory health insurance laws, is in favor of the principles of compulsory health insurance, and more or less covertly counselling with its advocates.

The logical candidate for president of the Medical Society of the State of New York to-day is one who has neither sympathy, support, nor traffic with the aiders, abettors, or advocates of drug laws, compulsory health insurance, or the medical provisions of the fee bill of the workman's compensation law. Your nominee should be one who can advocate your cause without mental reservation, without fear, and without self-interest. Let the Medical Society of the great State of New York go on record as the defender of the inalienable right of its humblest member to practise medicine as a free and independent calling, in the way our predecessors practised it, and not as that of a political employee of the State, depending for favor upon politics and politicians.

JOHN P. DAVIN, M.D.,

Member of the Medical Society of the County of New York.

Progress of Medical Science.

New York Medical Journal.

April 19, 1919.

1. Modern Commentaries on Hippocrates. Jonathan Wright.
2. The Operative Technique of Therapeutic Abortion. William E. Parke.
3. Use of Human Serum in Treatment of Influenza Bronchopneumonia. E. W. Gould.
4. Diagnosis and Treatment of Chronic Gonorrhea in the Male. Philip Goldfader.
5. Chronic Prostatitis, Gonorrheal and Nongonorrheal. Joseph Harold Friedman.
6. Craniocerebral Roentgenogram Meter. William J. Manning.
7. Artificial Pneumothorax in Pulmonary Tuberculosis. LeRoy S. Peters.
8. Teaching Crippled Children. Douglas C. McMurtrie.

3. Use of Human Serum in Treatment of Influenza Bronchopneumonia.—E. W. Gould reports that since last September 842 cases of pneumonia have been treated under the jurisdiction of the U. S. Naval Hospital at New York. Of these cases, 320 were treated at the hospital, the others being sent to civilian hospitals. Only such cases as were already diagnosed as pneumonia were treated at the Naval Hospital, and among these 320 cases the mortality rate was 26.16 per cent. Gould draws attention to the variation in the mortality rate in pneumonia; during February, March, and April of last year it was a little over 21 per cent.; in May and June they had a series of eighty-five cases without a death, though practically the same treatment was given; at the beginning of the influenza epidemic in September, the rate was 50 per cent., and toward the end of the epidemic it dropped to about 10 per cent. In September the method of treatment proposed by Lieutenant Redden was tried. Thirty cases of influenza pneumonia were treated with human serum from convalescing patients, with a loss of only two. Although the death rate had already begun to fall, the author feels that the immediate and remarkable response in many cases could be attributed only to some specific antibody injected. Cases were met with which presented the characteristic early depression and cyanosis of influenza pneumonia with a leucopenia, but gave no response to repeated injections of human serum. The infective agent in many of these cases was later shown to be the Streptococcus hemolyticus. Including all cases which received even a single dose of human serum, the mortality rate during the last two months has been very unsatisfactory, namely 26 per cent. Excellent results have been obtained with the use of serum from some donors who had shown a moderate leucocytosis before their last attack, and Gould is of the opinion that in such cases it may be a question of using a serum from a mixed infection including the influenza bacillus and the Streptococcus hemolyticus and that this serum may contain valuable immune bodies for homologous strains. The pooling method has not been employed and an endeavor has been made to match the recipients and donors as far as possible, and while remarkable results have been obtained from the use of certain donors, others have shown no apparent results. It has not been possible to confirm the contention of Lieutenant Redden that the amount of lung involvement in the donor determines the value of the serum, although this may be of some importance. The results obtained indicate that human serum from convalescent pneumonias undoubtedly contains valuable antibodies and that its use in cases infected with homologous strains will give satisfactory results, but it is believed that with our present limited ability definitely to isolate the infecting organism of the donor and the recipient, the method cannot yet be placed on a practical basis where definite results can be reasonably expected. The difficulty of procuring suitable donors must also be considered. No bad effects have resulted from the withdrawal of 400 c.c. to 500 c.c. of blood from donors at each of two sittings at intervals of two or three days. Only such patients as were convalescent and had had normal temperature for several days were used as donors, but it was not found necessary to wait until the lung had fully resolved. The bleeding usually resulted in an excellent appetite; no untoward effects were seen. Gould points out that cases of pneumonia vary greatly in their clinical aspects and apparently are due to various organisms, and that it would seem that only a small number of cases now appearing can be attributed to the same inciting factor as existed last fall.

Journal of the American Medical Association.

April 19, 1919.

1. Nonspecific Protein Therapy in Influenzal Pneumonia: A Consideration of the Action of Typhoid Protein. David Murray Cowie and Paul Webley Beaven.
2. A Study of Acute Mastoiditis at Fort Riley, Kansas. J. R. Scott, G. W. Swift, J. J. Hompes, G. H. Allen, and E. L. Posey.
3. Duodenectomy: A New Method. James J. Moorhead and Herbert E. Landes.
4. Anthrax in a Soldier: Report of a Fatal Case Probably Due to Infection by a Shaving Brush. Willey H. Norton and Edward F. Kohman.
5. Desirability of Changing the Type of Written Examinations. George Blumer.
6. Primary and Postinfluenzal Pneumonia: A Comparison of the Laboratory Findings. Frederick H. Lamb.
7. Nomenclature of Human Isohemagglutination Groups. M. W. Lyon.
8. Hospital Service in Rural Communities: A Preliminary Report. Prepared by Ernest C. Meyer.

3. Duodenectomy: A New Method.—James J. Moorhead and Herbert E. Landes describe a new method of duodenectomy, which after repeated attempts extending over a period of several years they have succeeded in devising. Their experiments were first undertaken to ascertain whether the duodenum is one of the so-called vital organs, and if so, the nature of its vital function. The method described permits of the complete removal of the duodenum in consecutive operations: (a) pylorectomy, closure of the duodenal end, and gastrojejunostomy; (b) transplantation of the common bile duct and the major pancreatic duct into

the jejunum; (c) removal of the duodenum. Since dogs thus operated on will live in a normal state of health, the authors conclude that the duodenum is not essential to life. They point out that the method possesses the following advantages: The gastro-enterostomy performed in the first stage is superior to the usual operations because the juncture is made at the true physiologic location, the pylorus, and this region is undisturbed in the subsequent steps. The biliary and pancreatic secretions are preserved. The jejunum is made to serve as a substitute for the duodenum in receiving the digestive juices. They state that in a review of the literature they were unable to find a single instance in which both the common bile duct and the pancreatic duct had been successfully transplanted into the jejunum at one time; that cholecystenterostomy in the dog is frequently fatal, and that cholecystogastrostomy disregards well established principles of digestion. In their opinion the usual technique of intestinal resection cannot be applied to the duct bearing portions of the duodenum, whereas the final stage of the operation described disturbs neither the pancreas nor the functioning alimentary tract, thus reducing to a minimum the after-effects of a severe operation.

The Lancet.

March 29, 1919.

1. A Lecture on the Lessons of the War and on Some New Prospects in the Field of Therapeutic Immunization. Delivered at the Royal Society of Medicine, February 25, 1919. (Embodying Research Work Done in Conjunction with Dr. Leonard Colebrook). Sir Almroth E. Wright, K.B.E., C.B.
2. Influenzal Pneumonia: Bilateral Rigidity, Spinal Meningitis with Hemorrhage into the Theca Vertebralis and Nerve Roots. Sir William Osler, Bart.
3. The Wassermann Test: A Criticism of Its Reliability. Major Charles F. White and Captains A. T. McWhirter and Hugh Barber.
4. Colloid Antimony Sulphide Intravenously in Kala Azar with a Note on Antimony Oxide Orally. Sir Leonard Rogers, Kt., C.I.E.
5. Recent Retrogressions in the Treatment of Fractures. Major M. Sinclair, C.M.G.
6. The Treatment of Gonorrhea by Pus Vaccines. Captains E. G. D. Pineo and D. M. Baillie.
7. A Comparative Note on Fitness and Unfitness in Convalescence. Captain Basil Parsons Smith.
8. Report on the Kemp Prossor Colour Scheme. Captain E. N. Snowden.

1. A Lecture on the Lessons of the War and on Some New Prospects in the Field of Therapeutic Immunization.—Sir Almroth Wright points out that the war has taught two great lessons in immunization: that if the surgeon provides the requisite conditions—by excising all devitalized and heavily infected tissues and bringing the walls of the wound together—the protective mechanism of the body can, without any antiseptics, deal successfully with any kind of infection; and that the natural powers of resistance of the human body can be powerfully reinforced by inoculation, as has been proved by the success obtained with typhoid inoculation. He reminds us that long after the principle of prophylactic inoculation had been established, the inoculation of microbes into the already infected system was accepted as illogical. Pasteur was the first to teach that a vaccine might legitimately come into application in the incubation period. This was the beginning of therapeutic immunization. It was then thought that immunization took ten days to establish itself. When the author showed that bactericidal substances were rapidly elaborated, the question arose as to the particular stage of generalized infections at which one was to regard the body as overmastered by the bacterial poison and incapable of further immunizing response, whether localized infections should be envisaged as generalized infections indefinitely arrested in their incubation stage, and whether they might not be brought within the sphere of inoculation. Further consideration showed that the body should not be considered as a single and undivided unit; that in generalized infection it is presumably the entire body which is incited to respond, whereas in localized infections there is — with some reserves — only localized response. Therapeutic immunization, therefore, is theoretically permissible as long as there remains any part of the body which is not making its maximum immunizing response, and the program of therapeutic inoculation would accordingly consist of exploiting in the interests of the infected regions of the body the immunizing responses of the regions which are uninfected. The successes and failures of vaccine therapy have brought out the following points: Vaccine therapy is generally unsuccessful where the infection, as in phthisis, is producing constitutional disturbance and recurring pyrexia; also where we have to deal with unopened abscesses, or sloughing wounds with corrupt discharges; or in long-standing infections where vaccine therapy is much less successful than in recent infections. To combat bacterial infection, the organism must have defensive powers—*phylactic power*. The leucocytes and the bacteriotropic substances in the blood fluids may be called phylactic agents. There must also be provision for the transport of these phylactic agents to the site of infection, and this the author has named *kataphylaxis;* any condition which interferes with that transport is an *anti-kataphylactic influence*. In addition to these normal defenses of the body, which Wright has termed *phylaxis* and *kataphylaxis*, there are also resources in reserve by which the phylactic powers of the blood fluids can be increased—*epi-phylactic reinforcement* or *epi-phylactic response*, which manifests itself in connection with infections which give rise to constitutional disturbance. The author here points out that it would be more conformable to the terminology advocated to speak of the *apo-phylactic* rather than the *negative* phase when referring to the diminished blood resistance which follows directly upon the inoculation of a large dose of anti-typhoid vaccine. He also proposes that instead of the terms "regions of diminished bacteriotropic pressure," "non-bacteriotropic niduses" and "non-bacteriotropic envelopes," which he used in connection with typhoid and Malta fevers twenty years ago, *ec-phylaxis*, *ec-phylactic region*, and *ec-phylactic envelope* be used. Every living bacterial colony must become the center of an *ec-phylactic* sphere by (a) radiating out toxins which will (when of sufficient strength) repel leucocytes; (b) absorbing bacteriotropic substances from the blood fluids; (c) abstracting anti-tryptic power from the blood fluids and so converting these into a congenial culture medium. A fundamental contrast exists between the conditions in preventive and therapeutic inoculation. In the former resistance and phylactic power are normal; to these are added the reinforcement contributed by the epi-phylactic response, and the maintenance of normal and possibly improved kata-phylactic arrangements. In therapeutic inoculation it is important to realize that should epi-phylactic response of kata-phylactic reaction make default, therapeutic inoculation is almost bound to miscarry; in cases of continuous or frequently recurring pyrexia, the epi-phylactic, and in cases of unopened abscess the kata-phylactic reaction makes default. In cases in which there is interference with epi-phylactic response, the best procedure is to incise and evacuate the contents of the focus of infection, and where this is inapplicable recourse must be had to immobilization, local in the case of a limited local infection and "absolute rest" in a more extensive infection, such as the pyrexia of phthisis. Almost all failures in the vaccine treatment of bacterial disease, however, are due to frustrated kata-phylaxis, and in these cases three different types of kata-phylactic measures may be resorted to: (1) The contents of the ec-phylactic focus may be evacuated. Then by the emigration of fresh leucocytes and the transudation of fresh serum, physiological conditions will spontaneously establish themselves in the focus of infection. (2) Normal conditions may be restored by augmenting the transudation of lymph into the focus of infection, and displacing and expelling by this agency the ec-phylactic lymph. (3) Physiological conditions may be restored by processes of simple diffusion. In the early days of the war, when every wound was indescribably septic, what was required was not antiseptics, nor yet epi-phylactic treatment by vaccines, but efficient kata-phylaxis. In the putrid wound we had an ec-phylactic focus and therefore efficient drainage both of pus from the wound cavity and of ec-phylactic lymph from the surrounding tissues was needed, and for that reason the author recommended the use of hypertonic salt solution. In wounds we have two distinct types of exudate and two

distinct types of infection. In a "foul" wound we have an exudate with reduced anti-tryptic power and a multiform sero-saprophytic infection, whereas in a "clean" wound we have an exudate with undiminished anti-tryptic power and a purely serophytic infection. (The author gives the name *sero-saprophyte* to microbes, *i.e.* nearly all microbes, which can grow in blood fluids of reduced anti-tryptic power; those which can grow in unaltered blood fluids, the streptococcus and the staphylococcus, he terms *serophytes.*) We come, therefore, to a broad therapeutic principle, namely, that a "foul" wound can be rendered "clean" and a sero-saprophytic converted into a purely serophytic infection by bringing into the wound wholesome blood fluids, and that when this has been accomplished nothing is gained by flooding the wound with blood fluids, since this only supplies fresh culture medium for serophytes. Wright points out by means of experiments that the fact that the surface of a wound is not sterile is no reason for not suturing same if proper conditions for the leucocytes are provided. The three main sources of failure in the suture of an infected wound are: The leaving behind of corrupted pus; the leaving of dead spaces; default of leucocytic emigration into the wound. The weak point in our defense against microorganisms lies in the fact that the normal blood fluids provide a culture medium in which serophytic microbes can grow and multiply. Nature combats this by the development of increased anti-tryptic power in the serum, which renders it a less favorable culture medium for the serophyte. From experiments undertaken to determine this point, it was demonstrated that serum in septic infection acquires the power of killing serophytic microbes, and this of course brought up the issue of non-specific immunization. Since then further experiments have been made along this line. These researches have shown, and this has been demonstrated also by experience, that the time has come to discard the dogmatic belief that immunization must be strictly specific and that in case of failure we should endeavor to make immunization more and more strictly specific. Instead of this, we should proceed upon the principle that the best vaccine to employ is that which on trial gives the best immunizing response. This response should be tested *in vitro*, and this may become a practicable routine measure. Such a procedure would do away with the necessity of tentative experiments *in vivo*. When other methods of therapy fail, transfusion remains as a last resource. It must be remembered, however, that the normal blood fluids provide a favorable culture medium for the growth of saprophytes and that conditions where leucocytes are suspended in blood fluids are unfavorable to their bactericidal operations. It is not surprising, therefore, that simple transfusion in septic cases has failed. The situation would be changed, however, if the donor's blood could be immunized *in vitro* and the plasma rendered bactericidal for the microbe in question. This was done with markedly satisfactory results in one of the author's cases, and to this method Wright has given the name "immuno-therapy." In conclusion, Sir Almroth Wright points out the necessity for penetrating the principles that underlie the experience and knowledge gained during the war so that same may find practical application. He draws especial attention to the fact that the septic catastrophes of the earlier period of the war were due to an existing ec-phylactic focus in which all serophytic and sero-saprophytic microbes could freely multiply, and that this applies also to the open sloughing wound; that the failures which occurred when immediate primary suture was undertaken in presence of a streptococcus infection may be set down to default of leucocytic emigration and exudation of blood fluids into the wound, while the success of primary retarded suture in such cases is almost certainly due to free leucocytic emigration and the limitation of exudation; and that with respect to inoculation it is important to grasp the principle that, whether we are dealing with preventive or therapeutic immunization, we can expect results only when we have good epi-phylactic response in combination with efficient kata-phylaxis. To this combination is to be attributed the success that has attended antityphoid inoculation.

5. Recent Retrogressions in the Treatment of Fractures.—Major M. Sinclair draws attention to the appalling methods used and the terrible results obtained in cases of fractured femur by some of the German surgeons during the war. He does not attribute these results to lack of care on the part of the German surgeons and cites the case of one British officer who stated that the professor who attended him refractured his leg five times and set it again. The guiding principles of treatment seem to have been lack of extension and indefinitely prolonged immobilization. The majority of cases were treated on a trough-like metal back-splint with footpiece, the splint being of the same length in every case. When released, patients wounded in March were in the same state of splinting as those whose legs were broken in October. An original method of extension was tried on some cases. A sharp-pointed rigid metal hook, shaped somewhat like a note of interrogation, was put into the anterior surface of the tibia, with its straight unpointed end lying in the long axis of the bone and directed toward the foot. Another hook was passed in the opposite direction through the anterior superior spine of the ilium. A rope working over a pulley with a brick at the end was attached to each hook to establish the extension. A patient treated in this manner stated that every time his posterior wounds were dressed the weights were removed, and he noticed grating of the bones and shortening of the limb. Sinclair points out that had it occurred to the devisor of this apparatus that if he had raised the foot of the bed after applying the hook in the tibia, the body weight would have obviated the necessity of using the hook in the anterior superior spine, and at least one man's life would have been saved, since in one case the hook in the anterior superior spine was torn out and death occurred some days later from peritonitis. Three *x*-ray photographs are given which demonstrate the results of the German methods.

British Medical Journal.

March 29, 1919.

1. Disease and Diagnosis. Henry Head.
2. Medical and Surgical Work as a Prisoner of War. Captain Alexander T. I. Macdonald.
3. The Adjustment of Response to Nerve Stimulus in Voluntary Muscles. Surgeon Commander G. M. Levick.
4. A Contributtion to the Study of Acute Rheumatism. F. John Poynton.
5. Four Years' Work at an Ante-natal Clinic. Arthur Crook.
6. The Milroy Lectures on Half a Century of Smallpox and Vaccination. John C. McVail.

2. Medical and Surgical Work as a Prisoner of War.—Captain Alexander T. I. Macdonald draws attention to some of the ways in which the vaunted "efficiency" of the Germans differed from the British methods. Taken prisoner at a French dressing station in March, 1918, Captain Macdonald and a colleague were held prisoners all day treating British and German wounded alike. There seemed to be no medical officer with the German battalion, but only men belonging to the medical corps, or *Sanitäts* personnel. These men carried a small bag of dressings containing among other things a hypodermic syringe and solution of morphine, the former fitted into a bottle containing absolute alcohol to sterilize the needle. The injection of anti-tetanic serum, though regarded with suspicion at first, was for the most part submitted to by the Germans. Stretcher-bearing as carried out by the Germans was rather a crude operation, and in the case of a patient with a fracture must have led to extreme suffering. A ground sheet, slung on a pole borne on the shoulders of two bearers, contained the unfortunate patient. Duckboards and other substitutes were also used. The stretchers used by the Germans further back were heavier than the British ones and possessed the advantages of a head support, hinges for folding and sliding handles. The enemy medical officers remained relatively far back at the *Verbandplatz*, or dressing station. Here the author was struck by the meager supply of surgical material. Splints consisted of pliable wire—two thick pieces joined ladder fashion by thinner pieces, which were much too pliable for the thigh and leg, though often employed for this purpose. Volkmann's iron gutter was available for fractures of the thigh, but did not secure extension or immobility in transport as does Thomas' splint. Marching further back from the dressing station, the author passed a long line of enemy

transport ready to move; this consisted of a wonderful conglomeration of vehicles, including a brougham and pair, open landaus, Russian droshkies, etc. The ambulance transport consisted of small wagons capable of taking two stretcher cases, drawn by Russian or Rumanian ponies and flying a small Red Cross flag. The deficiency of motor ambulances was made up to some extent by attaching to each a string of two-wheeled trailers. Captain Macdonald and his colleague were then sent to one of the Bavarian *Krieyslazaretts* overflowing with British wounded who had received no further dressing than the first and were in urgent need of attention. They lay on beds, on stretchers, and on paillases on all available floor space, including that of the basement cellars. The operating and dressing room was dirty and sparsely furnished. A small coal stove served for the supply of hot water and the sterilization of instruments. A wash-hand basin was fitted with a supply of cold water only and was without waste pipe. Instruments were few in number and partly denuded of plating; this, however, was remedied later and a gas stove and electric light provided. The most rigid economy was entailed in the use of surgical materials. Soap powder with sand, powdered washing soda, cakes of clayed earth and fine gritty material admixed with soap were obtainable at times; at other times there was no soap of any kind and one had to trust to prolonged immersion in sublimate solution to afford a degree of surgical cleanliness. In doing dressings, therefore, extensive use was made of forceps and the wounds were not touched with the fingers. Rubber drainage tubes were scanty and were not supposed to be cut, if not of suitable length. Bandages were mostly of paper. For securing splints, roller bandages made from lace curtains or cotton dress materials were used sparingly and were collected from time to time, washed, and rolled again for use. A substitute for cotton wool was provided in the shape of *Selkstoff*, made from paper. A substitute for benzol was used to prepare the skin, with tincture of iodine for use as a final application. Open wounds were cleansed by irrigation with diluted hydrogen peroxide. Moist dressings of dilute solution of aluminum acetate on lint covered with jaconet were used for cellulitis. There was no shortage of anesthetics. In fractures of the femur, extension from a clamp applied to the skin over the lower end of the bone just above the condyles on either side was much employed by the Germans; this resulted in the skin over the points of pressure becoming septic and sloughing, with great deformity and shortening. The author points out that among the medical cases a variety of nephritis and a condition (the result of slow starvation) characterized by weakness, shortness of breath, emaciation, edema of feet and legs and anemia was frequently met, as was influenza, often followed by pneumonia. Diarrhea and dysentery were rife; impetigo, furunculosis, and scabies were common. Pneumonia was rapidly fatal in the poor starved men who often remained at the camps for days without treatment before admission to hospital. Conditions were particularly bad among the newly captured men, who were not only starved but also dirty and ill-clad, having disposed of part of their clothing for food. These men received no Red Cross parcels, and their condition was very different from those in the next camp who received food, soap, and warm clothing from home. Drugs, chiefly in tablet form, were of good quality. The hospital dietary was divided under three main heads: the ordinary diet consisting of half a bowl of soup, replaced by boiled rice with a spoonful of dried fruit on Fridays, black bread, jam, so-called tea or coffee, with occasionally a small piece of sausage for supper, or bread and meal gruel. The black bread was sour and indigestible and contained sawdust, as the loaves were rolled in sawdust. Form 2 was similar to the ordinary diet, but three thin slices of white war bread spread with margarine were given instead of the black bread, and the soup was rather more digestible. A small amount of milk, an egg, which was usually bad, or a glass of wine could be ordered as hospital extras. Form 3 was supposed to be suitable for diarrhea cases and consisted of thin gruel, puree of potatoes, etc. As the quantity of white bread given was insufficient, patients as a rule asked to go back to the ordinary diet. The beds in the wards were of wood and were roughly constructed. Mattresses were made of paper sackcloth filled with wood shavings over which a sheet was placed. In helpless patients bed sores were inevitable. No rubber cushions or water beds could be obtained and a shift was made with rings of straw covered by bandage. Clean bed linen was rare and there were no means of disinfecting clothing. Baths were given to walking cases and personnel at a large factory in the town, which had been fitted with bathing and disinfecting station. The conservancy system in the hospital was extremely crude; the latrines were a source of nuisance and in the summer flies were very troublesome. At Conde, where the author spent several days at a prison on the French frontier, a French lady succeeded in smuggling to them bread, lard, soup, and ragout from time to time. From there Captain Macdonald was sent from place to place, the last stage of his journey coinciding with the outbreak of the revolution. On Christmas Day he left Germany with, as he says, a higher opinion of British organization than ever before.

American Medicine.

March, 1919.

1. The Present Status of the Cancer Problem. L. Duncan Bulkley.
2. Operative Improvements in the Treatment of Infantile Paralysis. Leo Mayer.
3. Some General Principles in the Management of Pneumonia.
4. Headache. M. Neustaeder.
5. The Pneumocatarrhal Diathesis, Prevention and Treatment of Pneumonia and Other Respiratory Infections by Mixed Vaccines. J. Pratt Johnson.
6. Why Not Birth Control Clinics in America? Margaret Sanger.

1. The Present Status of the Cancer Problem.—L. Duncan Bulkley says that according to the yearly mortality tables issued by the United States the death rate of cancer has steadily risen, with a fearful certainty, almost 30 per cent. since 1900, while that from tuberculosis has fallen in the same degree, 30 per cent. during the same period under careful medical surveillance. Moreover, during 1915, when surgical activity was at its highest, owing to the active propagandism for early and radical surgical removal the year before, the increase in the death rate from cancer was over double the average increase of the five previous years. It is acknowledged by all that under the past views as to the local nature of cancer and its treatment by excision the ultimate mortality of the disease is 90 per cent. of all those once attacked, and yet the profession and laity go blindly on with the idea that surgery offers the only hope of reaching cancer. The value of the *x*-ray and radium may be serviceable in certain cases to remove actual lesions, but their value is extremely limited and can no more reach the real cause of cancer than can surgery. While the laboratory has not at all solved the cancer problem, it has contributed not a little toward establishing negative facts, and also some positive which lead up to a more correct understanding of the real nature of the disease and its prevention and treatment. The best authorities agree that: 1. Cancer is not contagious or infectious, although certain new growths can be inoculated in some animals; but human cancer cannot be transplanted on animals, and no surgeon, nurse or pathologist has been infected. 2. Cancer is not caused by a microorganism or parasite, although many microorganisms have been found in cancerous lesions, but none of them have been established as a cause. 3. Cancer is not wholly the result of traumatism, although local injury may induce its localization in some particular region. 4. Cancer is not to any appreciable degree hereditary, although some tendency in that direction has been found in certain strains of mice. 5. Cancer is not due to occupation, although it is more common in some pursuits than in others. 6. Cancer is not altogether a disease of older years, although its frequency is influenced by advancing age. 7. Cancer does not especially belong to or affect any particular sex, race, or class of persons. 8. Cancer is not confined to any location or section of the earth, but has been observed in all countries and climates. Some positive results of research are encouraging. 1. The local mass which we call cancer represents but a deviation from the normal life and action of the ordinary cells of the body. 2. Certain changes have been demon-

strated microscopically in the polarity of the cells about to become cancer-genetic, with altered relations of the centrosome to the nucleus, all being influenced by disordered metabolism. 3. Much in laboratory studies on the biochemistry of cancer has confirmed the clinical and statistical observations fast accumulating. 4. The blood in advancing cancer shows many manifest changes, indicating vital derangement of the organs which form blood, and which therefore control the nutrition of cells. 5. The secretions and excretions of the body in the early and late stages of cancer have been shown to exhibit departures from normal which are of importance in its causation. 6. Cancer tissue has been shown to contain an element which is poisonous to animals and which probably hastens the lethal progress of the disease. 7. Diet has been repeatedly shown by the laboratory to inhibit the development of inoculated cancer in mice and rats. 8. As laboratory and other research have eliminated the local nature of cancer, they have also established certain medical aspects of the disease which are of the utmost importance. Finally clinical and statistical studies have abundantly confirmed the correctness of the internal basic cause of cancer. 1. The mortality from tuberculosis has steadily and greatly diminished under careful medical guidance, while that from cancer has increased in almost the same ratio, without proper medical care. 2. Cancer is almost absent among aborigines, living simple lives, largely vegetarian, but has increased steadily among them in proportion to their adoption of the customs and diet of so-called modern civilization. 3. Self-indulgence in eating and drinking, with indolence, has been shown by many to result in increased cancer mortality. 4. The increased consumption of meat, coffee, and alcohol has been shown by statistics from many countries to be coincident with increase in cancer mortality. 5. Great nerve strain and shock have repeatedly been shown to affect the development of cancer, and the enormous nerve strain of modern life seems to be effective both through metabolic derangement and by direct action on living cells. 6. While it is impossible to explain just how disordered metabolism induces cancer-genetic changes in cells, it is no more difficult to believe that it does so than it is to understand the intrinsic cause of arterial degeneration, bone changes, obesity, etc., which are recognized as due to metabolic derangement. 7. The spontaneous disappearance of cancer, as occasionally reported, shows that conditions of the system may arise which are antagonistic to carcinosis. 8. Finally, the complete removal of cancerous lesions, in various localities, by most careful dietary, hygienic and medicinal measures alone, without surgery, *x*-ray or radium, as has been repeatedly reported, shows that there is a constitutional basic cause, of which the local lesion, which we call cancer, is but the product.

Southern Medical Journal.

March, 1919.

1. The Clinical Value of Psychological Tests in the Examination and Diagnosis of Mental Cases. Frank S. Fearing.
2. A Study of the Digestive Psychoses. George M. Niles.
3. The Importance of the Routine Wassermann in Tuberculosis. A. G. Shortle.
4. Public Health Service Problem for the Nation-Wide Control of Venereal Diseases. C. C. Pierce.
5. Community Status as a Measure of Freedom from Communicable Diseases. Peter H. Bryce.
6. A Way of Combating Soil Pollution as Used by One of the North Carolina Co-operating Counties. J. S. Mitchener.
7. Peripheral Nerve Injury in War Surgery: Routine of Approach. Charles S. Venable.
8. Concerning Ureteral Stones: The Removal by Non-Cutting Operation. E. P. Merritt.
9. A Rare Surgical Case. V. B. Philpot.
10. Bone and Cartilage Grafting in the Correction of External Deformities of the Nose. Lee Cohen.
11. A Curious Ocular Syndrome of Dental Origin. H. H Martin.

2. A Study of the Digestive Psychoses.—George M. Niles draws attention to the fact that "nutritional neurasthenia," "Americanitis," "morbus strenuosus," and other catchy phrases owing to the various disturbances of digestion and nutrition due to psychic disquietude might lead one to surmise that this were a modern disease, an outcropping of twentieth century civilization, and one of which we should be mournfully proud. Psychic indigestion is by no means of recent discovery, but belongs to that category which the man of wisdom had in mind when he remarked, "There is no new thing under the sun." Up to the past few years little weight was accorded the factors responsible for the excitation or inhibition of these juices, apart from the chemical and mechanical. It seems that the well considered words of old Solomon were unheeded, "A merry heart doeth like good medicine," and "Better a dinner of herbs where love is than a stalled ox and hatred therewith." For many centuries in the discussion of physiological digestion, as well as of pathological indigestion, the influence of the emotions received scant attention. Briefly stated, when food is taken the secretion first started is due to the sensation of eating and of taste; that is, it is a psychic secretion. The cases of true psychic indigestion are almost invariably found in the middle years of life, among those who think for themselves and others. The nerve centers of young children are less impressionable to emotional excitants; and when the "lean and slippered pantaloon" has been reached, the waning digestive powers, in their halting efforts to produce needed bodily energy, have no time to play fantastic pranks on the "commissary department." Digestive troubles in these two extremes of life are generally due to dietetic errors, while in old people organic and malignant maladies play an important part. Seldom do we find psychic indigestion among those who earn their bread by manual toil, except in brief explosions due to some violent mental irritants. As to the treatment of gastrointestinal psychoses, it must embrace more hygiene than dietetics, more suggestion than drugs. It is among these patients that the personal equation of the medical attendant counts for much; for the cheery optimist who can instill confidence and hope into doubting and despondent hearts is the one who gets results. Therapeutic cognizance must be taken of tangible bodily ailments, and appropriate medication has its important place here as in other more material troubles. He, however, who attempts to reach these shifting and evanescent psychoses by a hide-bound system of dietetics, stomachics, digestants, tonics, or any other adventitious aids to digestion will be foredoomed to failure. Another therapeutic measure which often proves a benefit is a radical change of occupation or environment. It is noticeable that one's digestion is always good on a holiday, and many people find that they can with impunity eat articles of food while on a vacation or pleasure trip which would profoundly disturb them at other times. It is worth the thought and time of the physician to regulate for good, if possible, the environment of every chronic dyspeptic; otherwise many a well-chosen prescription will come to naught in the presence of petty worries and repinings that seem to act with malign force on the digestive organs. When, therefore, by means of both material and psychic therapy, intelligently and energetically applied, the minds of these sorrowful invalids are taken from their stomachs; when their daily thoughts are lifted out of their introspective grooves; when their ill-nourished bodies are furnished with sufficient food, and their dessicated tissues are laved with an abundance of water, then can the vicious circle be broken and the psychic aids to digestion resume their normal place in the bodily economy.

8. Concerning Ureteral Stones: The Removal by Non-Cutting Operation.—E. P. Merritt states that most authorities are of one accord that the ureteral stone formation takes place in the kidney pelvis, which, he thinks, is correct in a large majority of cases. The diagnosis, after centralizing our minds on ureteral stone, would be practically easy if all the stones would show under the exposure of the *x*-ray. Thanks to the rays, a very large percentage does show; but now and then a pure phosphatic or uratic stone will not show. Then if the clinical symptoms point to stone, shall we say "negative"? Not until the cystoscopic methods have proven so, namely, obstruction to catheters and negative findings per wax-tipped catheters. Shadows resembling ureteral calculi in the ureteral region are not always to be taken seriously until further investigation. For instance, pathological mesenteric glands and phleboliths give shadows that are misleading. The differential diagnosis is made easy by inserting an iron oxide catheter into the suspected ureter, having a roentgeno-

gram made and noting the obstruction met and the distance from catheter to shadow. Merritt's non-surgical method for removing ureteral stones is as follows: Dilate the ureter below the stone with ureteral dilators. After the introduction of papaverin or novocain, 2 to 4 c.c. of 2 per cent. solution, the catheter is withdrawn so that the ureteral walls may be infiltrated thoroughly. If a small ureteral orifice obstructs, then use ureteral scissors to cut the meatus to desired size. After this pass a stiff catheter to or beyond the stone if possible. Inject then from 2 to 4 c.c. of sterile olive oil. Of late Merritt has injected a few drops of 10 per cent. argyrol or silvol afterward for the antiseptic value it possesses, possibly reducing soreness from manipulation. The patient, if not in pain, may sit up. If in pain, large doses of morphine, hot applications, and an abundant intake of fluid are indicated. This procedure is employed at intervals of three days if the condition of the patient will permit. The average number of times for the removal has been three with Merritt. If in watching for a "big stone" we do not see it pass, we should not be discouraged, as it will ofttimes break up and come out in small particles; or there may be more blood clot sometimes than there is stone. This is especially true of the phosphatic type. It is a good idea to be convinced of the absolute removal by another ureteral examination. This method is convincingly reasonable and safe, even if we do not succeed every time. There is no harm done, and in the majority of cases, especially selected cases, this method saves a cutting operation.

Berliner klinische Wochenschrift.

February 17, 1919.

Has Normal Horse Serum an Action on Experimental Injection of the Guinea-Pig with the Diphtheria Bacillus?—E. Friedberger says that, on account of von Bingel's recent article in which is discussed the really specific efficacy of antidiphtheritic serum, he feels compelled to again revert to this question with all its details. The doubts which at first existed at the onset of the use of antidiphtheritic serum have been forgotten and covered by the almost universal enthusiasm which has hailed this therapeutic measure. At the present time it may be asked whether or not the serum does not owe a large part of its effectiveness to a happy combination of circumstances. Diphtheria, an epidemic disease subject to great periodical fluctuations (Rokitanski declared, in 1847, that it was a "French invention"), was in 1894—the date of the appearance of serotherapy—in a phase of decline. It can be proved that the rapid decrease in the extension of the disease had already begun some time before this memorable year. The various statistics invoked in favor of antidiphtheritic serotherapy are hardly univocal, and the majority are perverted from special circumstances. Thus, the establishment of bacteriological institutes has unquestionably greatly multiplied the diagnoses of simple diphtheritic angina, and for this very reason the percentage of serious cases has been improved on. These disturbing perplexities have led the writer to experiment again, particularly from the viewpoint of comparison between the action of antidiphtheritic serum and that of simple horse serum. By a series of carefully conducted experiments the writer shows beyond question that antidiphtheritic serum has a fully justified reputation. With equal doses he cured experimental diphtheria, while the animals died when horse serum was used. However, the writer states that although the specific serum may be regarded a curative in the experimental form of the disease, the question of its clinical value is of quite another order. The injection of cultures of Loeffler's bacillus in the guinea-pig only distantly reproduces the conditions of human diphtheria, so that the question can only be definitely settled by clinical observation and statistics carefully made on a large scale.

Münchener medizinische Wochenschrift.

February 14, 1919.

The Reaction of the Circulatory System in Fatigue.—O. Bruns has studied both the heart and peripheral vessels in states of bodily fatigue and the results recorded by numerous plethysmographic charts. The heart in fatigue offers a decreased tonus, that is to say, an increase in both its systolic and diastolic dimensions, while at the same time both the pressure and amplitude of the systoles remain constant. Some irregularity of the contractions was also noted. In progressive body fatigue an increasing atony of the cardiac walls takes place. In the vessels local muscular fatigue produces a decrease in the vasomotor reactions to thermic stimulation. On the other hand, central influences (mental calculation, the sentiment of joy or displeasure) produce an equal reaction in both the fatigued limb and the fellow member which has not been tired. From the qualitative viewpoint, the vascular reactions in the state of fatigue are normal, and only a deviation of the reaction takes place in the following circumstances: A tired subject is ordered to resume work, in which case instead of the usual vasodilatation taking place before muscular effort occurs, there is a vasoconstriction which the writer attributes to a strong feeling of resentment experienced by the subject when receiving the order to work.

The Offspring of Soldiers on Leave and the Solution of the Problem of the Sex.—F. Lenz alludes to Siegel's study on the subject of sex in which the latter maintains that the sex of the infant depends upon the time of conception, boys being the rule in postmenstrual conception. The writer criticizes Siegel's theory and remarks that such results are not in accord with what we now know of "the science of heredity." It is known, he says, that the sex is determined by the spermatozoid, each of which possesses a determined sexuality. The proportion of sexes, therefore, can only be influenced by those factors which favor fecundation by male elements. Such are difficulties in conception, primiparity, youth of the mother, and all debilitating factors.

Deutsche medizinische Wochenschrift.

February 18, 1919.

The Theory and Technique of the Serologic Diagnosis of Syphilis.—E. Meinicke exposes theoretical views and experimental findings on this subject. The various modern procedures (Wassermann, Sachs-Georgi, Meinicke, etc.) are all reactions of precipitation which are represented by various methods such as the hemolytic system, the lipoids or sea salt. The development of these procedures has resulted in marked progress in the domain of serologic diagnosis. The writer shows that these different methods are variously influenced by added factors, such as bile, tuberculin, etc. Their concordance cannot, therefore, be absolute in every case, so that an ideal method is yet to be found which shall depend entirely upon factors of syphilitic origin.

The Reaction of Precipitation in the Diagnosis of Syphilis According to Meinicke and Sachs-Georgi.—F. Reich has experimented with both methods and compared their results with those obtained by the Wassermann. The Sachs-Georgi technique (a mixture of inactivated serum with the autogen in presence of an exactly determined quantity of cholesterin) is the simplest and also presents a much more constant concordance with Wassermann than does Meinicke's reaction (precipitation of any serum in the presence of an alcoholic extract of organs, the precipitate being insoluble in a solution of sea salt and in normal sera, but soluble in syphilitic serum; the reaction consequently takes place in two stages). For this reason the Sachs-Georgi reaction represents the greatest progress realized during the past few years in the domain of syphilitic serology.

Active Immunization in Hay Fever.—K. Eskuchen considers the treatment of this affection with injections of pollen toxin, according to the procedure of Noon and Freeman (*The Lancet*, 1911), as the best. The treatment can be intensified by the internal exhibition of calcium chloride. The technique of the procedure requires detailed study; the initial dose should be estimated after the cutaneous and ocular reactions have been obtained, and the doses injected should be slowly but progressively increased. The writer reports a very instructive case.

Wiener medizinische Wochenschrift.

February 15, 1919.

Cutaneous Lesions from Solar Rays.—G. Nobl offers a general study of this group of affections. He studies the indispensable part played by the presence of certain substances of alimentary or internal origin, but in a changed (spoiled) state, in pellagra and divers hematoporphyrins in the dermatosis called "estival hydroa, sen vacciniform" by Bazin, etc. The writer records an example of familial distribution of the latter affection. The sensibilization of the skin to rays of light may be produced experimentally in white mice by several products similar in nature, such as chlorophyl, bile, or hemoglobin derivatives. One writer has injected 20 centigrams of hematoporphyrin into his arm and afterward presented serious accidents of hypersensibility after exposure to light. The treatment of vacciniform hydroa and similar pathological conditions consists, naturally, in protecting the parts from solar rays, as well as by the employment of various well-known local applications.

The Influence of Influenza on the Female Organs of Generation.—R. Franz has met with disturbances of the menses in women with influenza, particularly metrorrhagia and menorrhagia, but has been unable to establish a relationship between the intensity of the influenzal process and the gravity of the menstrual disturbances. In pregnancy this tendency to hemorrhage may result in miscarriage or premature labor. In the case of the genitalia in the female, influenza produces the same hemorrhagic tendency as it does in other viscera.

Gazette des Hôpitaux.

March 8, 1919.

Kernig's Sign in True Typhoid Fever.—Audibert and Nalin of Marseilles discuss at length the occurrence of this meningeal symptom in sepsis due to Eberth's bacillus. Kernig, the Russian clinician, first described his sign in 1884. He first noticed in the course of meningitis a peculiar rigidity in the lower extremities. As a consequence of such rigidity, if the victim sit on the side of the bed the trunk will be unable to make an acute angle with the thighs. If the situation is forced the legs become half flexed on the thighs. With this sign we find rigidity of the nucha and trunk. From that period Kernig's sign has often been encountered in meningeal affections. However, it is not always to be elicited in meningitis, while on the contrary it has been seen in nonmeningeal affections and as a result has gradually lost pathognomonic significance. As far back as 1899 it was seen in typhoid without much evidence of meningeal implication. On the other hand, in true typhoidal meningitis it was as a rule present so that the sign became of especial value in typhoidal meningitis. In miscellaneous typhoid taken as it comes, the per cent. with a Kernig varies extremely—from 10 to more than 50 per cent. The authors have especially studied the evolution of the sign, the diagnostic and prognostic significance, the relations between the sign and the lumbal punctates, etc. The final conclusions are as follows: Kernig's sign is very frequent in affections due to Eberth's bacillus—in the author's experience in over half of all cases. It appears at the outset of the disease and does not disappear as a rule until convalescence. It is rarely absent in the severe form (save in adynamia after the system no longer defends itself against the disease), but is often encountered in the mildest forms in which there is no participation of the nervous system. Its explanation is to be sought in the action of the disease toxins on the cerebrospinal motor system, but it occurs in association with perfectly normal cerebrospinal fluid. In general it is indicative of a sepsis or blood state and not of a special state of the cerebrospinal fluid.

Le Progrès Médical.

March 1, 1919.

New Researches on Filtrable Viruses.—Bernard states that our knowledge of these substances has been negative, for we have no information beyond the fact that the microorganism is too minute to possess characteristics. The strangest phenomenon has been the inability to obtain cultures. It is true that now and then a filtered virus is found to contain some very minute organism and cultures have been obtained on anaerobic media and inoculated successfully. Such results have been the exception, however, and have never been obtained for the endemic diffusible affections, measles, mumps, etc. Positive finds have been limited to strains of influenza, save that two war maladies, trench fever and nephritis, which are quite unrelated to the great epidemic infections, appear to be caused by filtrable virus. The chief interest at present centers in influenza. Both English and Brazilian authors have found extremely minute cocci in influenzal patients in the blood and various secretions, but it is not certain that the organisms are the same. In the British army the patients investigated showed the presence of a coccus in all cases examined, although the numbers tested were small. The omnipresence of this germ was striking and it seems to have been discoverable almost anywhere in the body—cerebrospinal fluid, enlarged lymphnodes, etc. When inoculated within the dura or veins of the guinea pig and monkey the animals presented symptoms of grippe and autopsy showed extensive hemorrhagic pneumonia and lesions of some of the large viscera which comprised congestion and hemorrhages. The first inoculations did not cause death but passage through one animal increased the virulence to the point of causing a fatal termination in some of the material.

Correspondenz-Blatt für Schweizer Aerzte.

March 8, 1919

Hoffa's Disease.—Dubs gives a succinct account of traumatic increase of adipose tissue in the knee joint. We have not heard much of this affection since the death of Hoffa. The author has gathered together and analyzed all accessible data and reaches the following conclusions: There is invariably a history of traumatism, either one violent injury or repeated minor injuries. The violence need not be external but may comprise intrinsic lesions of various character, including mere irritation of foreign bodies. The lesion is an inflammatory hyperemia of the fatty tissue in the alar folds and ligamentum mucosum. In other words, the subpatellar fat is gradually changed to firm fibrous tissue. The initial lesion is believed to be a hemorrhage—numerous minute hemorrhagic foci which are due to trauma and give the impetus to the small cell infiltration. The latter is increased and generalized as a result of the continuous irritation. The new formation of fibrous tissue invests islets of the remaining fat. When a knee joint is opened we see a yellowish red, firm, cock's comb-like or racemose mass replacing the subpatellar fat, enlarged, with processes which penetrate into the joint spaces. Such a mass may reach the size of a hen's egg. The results of this condition are atrophy of the quadriceps and pseudofluctuation at either side of the patella with doughy feel, which is sometimes quite sensitive to pressure. Passive motion and locomotion are largely unaffected. The *x*-ray reveals the presence of the mass as a faint shadow, but the value of this in diagnosis is questionable. Conservative measures usually suffice for treatment but orthrotomy is sometimes necessary. Under the former may be mentioned massage, hot air, sandbaths and compression.

A Grip-Like Infection in the Fall of 1917.—Schittenhelm and Schlecht, connected with a German army on an Oriental front, noted the presence of an affection which began August 1 and lasted until the middle of October, 1917. Three units seated in different regions of a wide geographical area were attacked simultaneously in epidemic form. The onset was sudden, the symptoms those common to acute infections and the duration from 7 to 9 days. The picture was at times atypical and in small percentages unusual manifestations were seen, as eruption, diarrhea, etc. Aspirin was very serviceable. There were 4 possibilities—malaria of a remittent type, influenza, dengue and some unknown affection.—*Office International d'Hygiène Publique.*

Book Reviews.

PAPER WORK OF THE MEDICAL DEPARTMENT OF THE UNITED STATES ARMY. A Guide for Administrative Work. By RALPH W. WEBSTER, M.D., Ph.D., Major Medical Corps, U. S. Army; Instructor, Basic Military Course, and Adjutant, Camp Greenleaf, Chickamauga Park, Georgia; Formerly Instructor at the Medical Officers' Training Camp, Fort Riley, Kansas; Author of Diagnostic Methods, Chemical, Bacteriological, and Microscopical. Approved for Publication by Direction of the Surgeon General of the U. S. Army. Price, $5.00. Philadelphia: P. Blakiston's Son & Co., 1919.

THIS book is intended for the instruction of the medical officer who has had hitherto no experience of military matters. With this object in view the most important papers dealing with organization have been brought together by the author. Extracts have been freely made from all works bearing on the subject of military duties and regulations, and the book is in effect a compilation of such material as is likely to be useful, arranged in a handy manner. The work was called for and filled a want and reflects much credit upon the industry of the author.

MASSAGE AND THE ORIGINAL SWEDISH MOVEMENTS, Their Application to Various Diseases of the Body. Lectures Before the Training Schools for Nurses Connected with the Hospital of the University of Pennsylvania, German Hospital, Woman's Hospital, Philadelphia Lying-in Charity Hospital, the Philadelphia Polyclinic and College for Graduates in Medicine, and the Kensington Hospital for Women, Philadelphia. By KURRE W. OSTROM from the Royal University of Upsala, Sweden. Eighth Edition. Revised and Enlarged with 125 Illustrations. Price, $1.00. Philadelphia: Blakiston's Son & Co.

MASSAGE and the Swedish movements are recognized as a valuable part of therapeutics and as essential in the treatment of certain conditions. The late Mr. Ostrom might be termed the high prophet of these methods and his book supplied an excellent exposition of the same. However, as this is an eighth edition, it will suffice to say that the revision has been ably done by Mr. Silfverberg, who has followed closely the notes left by Mr. Ostrom, with the exception of those on dislocations, the article on which is written from his own viewpoint.

CLINICAL MEDICINE FOR NURSES. By PAUL H. RINGER, A.B., M.D., Member of Staff of the Asheville Mission Hospital, Asheville, N. C., and of Biltmore Hospital, Biltmore, N. C. Illustrated. Price, $2.00. Philadelphia: F. A. Davis Company, 1918.

OF recent years nurses have been called upon to do some of the work which used to fall almost wholly within the sphere of the medical man or surgeon. This being so, it is essential that they shall have a fair knowledge of clinical medicine. The lectures by Dr. Ringer now embodied in book form were delivered with the view of imparting to nurses such knowledge and he seems to have succeeded well in his self-imposed task.

AUTOTHERAPY. By CHARLES H. DUNCAN, M.D., Discoverer and Founder of Autotherapy; Formerly Mechanical Engineer of the Illinois Steel Company; Co-Founder of the Volunteer Hospital; Attending Surgeon and Genito-Urinary Specialist, Volunteer Hospital, New York City, 1905-1914; Honorary Member Veterinary Medical Association, New York. Price, $5.00. New York: Published by Dr. Charles H. Duncan.

DR. DUNCAN during the past few years has written widely in the medical journals concerning his method of autotherapy, and consequently medical men generally are conversant with his views. *Similia similibus curantur* applies to some extent to the doctrine of Duncan. Although not exactly founded on the principle of like being cured by like, the idea of curing disease with its own poison comes within much the same category. Autotherapy appears to be a logical development of vaccine treatment, and if the clinical results therefrom are as good as they are stated to be, the method constitutes a great advance. Moreover, it is claimed to be harmless or, at any rate, not dangerous. Autotherapy promises much, but, like everything new, it must be tested for a long time ere the statement can be made that it is a success.

AMERICAN RED CROSS TEXT-BOOK ON FIRST AID AND RELIEF COLUMNS. A Manual of Instruction on How to Prevent Accidents and What to Do for Injuries and Emergencies. By Colonel CHARLES LYNCH, Medical Corps, United States Army. Prepared and Endorsed by the American National Red Cross. Second Edition. With 52 Illustrations. Philadelphia: P. Blakiston's Son & Co., 1918.

THIS new edition of a very valuable work and one which has amply demonstrated its usefulness has been thoroughly revised and considerably enlarged. It is a *vade mecum* on the subjects with which it is concerned and the author is to be congratulated on the manner in which he has presented and tabulated the contents of the book.

THE MEDICAL CLINICS OF NORTH AMERICA. Volume 2, Number 3, November, 1918. Price per year, $10.00. Published bi-monthly. Philadelphia and London: W. B. Saunders Company.

THIS is the "Philadelphia Number," the contributions being from the various clinics in that city. About one-half of the volume is given over to the discussion of the various phases of the influenza epidemic and the articles are at once interesting and informative. The other articles are upon many and varied subjects. Rehfuss's discussion of the treatment of biliary affections is perhaps the most interesting, though some of the others are of as much value. The number is an exceedingly interesting one, and in its nearly three hundred pages covers a wide range of medical conditions.

STUDIES FROM THE DEPARTMENT OF MEDICINE. Cornell University Medical Bulletin. Vol. VIII, No. 3, January, 1919. New York: Published by Cornell University.

THIS volume consists of a collection of twenty-four reprints of studies from the Department of Medicine, Therapeutics, Ophthalmology, Obstetrics, Dermatology, and Radiology, which have appeared in medical journals during the period 1913 to 1918. They represent investigations covering a wide range of subjects and offer concrete evidence of some of the research activities carried on by the personnel of this institution. It is a very creditable publication.

PHYSICAL AND OCCUPATIONAL REEDUCATION OF THE MAIMED. By JEAN CAMUS, with the collaboration of A. Nyns, Bourrillon, F. Terrien, E. Fontaine, Nové-Josserand, Bourget, Boureau, P. Larue, A. de Mazières, E. Leroux, P. de Cabaussel, E. Voron, J. Nanot, P. Lindemans, Belot, Privat, H. Nepper, and C. Vallée. Authorized Translation by W. F. CASTLE, Surgeon, R. N. With articles on British Institutions by Sir ARTHUR PEARSON, Bart., Margaret Lale, and DUDLEY B. MYERS. Price. $2. New York: William Wood & Co., 1919.

THIS book is the most complete work on reeducation of the disabled by war in France, and in saying this it may also be inferred that it is one of the best works on the subject in the world. All the men engaged in the writing thereof are authorities. The appendix is a valuable addition as it contains chapters on St. Dunstan's by Sir Arthur Pearson, on Lord Robert's Memorial Workshops by Miss Margaret Lale; on results obtained at Roehampton by Mr. Dudley S. Myers, and on the chief types of artificial limbs in use in England.

DIABETES AND ITS DIETETIC TREATMENT. By B. D BASU, Major, I.M.S. (Retired). Ninth Edition. Revised and Enlarged. Price, One Shilling. Allahabad: The Panini Office, 1918.

THIS book advocates the treatment of diabetes by a dietetic regimen in which vitamines are present in sufficient quantities. Dr. Basu, therefore, urges on the medical profession the importance of the study of the question of vitamines in the pathology and treatment of diabetes.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held March 20, 1919.

THE PRESIDENT, DR. GEORGE DAVID STEWART, IN THE CHAIR.

Experiences in France with Surgery of the Genito-Urinary Tract.—Major A. RAYMOND STEVENS, Med. Corps, U. S. Army, presented this paper, the purpose of which, he stated, was to give a notion of the infrequency of gunshot wounds of the urinary tract in war and to report some personal experiences. For well over a year he was with the British Army, as a member of U. S. Base Hospital No. 2, engaged in general surgery, but was also given the care of all the genito-urinary injuries that were admitted to the hospital. No venereal cases were included. He spent two months in British Casualty Clearing Stations during periods of military activity, and in September, 1918, he was sent to the Mars-sur-Allier Hospital Center, and a few weeks later moved to the Center at Mesves, and was also attached to Base Hospital No. 67. He expressed himself as particularly impressed by two facts concerning war wounds of the urinary tract: first, the relatively small number of cases in the hospitals and, second, the high mortality of these. The relative rarity of kidney and bladder lesions was perhaps explained by the obvious possibility of frequent fatal hemorrhage following wounds in these parts. Various groups of statistics showed the kidney involved in from 4 to 9 per cent. of penetrating abdominal wounds, and the bladder in from 4 to 7 per cent. The number of men with abdominal injuries who lived to reach a hospital was only a small fraction of the total number admitted. One American surgeon in a general operative experience, extending over a period of five months in the Front Area, met with but a single kidney wound. Another whose evacuation hospital work totaled 400 cases and included a good share of abdominal work found no wound of either bladder or kidney. The writer's experience in this respect was very similar to that of others. Cases cited emphasized the importance of immediate suture of urethral injuries when possible. This procedure gave excellent results in many cases, and at the worst the resultant scar would be much smaller following suture than would be the case otherwise. At the base hospitals, as would be expected, the proportion of urinary wounds was even smaller than in the hospitals of the forward areas. At the Mesves Hospital Center the number of patients in the hospitals at one time totaled nearly 23,000, yet he did not see and did not learn, in response to direct questions put to the chiefs of all the surgical services, of a single case of wound of the kidney at this center. The mortality, as before stated, of patients with wounds of the urinary tract in the war was very high. A recent French publication giving collected statistics stated that non-complicated bladder wounds had resulted in a mortality of 56 per cent., and of fifteen cases with coexisting intestinal wounds but one lived. He had records of eleven patients with wounds of or adjoining the bladder, and to his knowledge at least six of them died. Not only were intraperitoneal and pelvic complications accountable for the very heavy mortality of bladder cases, but wounds in other parts of the body handicapped the patient seriously, and materially reduced his chances of recovery. Speaking of suprapubic wounds, Dr. Stevens said that it was advisable as a rule to close a bladder wound occurring in the peritoneal surface, but to drain an extraperitoneal opening. A deviation from the latter part of this rule might impair the patient's prospects, as was illustrated by several cases cited. Another point emphasized was the importance of removing all loose bits of bone in complicating fractures of the pelvis. It was observed that penetrating wounds of the buttocks were notoriously full of grave possibilities, one of which was a bladder or ureteral injury. The bladder complications of gunshot wounds of the spine had interested urologists very much. The behavior of the bladder varied greatly in different instances, but there was usually a period of retention before incontinence set in and different devices had been employed to overcome this retention. They had had eighteen or twenty such patients, and tried in different instances infrequent catheterization, suprapubic drainage in some persistent cases, and the "do-nothing plan," so strongly advised by some English surgeons. The latter, he was convinced, was not of universal application, but it was probably the ideal treatment where it could be borne, depending, as it did, entirely on the overflow drainage of the bladder. Any harm done the kidney by a continuously large amount of residual urine in the bladder probably represented a smaller risk than that of urinary infection following catheterization in spine cases. Dr. Stevens referred briefly to the subject of hematuria in soldiers and stated that many cases were cystoscoped with the amazing result that over 90 per cent. of them represented types of what was rather loosely termed "War Nephritis."

Experiences of a Urologist with the Fighting Forces in France.—Lieut.-Col. EDWIN BEER, Medical Corps, the United States Army, spoke informally of his personal experiences in the war zone. He said that when asked to present a paper he had declined because he felt that he did not know enough about the subject assigned to him. When one did surgical work in the forward war zone he knew nothing of what happened to the cases afterward, so he thought it was a mistake to publish results of that work. Furthermore, he said that he made but a poor pretense at being a urologist in connection with his war work, for he had not used a cystoscope and to his mind a urologist without a cystoscope was almost inconceivable. One of the most important contributions to modern medicine was the carrying out of prophylactic measures against venereal disease in the army. These prophylactic measures which had proved so effective in our army would undoubtedly soon be adopted by foreign armies. At one time Great Britain had five divisions laid up with venereal diseases, while owing to the adoption of prophylactic measures our armies had suffered no such crippling of their fighting efficiency. But the prevention of venereal diseases among our fighting forces was only one of the important advances accomplished in the recent war. Another important advance in the provisions for the care of our soldiers was the introduction of surgical teams. These operating teams were usually made up of one surgeon in chief, two assistant surgeons, two nurses, and two orderlies. When there were sufficient teams on the slate there was no need of overworking anyone even at the front, but the surgical teams were not completed until the fall of 1918. With the general shortage of surgeons on the other side, he had never been able to understand why it was that men who wanted to do surgical work were sent to camps here and stalled, spending their time in learning the duties of the enlisted men, the laws of Court Martial, the army paper work, etc., when it would have been much better to have sent them overseas in 1917, where they could have cooperated with the French and British and learned the surgical game as it was played in the fighting areas. Another excellent development in the A. E. F. was organized at Toul, near St. Mihiel; this was a training school for surgeons, which was run by very excellent surgeons, and here men not familiar with military surgery were trained for service. Military surgery, as they all knew, was quite different from civilian surgery, and an American surgeon, no matter how well versed in civilian surgery, could not rush immediately to the front on landing in France, but first should undergo a course of training in military surgery. He had to learn how to handle war wounds and what cases not to operate upon. The tendency in the war was to operate on every case. Military surgery was peculiar in that the object set before the surgeon was complete excision of all traumatized tissue and the removal of all foreign bodies, bits of shell, metal, clothing, etc., because experience had shown that if any traumatized tissue remained gas gangrene almost invariably followed. At the front the operating was done in tents while the armies advanced, there being ten operating tables placed side by side in such a tent. Each surgeon ran two tables and got all kinds of cases, wounds of the brain, chest,

abdomen, and extremities, and while there was a certain number of injuries of the genitourinary tract, they were, so far as his experience went, limited. Among a dozen or more bladder and kidney injuries he saw one injury where the kidney had to be resected, but in this instance, as in most others, the kidney injury was only a fraction of the total injuries; the gut, diaphragm, and lung were also injured. Unless one had some data with reference to the end results in these cases, it was foolhardy to draw conclusions, and there was no way as yet to know the ultimate outcome. His immediate mortality at the front was about 4 per cent. Dr. Beer said he did not want his hearers to go away with the idea that the army surgeon spent all his time operating. He had performed forty-eight operations at one session and, of course, when the armies were in action they worked hard, but usually after from ten to fourteen days of active service there would be a respite and when these times came they spent them in sight-seeing. The speaker related some of his sight-seeing experiences, speaking more particularly of a trip to St. Mihiel and Verdun and of the advantages of Southern France as a pleasure resort, which, he said, the French had not been so ready to exploit as the Germans had been in seeking patronage for their spas. In closing he expressed the conviction that the war was won by our doughboys, who brought into it a new spirit. They were utterly unafraid and had no respect for rifle or machine gun, and by virtue of their wonderful courage they held off the German attacks last June, and subsequently at Château-Thierry they had instilled new courage into the Allied armies, so that there was no question but that to the valor of our boys was due the victory in 1918.

Organization of Venereal, Skin, and Genitourinary Services, A. E. F.—Col. HUGH H. YOUNG of Baltimore delivered this address, in which he related his experiences in France in connection with the work of the Venereal Division of the American Expeditionary Forces. He said that he had had the good fortune to cross on the *Baltic* with General Pershing, whose one idea seemed to be to keep everyone as busy as possible. Those on board spent a good deal of time studying French and attending lectures, and it happened to be his misfortune to be selected to give a lecture on the venereal disease problem. For this lecture he utilized charts showing the wonderful progress made in the army in reducing the incidence of infectious diseases, and among these was a chart showing the reduction of the venereal rate in the home army from 155 per 1,000 per year to eighty-four since the introduction of prophylaxis. From this he drew the deduction that it would be possible to accomplish the same results in the army in France. General Pershing was very much interested in medical problems and soon read up on the venereal problem until he set a pretty rapid pace even for the specialist in this field. General Pershing had had considerable experience with the venereal disease problem on the Mexican border, where the Mexican population was to a large extent infected with syphilis, and thoroughly realized its importance.

Colonel Young said he landed in England to study the situation there and found the English people quite excited over the venereal disease problem. They had the opinion that there was a great increase of venereal disease among the civilian population. Sir William Osler had assisted in organizing a national association for combating venereal disease, which had an extensive program. They were following what the Australians called the "ostrich policy," not facing the problem openly. The Canadians took the lead in adopting American methods and even went a step further. One Canadian captain, who had at one time been a Kentucky preacher, hit upon the ingenious plan of establishing a viséing office where every man had to have his passes viséd. When a man came in for this purpose he was immediately sent in to Colonel Bullock, who gave him a talk on the dangers of incontinence; he did not, however, rely entirely on his talk to protect the man, but sent him away with a prophylactic calomel ointment and 2 per cent. carbolic. It was believed that as a result of this work venereal disease had been greatly reduced among the Canadians. It was said that at one time 25 per cent. of the British army was unfit because of venereal disease. The Australians looked at the problem a little differently than did the Canadians. They not only used prophylactic measures, but distributed sheaths to the soldiers. The New Zealanders were also doing what they could to cope with the problem. They had one woman attached to the Venereal Disease Division who thought that a soldier would be a soldier and that it was best to establish houses of prostitution. A rendezvous was conducted by an organization headed by this woman, which was called the New Zealand Sisterhood, whose members promised not to infect any Allied soldier, and if they did they were removed from the list of honorable members. At the front the British had suffered very severaly from venereal disease. They had fifteen hospitals from fifty to one hundred miles from the front, each having from 3,000 to 3,500 patients. The British had at one time as many as 112,000 evacuated from divisions as a result of venereal disease. They had practically two divisions unfit for military service. Had these two divisions been before Amiens the debacle of 1917 might not have occurred. The British gave those infected with syphilis only six or eight weeks' intensive treatment and sent them back to their battalion; the idea was that after the war something might be done for these men. In France there was not only grave concern in regard to the prevalence of venereal disease in the army, but also among the civilian population, both male and female. Certainly in the war zone no woman, no matter what her position, was above the suspicion of having syphilis. At a conference on this subject attended by sixty-five physicians it was the consensus of opinion that there was a great increase in the incidence of both syphilis and gonorrhea, that syphilis was probably three times as prevalent in some parts of France, probably eight times as prevalent as before the outbreak of the war. The French viewed with concern this spread of venereal disease and organized a venereal disease service as an annex to the army, which was run by military officers with centers in twenty-one cities, particularly in munition centers. In some of these factories they had doctors to examine the men and women and conducted venereal disease clinics, but they did not make much progress by this method because the women would not avail themselves of these clinics because if seen attending such a clinic they would be branded as venereal disease patients. It would perhaps have been better to have had this service in connection with a general medical clinic. At one time it was estimated that there were 200,000 cases of syphilis in the French army and about four times as many cases of gonorrhea. Syphilographers predicted a pandemic of syphilis after the war, when there would be an interchange of the syphilis of the fireside with that of the front. The French in the treatment of syphilis among their soldiers evacuated the men for six or eight weeks for active treatment, after which they were sent back to the front and expected to continue treatment while with their divisions. It was predicted, however, that there would be 95 per cent. of recurrences. Neither the French nor the British adopted prophylaxis or made the victim of venereal disease liable to court martial. After taking this trip of investigation Colonel Young said he was called upon to formulate a plan for the protection of the American armies against venereal disease. General Bradley had cooperated with him and as a result they had developed the work in three categories. First they urged the provision of amusement and the advisability of keeping the men busy as far as possible. They urged the Y. M. C. A. to establish hotels for the soldiers on leave and he had been appointed liaison officer. He urged that prophylactic stations be established in each of these hotels. This idea was at first opposed, but finally adopted, and the authorities of the Y. M. C. A. now recognized that this was one of the broadest minded things they had done in their war work and one of the most effective. The second thing that became evident to them was that something must be done for the French civilian population. At Neufchatel, the center of the training area, there were practically no French physicians. The doctors had gone to the front and many had been killed, so that in many localities one doctor was doing the work that before the war had

been done by six or seven, and in some areas there was no physician at all. It was in such an area that the American forces were to be billeted. To meet these conditions it was proposed to establish a service outside of the army, but conducted by army officers. The Red Cross cooperated with them in this plan to a remarkable extent, and as a result they had a series of routes looked after by a medical officer, who was provided with a Ford motor car and a chauffeur and in this way they were able to cover the country for a radius of twenty to thirty miles about Neufchatel. A little later they organized tent guard hospitals, for they discovered that there were a large number requiring surgical treatment and many cases of contagious disease besides venereal diseases. Scarlet fever, meningitis, and other diseases of childhood, from which our men had been protected by the public health measures in this country, became rampant. They had also hoped in this way to get in touch with the women who had venereal disease, thinking that if these women could be gotten into the hospital they would be removed as sources of infection. A third step in coping with the problem was to introduce into the army the prophylactic measures employed in this country. They felt that the American authorities must adopt more radical measures than the English and French had done. It seemed ridiculous to provide hospital treatment for all cases of venereal disease in the army when no such provision was made in civil life. If cases of venereal disease could be treated as ambulatory in civil life it seemed that they might be so treated in the army; hence they attempted to so simplify the treatment that it could be carried out by the soldier without carrying him back to a hospital. This method also possessed the advantage that the course of treatment could be prolonged and the man given two, three, or four courses of treatment. This method was adopted and the Department of Urology was the first one for which consultants were provided in the first three or four months after our entrance into the war. By August 1, 1917, Captain Boyd organized the work in the First Division and accomplished a great deal. It had been most interesting to watch the development of the work as the doctors learned to understand it. Their work was becoming very complicated when Colonel Keyes came over and saved the day. Together they had studied and planned and found the work always interesting, and they had always had General Pershing's co-operation. It was he who adopted the court martial order, making the contraction of a venereal disease a court martial offense. He felt that this was not doing the men an injustice, for if the prophylaxis was used early there was very slight danger of contracting infection. The charts showed that the failures with the prophylaxis were directly in proportion to the time after exposure at which it was employed, and that the rate of failure was very small if it was used within four hours. They had had a great deal of trouble with the negro troops. The urologists finally put in the order that every negro who left camp had to take the prophylactic treatment on his return. The result was that prophylaxis was not popular among the colored troops. When the earliest troops went over, composed largely of free lances from Boston and New York, they were welcomed by the French women as saviors and they ruined their good venereal disease record made in this country in two or three weeks. Many troops were debarked at the small port of St. Nazaire, where there were no facilities for caring for the men and they stayed there ten or twelve days before they were sent to camps. As a result from 10 to 20 per cent, of the men were infected. When the men got to camp it was very evident that radical measures would have to be adopted, so a report was prepared for General Pershing as a result of which he issued an order keeping all houses of prostitution out of the camp boundaries. The charts showed that after this order went into effect the venereal disease rate fell from 16 per 1,000 per month to 2 per 1,000 per month. Among the Negroes the rate fell from 109 in October, before the order went into effect, to 11 in January, after the regulations were in operation. This order not only had as its object to combat prostitution, both clandestine and otherwise, but it forbade the sale of liquors other than light wines and beer and it made every officer responsible for his men. The venereal rate of his troops was attached to the rate card of every officer and after that the Urological Department was unquestionably on the map. The men next went to the front and it became necessary to organize against venereal diseases in the fighting zone. An early study of the situation showed that practically all the skin diseases were preventable, and this applied especially to scabies and lice, which were the most prevalent of all skin diseases in the army. It was remarkable what could be done to prevent these diseases by proper provisions for cleanliness. It was found that 90 per cent. of the diseases for which men were evacuated was due to lousiness and scabies and that practically 95 per cent. of these were preventable. They had encountered difficulties in getting simple and efficient hot air disinfection and bathing facilities, but after they succeeded in installing suitable apparatus they reduced the rate of these skin affections from 425 to 17 per 1,000. The incidence of lice was reduced from practically 100 per cent. to eight or ten per cent. The French carried their bathing apparatus right up to the front, and practically all of this apparatus used by the Americans was provided by the French. When the Germans were driven back they captured German bathing apparatus and in this way they had been able to keep the American troops pretty clean. They decided not to evacuate the men from the front on account of skin diseases, but to rely upon methalene and powders of that sort. There was for each division one field hospital for the treatment of skin diseases. Every man who came to a bath was examined by the orderly and in this way they got the cases of skin disease early. The venereal disease cases they took back to a work camp where they were treated and made to work. Every man in the army was examined before he was sent home and it could be said that they were the cleanest body of men ever gotten together. When one thought of this he could not help but wonder whether all the money spent on ribbons and decorations for Fifth Avenue as a welcome for the soldiers might not be better spent in cleaning up the red light district. The Manual of Military Urology contained much of the experience of the Allies and our own experience with venereal diseases in the fighting forces and would be found very interesting. As a result of prophylaxis the venereal disease rate in the army had been reduced from 91 to 18 per thousand per year. The ultimate result of this venereal campaign was, Col. Young said, the most difficult and important problem before us at the present time.

Administration of the Urological Department, A. E. F.—Col. EDWARD L. KEYES, Jr., of the Medical Corps of the United States Army, spoke briefly of the advantages of an army experience in broadening the physician's views. Pope had said, "The proper study of mankind is man," but the physician too often saw only women. The war would wake in him a deeper consciousness of the life of others as a consequence of his more intimate relations with his fellows. Before the war it would have been inconceivable that so distinguished a man as had spoken this evening should interest himself in venereal diseases, but since the outbreak of the war this had come to pass and these men had found the problem of venereal disease prevention extremely interesting. Dr. Young had put venereal diseases "on the map" in the A. E. F. Practically every item of the work done in the army was originated by him, and no man had ever before accomplished so much in the prevention of venereal disease in an army in the field as Dr. Young had done. Colonel Keyes said he had always questioned the value of statistics and to an even greater extent he doubted the accuracy of army statistics, and this not because of the lack of probity of the army statistican, but because the statistics of one army were not comparable to those of another, because each army had its own peculiar method of collecting and collating statistics; nevertheless the statistics of our army were quite comparable with themselves, because they were made practically according to the same system. For instance, one was quite safe in comparing the statistics of the United States Army of 1914 and 1918. The figures that Dr. Young had shown in the charts were as accurate as it was possible to make

them. Any inaccuracy that might be there was due to the system and not the dishonesty or lack of efficiency of the individual and to the difficulty of interpreting the figures. The figures showing the comparative rates of venereal diseases among the white and negro troops and those showing the incidence of venereal disease before and after the houses of prostitution were put out of business in Saint Nazaire were perfectly reliable, as were also those showing the drop in the venereal disease rate between November and January, when the order in regard to the prophylactic measures went into effect. A most interesting thing was the reaction of the French people. The French had laid down as the basis of their campaign against venereal disease the idea that every man cohabited very frequently when he got the opportunity. The troops when fighting had no opportunity; the troops near the fighting lines had small opportunity, the troops in the rear had greater opportunities, and the troops on leave had every inducement to the wildest debauch. That was their idea of the scale of possibility of irregular sexual intercourse, which they thought was true of every nation. It was the reaction of the French people that men more or less ran wild and that the best thing to do was to establish houses of prostitution where a medical attendant would insure the cleanliness of the inmates. The American reaction was that the whole problem was a sanitary one and their whole effort was directed to putting the opportunity to contract venereal disease out of the way. The experience at Saint Nazaire showed very conclusively that suppression was better than regulation. There were a number of conferences with the French authorities on this subject and their whole attitude toward the matter was so different from ours that it would probably take them a long time to come to understand our point of view. Col. Young had shown that it was perfectly practicable to put into effect what had formerly been merely a theory and accomplished something entirely new in the history of civilization. He thought Col. Young could flatter himself that he was in the very forefront of the fight for a better civilization in that he had placed before the nations this attitude of America in reference to morality.

War Leprosy in France.—Perrin and Brac state that Marseilles is the city where one would expect to find exotic cases of this affection on account of its geographical and commercial situation. But aside from the imported case this terrain also represents an old focus of native leprosy. Hence it might not always be possible to distinguish at first between the imported and autochthonous forms. Advanced cases with tuberculous or mixed leprosy occurring in men known to have come from leprous foci need not be considered here, for we are concerned chiefly with abortive and nervous types. Many of these exotic subjects passed through Marseilles as a clearing point to be repatriated, and the mildness of the cases was remarkable, the general health being excellent and the symptoms few and slight. This could hardly have been otherwise when the men had been originally recruited as healthy soldiers from the colonial possessions of France. All of the cases described and illustrated appear to have been in negroes and Tonkinese.—*La Presse Médicale.*

Prognostic Significance of the Streptococcus in the Sputum of Influenza Patients.—Lochelongue during the last half of 1918 had occasion to examine many sputa in which the following technique was employed. The first stage had to do with the use of Ziehl's method as preliminary to exclude the possibility of an awakening of latent phthisis. These examinations gave results uniformly negative. Next came a gram stain to exclude other bacteria. In the third place the use of Unna's blue stain gave data of importance as to cytology. The specimens were received without any data of explanation, and the above procedures were carried out as a matter of routine. The records of laboratory finds are often without the accompanying clinical data. The finds in the sputa show in general streptococci in chains. The author wonders if this arrangement in chains is not responsible for or indicative of virulence. The chains are associated with monococci and diplococci, and the greater the virulence of the infection the greater the proportion of chains.—*Le Progrès Médical*

Miscellany.

Raphael Blanchard.—The founder of medical zoology or parasitology in France died suddenly on February 28 last at the age of 62. He was graduated in medicine in 1880 and was first prosector to Charles Robin. At a later period he devoted himself to parasitology, anthropology, and medical history. He was made professor of medical zoology in the University of Paris, established the Museum of Parasitology, and founded a periodical, the *Archives de parasitologie*, in 1898. In 1902 he founded the Colonial Medical Institute. With others he had founded, in 1876, the Zoological Society of France, and in 1889 with Milne-Edwards the International Zoological Congress. In 1878 he published in collaboration with Paul Bert a text-book on zoology although his medical degree was not received until two years later, in 1880.

A Spanish Apostle of Vaccination.—In *El Siglo Medico* for February 15, Dr. Albinaña Sanz, by request, publishes a biography of F. X. Balmis, a Spanish medical man of the eighteenth century, concerning whom books of reference give conflicting information. He was known as physician, surgeon, introducer of Jennerian vaccination, traveler, author, etc. The date and place of his birth have been determined as 1753 in Alicante. His father was Antonio Balmis, a surgeon, and his mother's maiden name was Berenguer. Antonio is mentioned as a master surgeon and phlebotomist. The son studied Latin and philosophy in his native town and obtained his surgical training in the Military Hospital of Alicante, where the surgeons gave lecture courses. In 1775 he entered the army medical service and while stationed at Valencia obtained his surgical degree from the local university. A copy of his diploma is given. Abandoning the army he made three trips to the Americas between 1781 and 1794. In Mexico City he was chief surgeon to the Amor de Dios Hospital, and here he also took a degree as Bachelor of Arts.

Becoming interested in botany, he made a special study of medicinal plants, some of which he brought to Spain, including the agave and begonia. He eventually took his degree as physician in the University of Toledo. Two years had been devoted to the study of chemistry and henceforth he practised as physician. As protagonist of vaccination in Spain he led a very active existence. He also branched out as author and wrote a medical history of Guatemala. He led a Government expedition to the various countries which had been colonized by Spaniards, including the Philippines, in order to popularize vaccination, and did some proselytizing among non-Spanish races. He suffered shipwreck in Peru but returned safely after three years and made his report to the King. He was then appointed Inspector General of Vaccination for Spain and her colonies. During the Napoleonic wars he opposed the Bonapartes and repaired to Mexico in the interests of vaccination. Having returned to Spain he translated Moreau's History of Vaccination. His death took place in Madrid in 1819.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 95, No. 19.
Whole No. 2531.

NEW YORK, MAY 10, 1919.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

A REVIEW OF THE EVOLUTION OF THORACIC SURGERY WITHIN THE PAST FOURTEEN YEARS.*

BY WILLY MEYER, M.D.,

NEW YORK.

ATTENDING SURGEON TO THE LENOX HILL AND POST-GRADUATE HOSPITALS.

MR. PRESIDENT AND GENTLEMEN:—I am sure the members of the Council of our Association will not consider it a breach of secrecy on my part—the secrecy which usually surrounds the deliberations of such a body—if I say a few words with reference to how it came to pass that I am standing before you to-day.

It was our intention to divide this review, and we had asked Dr. W. S. Halsted of Baltimore and Dr. Henry H. Janeway of New York each to consider one half of it. Unfortunately, the heavy work on the shoulders of these gentlemen did not permit them to accept our proposition. We then communicated with Dr. Samuel Robinson of Santa Barbara, Cal., who, as you know, up to a late date represented thoracic surgery at the Mayo Clinic. Dr. Robinson also was unable to comply with our request. In this dilemma our aggressive president, at the time of the last council meeting, divided the gordian knot and simply—I would almost say—"charged" me, although he was courteous enough to "ask" me, to take over this part of the program. As a council member I could not refuse, and so I stand before you to-day, but without any MS. With all the other work on my hands to be fulfilled, it was simply impossible to prepare notes, and so I must ask you to be satisfied with my extemporaneous efforts.

What I intend to present is a review of the evolution of thoracic surgery within the past fourteen years, or, to word it differently, "a bird's-eye view of the present status of thoracic surgery."

It is a little more than a century ago that a French physician, by the name of Itard, first described what he then, and later the medical world, called "acute pneumothorax." If one side of the thorax is wounded and the pleural cavity is opened, a collapse of the lung on the wounded side is the immediate and inevitable consequence, except previously formed adhesions between pulmonary and costal pleura prevent such a collapse. Now, what is it that happens when the thorax is opened, let us say, *e.g.* by a stab wound in an intercostal space in an affray on the street? Immediately air rushes into the pleural cavity and this normal atmospheric pressure, being greater than the normal pressure within, compresses the lung, for, as you all know, the lung, under physiologic conditions, is kept distended in the thorax by virtue of negative pressure that exists within the chest. Therefore, air rushes into the pleural cavity as soon as it is opened, thus disturbing the physiologic equilibrium. On account of its elasticity the lung contracts to a very small organ around its hilum. Air fills the space formerly occupied by the lung. This condition, with its immediate clinical pathologic consequences, is called "acute pneumothorax." It has been the stumbling block for almost a century to the proper development of the surgery of the chest. I cannot, of course, here go into details and state what will happen in a case of acute pneumothorax. I will merely say that soon after the occurrence of a unilateral acute pneumothorax and its first violent sequelæ with reference to frequency and depth of respiration, dyspnea sets in. This is principally due to the so-called "fluttering (or flapping) of the mediastinum." The latter, and with it the heart and the large blood vessels, are pushed toward the other, unopened, side, with each inspiration, on account of the increased atmospheric pressure over the exposed lung, thus reducing the space of the opposite pleural cavity. With expiration the mediastinum returns to its former position or is pushed further outward. The mechanism prevents proper inspiratory distension and the necessary expiratory collapse of the lung on the healthy side. In other words: besides the total collapse of the lung on the injured side, the normal exchange of the gases, also on the opposite side, is interfered with. Carbonic acid is retained in the blood, and this retention soon produces dyspnea and irritates the circulatory center which, in turn, increases the volume of blood in the collapsed lung. It usually does not last long before the one lung is unable to uphold the necessary function of life. The accumulation of CO_2 with its deleterious effect increases, finally ending in the patient's death.

As said before, it is this danger of an acute pneumothorax that has been the stumbling block in the development of intrathoracic surgery, and nothing else.

True enough, surgeons everywhere went ahead regardless of the risk involved. If you look through the surgical literature you will find any number of intrathoracic operations recorded, particularly resections of the chest wall for tumor, and extirpation of lobes of the lung, carried out successfully, without keeping the lungs properly inflated. But in many of these cases it was the accidental presence of adhesions or bands between the lung surfaces and chest wall that prevented a total collapse of the lung and, therewith, the appearance of the acute pneumothorax with its sequelæ; or the surgeon

*Read before the meeting of the American Association for Thoracic Surgery, Chicago, June 10, 1918.

pulled on and steadied the lung (Mueller), preventing in this way the mediastinal fluttering. Certainly, such operations speak for the courage of the surgeons.

Others, mindful of the imminent danger, made use of apparatus that promised to avoid the acute pneumothorax. Thus Quénu of Paris, in the middle of the '90's of the last century, worked out an apparatus on the lines of a diver's helmet, in which the patient's head was placed together with a sponge saturated with chloroform; and Tuffier of Paris soon after advocated the use of insufflation for the performance of operations requiring the incision of the pleura. They tested their suggestions by animal experiments which one of them at least followed up by operations on the human subject in the hospitals of Paris.

America, too, has a right to be proud of what has been accomplished in this field. I am referring to the pioneer work done by Fell with the O'Dwyer tube, and the apparatus constructed by Matas of New Orleans on the basis of the Fell-O'Dwyer tube, for artificial respiration. In 1898 Parham of New Orleans made use of Matas' apparatus in a resection of the chest wall for tumor, the first recorded thoracic operation under differential pressure in this country. His patient recovered.

However, this and similar cases remained isolated. They were interesting cases, and there it ended. More concerted action resulted when the differential pressure idea was conceived anew by F. Sauerbruch in 1903. He had been charged by his chief, the late Prof. v. Miculicz of Breslau, to find a method which would make work on the thoracic viscera as safe as that in any other cavity of the human body. As you all know, the construction of "Sauerbruch's Negative Chamber" in the following year was the result of this work. Thus, the year 1904 marks the real beginning of thoracic surgery by the transpleural route. The apparatus designed for experimental work consisted of a box with the animal's head outside and the body inside. A cut-out in one of the short sides of the rectangle served for the passage of the neck. The air pressure within was reduced, by machinery, to a degree equaling the normal physiological conditions within the chest. This having been done, transpleural incisions could be made in every intercostal space, right and left, or large flaps of the chest walls be raised: the animal continued to breathe as if nothing had happened. When conditions were reversed and the animal's head was put inside of the box and the body outside and the air pressure within the box was correspondingly increased, the same phenomena were observed. On the basis of the artificial reduction of air pressure within the chamber below the normal atmospheric pressure, 760 mm. mercury, this operative procedure was called "operation under negative pressure"; the reverse, "operation under positive pressure." The method as such was termed "operating under difference in air pressure;" or, briefly, "under differential pressure."

It was but natural that an aggressive and scientific man like the late Prof. v. Mikulicz at once tried to put the method into practical use. It took but a few months before the Breslau Clinic was prepared to operate on human beings within a chamber of about 500 cubic feet contents, constructed of iron and glass. The results were published briefly by Sauerbruch in 1904 and created a stir in the surgical world. Whoever could went to Breslau to see what they were doing there. I may mention that I personally was fortunate enough in 1904 to see Sauerbruch do a resection of the esophagus in a dog in the negative chamber, an account of which I briefly laid down in a paper read before the New York Surgical Society in the same year. Soon the chamber was introduced in many capitals of Europe. At our hospital we thought of importing one, but Sauerbruch himself advised me not to do it, because the chamber, expensive as it was, had not been sufficiently developed. A few years went by.

In 1908, just ten years ago, we assembled here in Chicago for the meeting of the American Medical Association. One of the topics for discussion before the Surgical Section was: "Intrathoracic Surgery." Sauerbruch himself had come over as the guest of the Surgical Section. There were present also Professor Schafer of London, and among others the two pioneers in thoracic surgery from New York, Dr. H. H. Janeway and Dr. Nathan W. Green, the latter our present secretary. I had the honor to open the discussion. It was a day never to be forgotten, as we all stood there on the platform, trying to bring out the advantages of negative and positive pressure.

As you will perhaps remember, at that time there was quite a divergence of opinion as to which of the two methods was the better for the patient. A physiologic society of renown had declared itself in favor of negative pressure, for the simple reason that it was more physiologic. So we in New York decided to try to speedily solve this question that was then agitating the surgical world, by building a chamber, on Sauerbruch's principles, which would allow of a quick change from one pressure to the other, without the necessity of moving patient, instruments, and everything else. Up to that time an operation begun under negative pressure had to be finished under negative pressure, and if it had been commenced under positive pressure, it had to be finished under positive pressure. You must permit me to dwell at some length on this important point because it alone was the guiding star which prompted us to construct the chamber which is now at the Thoracic Pavilion of the Lenox Hill Hospital New York City. The apparatus was built with the help of my brother, Julius Meyer, a consulting engineer, whom I had succeeded in interesting in this subject. It permits of changing the pressure from negative to positive and vice versa with the greatest ease, and without changing the position of the patient. But we never made any experiments on the sick human being. Why not? Because it was soon shown that positive pressure in the sick human being was in its effect equal to negative pressure provided the operation did not last too long, and means were provided for eliminating the effect of the continuous positive pressure on the right ventricle of the heart.

Further developments in methods of differential pressure followed in quick succession at that time. First appeared the so-called "mask method," represented by a very ingenious, but complicated apparatus of Brat and Schmieden, which was soon followed by that excellent device of Tiegel. In both stream of oxygen, supplied by tanks, carries the

anesthetic to the lung. The pressure in the lung is maintained by making the patient expire either against a strong valve (Schmieden) or a water column (Tiegel). The latter author proved that *"one millimeter"* of pressure of pure oxygen is sufficient, after the chest has been opened, to maintain life and avoid the appearance of the symptoms of acute pneumothorax. His apparatus is widely used in European clinics.

Almost in the same year, our honored President, Dr. S. J. Meltzer, came out with the fruit of his work, done in conjunction with ours, his new world-renowned and generally accepted method of intratracheal insufflation.

Standing here before you, at the first gathering of the American Association for Thoracic Surgery, and having the pleasure of seeing Dr. Meltzer preside, I trust I may be permitted to touch upon a personal matter. Dr. Meltzer mentioned in his inaugural address to-day that, in the discussion following his presentation of the matter before the New York Academy of Medicine his views were opposed, in the interest of conservatism in surgery, by three surgeons.

Inasmuch as I was one of the three, I would, in explanation, here state that I had been asked by the then president of the Academy, to participate in a "symposium on thoracic surgery." So I was obliged to write a paper, at the time when we were just erecting the negative chamber at our hospital in the thoracic pavilion then under construction. At that very time it was reported to me that Dr. Meltzer had stated that in his opinion thoracic operations on human beings could be done in a much simpler way than by working in the negative chamber; that a catheter in the trachea and bellows was all that was needed. He, a physiologist who had always done scientific surgical work on animals, certainly found these paraphernalia sufficient. I personally had meanwhile seen and learned to admire the absolutely reliable working of the mechanism of the chamber, without the possibility of doing the slightest harm to the patient. In my remarks on that memorable evening at the New York Academy of Medicine, I therefore tried to impress upon my colleagues the great importance of absolute safety. I stated that no matter what apparatus we might use in thoracic surgery on the usually much run down human being, it must be so constructed that it could not possibly do harm to the patient. I further stated that I would be only too happy to personally use intratracheal insufflation as soon as it was sufficiently perfected to render it safe under all conditions. As outward proof of the sincerity of this statement, we set aside a large space, next to the negative chamber and the positive pressure box in our pavilion, for thoracic operations done with the help of differential pressure apparatus other than the two just mentioned. I made this same explanation to our honored President publicly before, at the Annual Dinner of the American Gastro-Enterological Association in Baltimore, a few years ago, and I wish to bring this out again today, also in the light of a controversy Dr. Meltzer and I had in one of the Medical Journals of New York at that time. I want to lay stress upon the statement that I for my part have never been in opposition, but rather in full accord with his splendid discovery. The fact is that I personally have been among the very first in New York to use intratracheal insufflation in thoracic operations upon the human subject.

As a further method for the production of differential pressure must be mentioned pharyngeal insufflation. It, too, bids fair to occupy an important place in thoracic operations.

Thus we now possess four different useful methods for the purpose of properly maintaining the "physiologic" working of the heart and lungs during our thoracic work, viz., (1) the negative chamber and positive pressure box, (2) the mask apparatus, (3) intratracheal insufflation and (4) pharyngeal insufflation.

But, please bear in mind, that they all mean the application of either negative or positive pressure, nothing else, and, that only the use of the differential pressure method,—no matter what the apparatus—enables the surgeon to work in the thorax with the same equanimity and tranquillity as in the abdomen.

I have purposely dwelt at length—perhaps too much so—on the development and importance of the use of differential air pressure in thoracic operations; for, to my mind, it is on the thorough understanding and general acceptance of this principle that the further evolution of this youngest and last child of operative surgery largely depends. There are still a good many surgeons who claim that differential pressure is absolutely superfluous for this kind of work, that we can open the thorax just as safely as we do the abdomen, without any apparatus. But I say once more what I stated at a previous discussion: take 100 patients, with no matter what kind of intrathoracic disease, and divide the pleura without apparatus,—I mean the "virgin" costal pleura, a pleura that is nowhere adherent to the pulmonary pleura,—and compare the resulting mortality from operation on these 100 patients with that of another 100, in whom differential pressure by means of any one of the four methods just mentioned was used. I am sure there will be a great difference. The surgeons who did not use any apparatus will have a far greater mortality than those who did use apparatus. I, therefore, consider it wrong at this time, when we have at last found the means to overcome the acute pneumothorax—the stumbling block to the safe evolution of thoracic surgery for almost a hundred years,—I say, I consider it wrong, now, to simply dismiss the question of the dangers of the acute pneumothorax and throw overboard, as superfluous, all the work of the last two decades; I consider it wrong for any surgeon to-day to refuse to accord a prominent place to differential pressure—be it with chamber, box, mask apparatus, intratracheal insufflation or pharyngeal insufflation—in the surgery of the chest. I also consider it wrong to draw sweeping conclusions from the experience, gained from the treatment of war-wounds of the chest, where conditions are altogether different than ordinarily. Differential pressure alone has made thoracic work as safe as abdominal work; it gives us the right, in doubtful cases, to advise exploratory thoracotomy with almost the same assurance as we advise abdominal incision.

Then, standing on this safe basis of having accepted unconditionally the necessity of maintaining artificially the physiologic difference in pressure

over the lung, after the chest has been incised, permit me to go with you as briefly as I possibly can, over the present status of the surgery of the various organs within the chest, as our President has charged me to-day.

What do we have to deal with anatomically? The chest wall, the pleura, the diaphragm, the anterior and posterior mediastinum, the latter including the esophagus, the heart with the large blood vessels (aorta and pulmonary artery) the lungs and bronchi.

1. *Chest Wall.*—Naturally, I will not speak of the acute and chronic inflammation of the tissues that make up the chest wall, but I should mention the traumatisms that occur in consequence of accidental fracture of the ribs, including the wounds received in battle. However, as that also refers to the lung in particular, I can deal with it later on.

With reference to the chest wall I will here only mention tumors involving this area. I am sure that a number of the surgeons present here have done resection of the chest wall for this cause, for carcinoma, primary endothelioma and secondary epithelioma, *e.g.* recurrence after extirpation of a cancer of the breast, or for sarcoma, in this locality usually involving a number of ribs and intercostal spaces; in brief, all tumors occurring in the region known as the chest wall. With the help of any of the methods for the establishment of differential pressure, we now safely enter the pleural cavity, make out conditions with the hand introduced, and then cut out a window of any desired size, making sure that we have operated within healthy tissue. If we then close up the wound air-tight by carefully placed sutures, having blown up the lung, or—better still, as I personally insist upon—using drainage in a way which will allow air-tight closure, with the lung distended, and at the same time drain the pleural cavity, we shall see the mortality of this very simple surgical procedure reduced almost to a minimum.

2. *Pleura.*—The only type of pleural disease that interests us here is empyema. Inasmuch as a number of papers on this subject are announced for the afternoon, I will not go into this topic very deeply now, but would like to make a few remarks reflecting my personal views on what I have seen in practice and read in the literature.

The main difficulty in curing empyema promptly, *i.e.* to make the lung expand so that the pulmonary pleura will again come into contact with the costal pleura, has been that the fluid compressing it has been allowed to remain too long before evacuation. Firm adhesions form during this period, bind down the lung in many places, often also, in addition, a much thickened, chronically inflamed pulmonal pleura acts like a tight, broad envelope; not seldom infiltrating intrapulmonary inflammatory foci will further resist the desired expansion of the elastic lung tissue.

To avoid a complicated convalescence in empyema, Dr. Howard Lilienthal of New York has proposed the so-called "major thoracotomy," which opens the thoracic cavity by a long, intercostal incision, straight or curved, with or without division of a number of ribs posteriorly, and at the same time permits investigation of the entire pleural cavity from top to bottom.

The present war has tremendously assisted in the evolution of the treatment of empyema. In all our many cantonment hospitals, in all the hospitals at the front and, not the least, in the war hospitals at home, particularly the Rockefeller War Demonstration Hospital of New York City, this subject has been given much study. We are looking forward with keen interest to the presentation of the subject by representatives of the latter hospital at this afternoon's session. It seems plausible to conclude that, if we take pains to allow the lung to expand as early as possible and, further, take care that all the fluid in the pleural cavity is thoroughly and continuously evacuated, a rapidly increasing number of patients will not only be spared the annoyance of weeks and months of sickness, but will likely be cured in a comparatively short time. If we further employ a gentle procedure for permanent drainage, (Kenyon) which at the same time permits of disinfecting the cavity with Dakin's solution or dichloramine-T, and thereby dissolving or breaking into small pieces the deposited masses of coagulated fibrin, it is to be hoped that we shall have won. (See *Annals of Surgery*, August, 1918, Author, "Postoperative Thoracic Drainage.")

3. *Diaphragm.*—I will not here consider the so-called "diaphragmatic eventration," the condition, when, in consequence of the paralysis of one side of the diaphragm, the contents of the abdomen have risen away up, but the diaphragm as such is complete. I will just say a word on the real cases of diaphragmatic hernia, when stomach with omentum and intestine have entered the thoracic cavity through a real hole, a hernial aperture in the diaphragm.

At the meeting of the American Surgical Association just held in Cincinnati, Dr. Downes of New York read an interesting article on a case of diaphragmatic hernia. The definite diagnosis of the existence of such a condition is naturally our first task. Formerly this was very difficult with the help of the ordinary clinical methods of examination at our disposal. To-day, we can prove the existence of such a hernia beyond the shadow of a doubt. The *x*-rays, and particularly a stereoscopic radiograph have clearly brought it to our eyes. In the case just cited, referring to a boy of nine years, Dr. Le Wald of New York, the radiographist at St. Luke's Hospital, put the boy, with a bismuth meal in his stomach, on his head. Naturally, everything that was first in the abdominal portion of the stomach, passed now into the supra-diaphragmatic section. The large air bubbles seen in the picture of the patient in the erect posture above the diaphragm, became replaced by the bismuth in the reverse posture. Certainly, a splendid demonstration. In this particular case, an abdominal gastroenterostomy cured the patient. This will not be possible in every case of this type. Sometimes a radical operation may be required. The surgeon will then have to add thoracotomy to the abdominal section, loosening the stomach all around and reducing it to its normal position under the guidance of his eyes, with one hand in the thorax, the other in the abdomen. If the rent in the diaphragm cannot be closed by suture, a fascia graft, best of the fascia lata from the thigh, has to be transplanted on it and carefully sutured in place.

In passing I will mention "transthoracic laparotomy," *i.e.* reaching the organs in the vault of

the diaphragm through the thoracic cavity and an incision of the diaphragm. At the present time this route is especially resorted to in cases of acute injury.

I am firmly convinced that in course of time many troubles involving the anatomy of the thorax which now are still within the absolute domain of internal medicine, will gradually become borderland cases. Referring to the diaphragm I would mention persistent singultus, the intractable hiccough, as being amenable to surgical treatment. If in a given case everything that medicine offers has been tried without avail and the patient seems doomed by this reflex spasm, an operation may still bring relief. We know that in persistent hiccough following an abdominal operation, the impulse is carried to the phrenic nerve of the side on which the operation was done. In such a case the phrenic nerve could be exposed at the neck, crushed, but not cut, that is, temporarily put out of commission, a procedure proposed by Henschen of Zürich for the temporary inhibition of the working of the phrenic nerve, in place of the permanent elimination of its action by resection.

4. *Anterior Mediastinum.*—Acute suppurations of the sternum, producing accumulation of pus within the anterior mediastinum have been often attacked before the modern era of thoracic surgery. The sternum was perforated by drill or otherwise and the cavity was drained.

A few words might be said on the surgical treatment of tumors of the anterior mediastinum. Whoever has had a patient with advanced tumor of the anterior mediastinum will agree, that these patients lead a life not worth living. The result of the compression of the superior and inferior vena cava and of important nerve trunks, makes their existence miserable. Formerly very little could be done for these patients. To-day, too, a radical operation is usually out of question. By the time when the patient reaches the surgeon, the tumor which is usually malignant, so completely involves the important structures, that it cannot be dissected out. All that can be done surgically is a decompression of the thorax, same as we perform a decompression of the skull in the case of an inoperable brain tumor. Friedrich proposes making the transverse split of the sternum under differential pressure, from an intercostal space of the one side to that of the other, while Sauerbruch advises going ahead under local anesthesia, if possible, dividing the sternum longitudinally from the jugulum down, and switching off side-ways into the third right interspace. With sharp retractors in place, the two halves can be sufficiently separated to permit of careful investigation. In case of malignancy, the divided sternum will relieve the compression; and subsequent treatment with radium and *x*-rays will perhaps bring better results than if the bone were still complete.

A retrosternal thyroid or a tumor of the thymus which cannot be reached from the neck, can, of course, be removed by this route.

5. *Heart and Large Blood Vessels.*—I should much like to talk at length on the surgery of the heart, aorta and pulmonary artery, but all that is still in part "music of the future." You know of the many successful attempts that have been made in closing wounds of the heart by suture, and extracting foreign bodies, broken needles, bullets, etc. It will forever remain Rehn's great merit to have been among the first to boldly attack the heart and the first to successfully close by suture a stab wound of the heart muscle.

I should further greatly like to speak at length of another bold attack made on basis of animal experimentation by a colleague when he was already of advanced age, Professor Trendelenburg, who tried to ascertain whether it would be possible to still help patients with pulmonary embolism by operation. Certainly, the majority of these unfortunates die within a few hours after the catastrophe has set in. You all know of Trendelenburg's operation,—he exposes pulmonary artery, temporarily compresses it in conjunction with the aorta, by means of an elastic tube, makes a small incision into the vessel and, with a special forceps, extracts the thrombus from the embolized artery. The operation has been done on the human subject quite a number of times abroad. One patient lived four days and then pneumonia took him away. I have no doubt that with the application of differential pressure these operations will lose a great deal of their severity. I have tried the operation on the dog in our experimental work at the Rockefeller Institute, incising the pulmonary artery, entering it with forceps and then closing it by suture, and could show him with the wound healed before the New York Surgical Society. According to Trendelenburg all dogs thus operated upon, died at the Leipzig Clinic experiments. Why? I believe, because they did not use differential pressure. We employed it and the dog recovered. So far I have not performed the operation on the human subject. We can, of course, not do it without the permission of the family and when this has been obtained, it will frequently be too late. To ask such permission *before* the primary operation is not well feasible.

A few words on the treatment of thoracic aneurysm. Much work has been done in this chapter. You know of the most interesting experiments of compressing the vessel with metallic bands or with strips of fascia as proposed by William S. Halsted of Baltimore. To-day the operation of choice is "wiring" of the aneurysm. William T. Lusk of New York, has given this operation quite some study and has greatly improved its details. He exhibited a good deal of patience and perseverance in finding a comparatively safe method of introducing many feet of carefully prepared wire of a special alloy into these sacs. The wire will touch the aneurysmatic wall in many places. With the help of electrolysis an eschar is then produced at the place of contact, which invites a deposit of fibrin over the inner surface of the sac, strengthening its wall. With this method some remarkable results have been obtained. One of Lusk's patients, a workingman, returned to his work of cutting stones, another one could carry heavy weights on his shoulders. One of my patients who had been bed-ridden for months, coughing blood, and whom others considered a consumptive, was again able to climb four or five flights of stairs for many months.

Wiring does not mean a real cure, inasmuch as in almost 100 per cent. of the cases the trouble is dependent on a syphylitic infection. The latter needs most careful additional treatment. Particular care, it seems, must be taken with the use of larger doses of salvarsan. Gummatous deposits in

the wall of the sac have been repeatedly observed; if too rapidly absorbed, they, in turn, may give rise to perforation. I have personally seen this in an early case of this type.

The treatment of some type of valvular disease of the heart, by operation too, is still "music of the future"; but it will eventually come under the surgeon's care in special cases. Carrel, with his wonderful experimental work and the late Jeger of Breslau have begun to pave the way in this direction. It is not utopian, to imagine that the surgeon's knife may in the future in some way or other reach the place of the trouble and bring help, *e.g.* in a case of stenosis of the bicuspis or tricuspis, and that thus also this type of heart disease may some day become borderland. The treatment of almost every disease within the chest will likely become borderland in course of time. For almost all the specialties join hands in the chest.

In conjunction with this last statement I would venture here to answer a question of our honored President in passing, which he once put to me in private. He asked: Why call this Association "The American Association for Thoracic Surgery?" It should at least be called "The American Association for Thoracic Medicine and Surgery." I answered that the thorax had been the domain of the internists as long as medicine exists. Thoracic surgery could not come forward on account of the acute pneumothorax, that stumbling block. Now, at last, also this cavity of the body had been safely opened to surgery. Real advance to cure many affections, hitherto inaccessible, could now be made. We surgeons wanted the internists, the anatomists and physiologists, we wanted the specialists for tuberculosis, for laryngology, the neurologists, we wanted, in fact, almost every specialty to join hands with us in the thorax. Therefore, I would plead: Let us continue to call this young gathering of mutually interested colleagues "The American Association for Thoracic Surgery."

But I must leave the heart and large blood vessels, much as I should like to talk further on the subject and its future possibilities,—and pass over to

The Posterior Mediastinum. This being correlated with the surgery of the œsophagus, I will discuss this subject later in connection with the œsophagus and first turn to

6. *The Lungs and Bronchi.*—To discuss fully the present status of bronchial and lung surgery would take several hours. With the limited time at my disposal, I shall be able to only briefly touch upon the subject.

The treatment of *acute* inflammation of the lung, pneumonia, will probably forever remain in the hands of the internist. Still, significant onslaughts have been made to get other specialties to assist him in his big task. I think here not only of serology; I would mention our President's personal work, his artificial production of pneumonia in dogs, and his hope of perhaps finding a way to help these patients with intratracheal insufflation, I would further mention the desire of one of our foremost bronchoscopists of New York, once expressed to me in private, when I had to operate on a very sad case of early bronchiectasis, following tonsillectomy, in a young lady. He wished to have the chance, in such a case, as soon as sign of pneumonia appeared, to introduce the bronchoscope and try, by means of suction or otherwise, to help these patients. I am mentioning these points merely to show how the specialists join hands when it comes to the treatment of the organs within the thorax. But up to date, acute pneumonia, in the early stages, with or without pleurisy, belongs to the internist.

Still, there is one type of acute inflammation of the lung that clearly belongs to the surgeon, and that is acute septic embolic pneumonia; when suddenly in a patient, who, for example, had been subject to frequent attacks of phlebitis of the leg, due to varicose veins, a small infected thrombus is loosened and driven into the pulmonary artery as an embolus, usually into the central portion of the same. These patients are immediately deathly sick, temperature 105-106°, rapid pulse, general malaise, etc. The very high polynuclear blood count will show the beginning gangrene. In former years, these patients were left without treatment and frequently they died. To-day, as soon as the diagnosis has been made on basis of the history, clinical examination, the *x*-ray and other methods at our disposal, it is our duty to suggest to the patient if he is well enough, otherwise to his family, that he permit us to cut down upon the lung to palpate it and, with a special stitch, to attach the infiltrated region to the chest wall, if there be no adhesions, and incise the focus either at the same sitting, or a few days later at a second stage. This type of pneumonia belongs to surgery.

Let me in passing say that the diagnosis of pathologic conditions within the chest has tremendously advanced in the course of the last years, and this is attributable principally to the advent of the stereoscopic *x*-ray pictures, as also to peroral endoscopic methods of examination.

In the discussion of *chronic* inflammations I shall omit that of syphilis of the lung. The disease, of course, exists, and if diagnosed, must first be treated by an antisyphilitic régime. I have lately seen such a case in consultation, having been called in to decide the necessity of surgical intervention. We helped the patient by means of persistent antisyphilitic treatment, without operation. After months of severe and tormenting illness, he is now almost well.

I say, omitting syphilis, we now have to consider two large classes of suppurating lung disease; a *non*-specific and a specific one, calling specific here "tuberculous." The non-specific is represented by bronchiectasis, and the specific by tuberculosis.

Whoever has studied the subject of bronchiectasis, will never leave it again. It is so fascinating. I cannot here dwell at length on the diagnosis. All I would say is, that a patient who shows all the symptoms of advanced tuberculosis, cough, sputum, not infrequently mixed with blood, night sweats, fever, clubbed fingers and toes, but in whom tubercle bacilli have never been found, is in over 90 per cent. of the cases a bronchiectatic. The clinical signs often are extremely scarce. Percussion and auscultation yield very meagre results. If one then analyzes the sputum [a 24 hours' collection] the well-known three layers will be found. The *x*-ray will sometimes support the diagnosis; frequently it is of little assistance. But the bronchoscope is of the greatest help in rendering the diagnosis and localizing the source of the suppurative process.

Let me say right here, Mr. President and gentlemen, it is my firm belief that within a few years we shall have in every well-conducted hospital a reliable bronchoscopist and esophagoscopist, or if not every hospital should create this special position, one and the same specialist can serve a number of hospitals. But he must be a man of whom we know that he will not do harm in introducing the instruments, a man who is able to properly interpret what he sees, who, with the proper aspiration and irrigating apparatus, takes care that first all the secretion of the bronchial tree of the affected lung is aspirated, so that he is able to diagnose from which bronchus and from which branch of the bronchus the pus is oozing. He will then be able to tell us whether one or more lobes are affected. We must be sure of him that he does not make a guess, but states what he has definitely seen. Therefore, bronchoscopy is of such vital importance in making a refined diagnosis in suppurating lung disease.

Bronchiectasis is a disease *originally* of the bronchi, secondarily involving the lung tissue, whereas tuberculosis in the majority of cases is *originally* a disease of the pulmonary parenchyma, secondarily involving the bronchi. Let us keep that clearly in mind. A few years ago I was severely criticised by a well-known New York colleague, who was writing on bronchiectasis because I had begun an article of mine on this subject with the words: "Bronchiectasis is a disease of the bronchial tree, not of the pulmonary parenchyma." In part he was right in his criticism because I had omitted the word "originally." Let me repeat, therefore, and let us bear in mind, that bronchiectasis is *originally*, that means anatomically, a disease of the bronchial tree. But being an inflammatory process, the pulmonary parenchyma will, of course, always become very soon, often simultaneously similarly involved.

With reference to the etiology, bronchiectasis is frequently consecutive to pneumonia, the latter developing into this unfortunate condition. It is furthermore, often produced by aspiration, of solid bodies as well as of liquids. This aspiration very frequently happens during tonsillectomy. We all have seen these sad cases: a young man or woman, 19-20 years of age, tonsillectomy; blood aspiration; suppurative disease of the lung; death. To-day the men who work in that specialty are in duty bound to use methods which will prevent such a result.

In advanced cases of bronchiectasis cavities are found in the bronchial system and adjacent lung tissue, which make the section cut of the lung appear like a honey comb. Within the walls of these cavities lime salts are frequently deposited. They become hard; the entering bronchus constricts in the sequence of ulcerating processes, and, within, the secretion has the chance to decompose. The formation of real cess pools in the lung is the result. The patients often do not cough up, but in the real sense of the word, on coughing, "vomit" the contents in their lung or lungs, so that the muco-pus runs out of their mouth and nostrils simultaneously. It may be of such foul odor, that institutions are obliged to isolate these cases. I once operated upon a girl of 19 years who had been in solitary confinement for this reason for more than eight months.

But what is to be done? Just a few words. As everywhere else, we can here carry out either conservative or radical surgical teatment. The latter is always operative. Up to a short time ago, it was believed that only operation could bring relief. However, what is to be done if both sides, or all three lobes of the right lung are affected? One year ago a young girl came under my care, sent by a colleague from the Golden Gate, who had had repeated attacks of what seemed to be bronchiectasis, subsequent to tonsillectomy. On her way across the continent she was so sick that her mother thought she would die. The case was carefully analyzed at our hospital. The bronchoscopist, Dr. Yankauer, found the entire right lung diseased. Radical operation, pneumectomy, the extirpation of the entire right lung would have meant a very serious interference in the delicate girl, and the mother wished to try and save the life of her child above everything. We agreed to do what was first, several years ago, tried in France, though in different fashion, later in Germany, viz., to irrigate the bronchial tree with antiseptic solutions, with the patient always in a slight Trendelenburg posture, first under general anesthesia, later on under local anesthesia, making use of a special tube, ingeniously constructed by Dr. Yankauer. The bronchial system of the right lung was systematically irrigated with Lugol's solution of gradually increasing strength. To-day the patient is apparently well, she is back in school, having gained almost 25 pounds.

If a solid body has been aspirated into the bronchial tree, causing suppuration, it becomes the province of the trained bronchoscopist to find and extract it, and therewith, in many instances, arrest and cure the disease. In some cases additional operative treatment is indicated.

Conservative operative treatment in bronchiectasis has been particularly urged by men who "have been in it," men who have seen adverse results following more radical work. One of these was the late Prof. Friedrich of Königsberg, formerly of the University of Marburg, Germany. When he visited us here in 1909, he urged me, not to go ahead too quickly in attempting lobectomy of which I had just then seen such splendid results in the dog. He said: "If you go ahead too radically, you may easily give thoracic surgery on human beings a black eye." With this advice of an experienced man in mind, I faithfully traveled through the entire line of more conservative surgical procedures, excepting artificial pneumothorax, for it was seen by Volhard in an advanced case, that after this had been done faithfully *for years*, with apparent success, the disease appeared unabated when the gas insufflation was discontinued.

Volhard's case was an advanced one. To-day I would certainly advise producing an artifical pneumothorax in the early stage of suppurating lung affection, following the aspiration of blood. Tewksbury's remarkable statistics (*Jour. Am. Med. Ass'n*, Feb. 2, 1918) speak volumes in this direction. In view of the results obtained by him, this method seems to be the operation of choice. Some of his cases may have represented lung abscess in the early stage. So far a definite line of differentiation between lung abscess and bronchiectasis in their incipiency, has not been drawn as far as diagnosis is concerned.

For the surgery of advanced cases of bronchiec-

tasis, I personally have tried pneumotomy, as well as all the conservative operative methods known for carnifying and compressing the lung, such as ligation of branches of the pulmonary artery, followed by thoracoplasty; I have also done a wedge-shaped resection of the lung for the same trouble and performed lobectomy. I have seen cure or improvement in not too far advanced cases by means of more conservative methods, and believe they can be conscientiously practiced in some patients. But in advanced cases there is only one method that can cure, and that is lobectomy. My first attempt with this operation in the human being was made in 1909, in a boy of nine years. When stitching up the crushed bronchus, the patient quite suddenly died, probably as a result of vagus reflex. We have gradually increased our knowledge as to the best way of doing lobectomy in America, particularly through the efforts of Howard Lilienthal of New York and Samuel Robinson of Santa Barbara, Cal., formerly of the Mayo Clinic. We have learned how best to treat the bronchial stump. Very much, naturally, has still to be learned in order to make lobectomy a less dangerous operation. Personally I believe that arranging for a wide access to the lung and amputating the diseased lobe, as we do for example, a kidney in nephrectomy, will probably yield best results. As a matter of necessity, I shall have to skip details in this cursory review.

One word yet about the surgical treatment of advanced pulmonary tuberculosis. Our President, in his inaugural address, has just proposed, "that large intercostal incisions should be made for the treatment of pulmonary tuberculosis. If the procedure does not interfere with the respiration, that is, if it proves that the mediastinum sufficiently protects the respiratory activities of the lung in the opposite cavity, steps should be taken to keep the incision open for a longer period."

I am not ready to discuss his proposition at this moment.

However, if we inject and reinject air instead of nitrogen into the pleural cavity we have, it seems to me, what Dr. Meltzer wants, in part at least. Incisions in the intercostal spaces will, I fear, have the tendency to rapidly contract by granulation. They will further expose the pleural cavity and surface of the lung only to the eventual healing effect of the atmospheric air (oxygen), but not the intrapulmonary foci.

If we can inject and re-inject nitrogen or air into the pleural sac the lung will be and remains compressed and can then reap the benefit of long rest and compression. But what about patients with advanced pulmonary tuberculosis in whom the pulmonary pleura is firmly attached to the costal and there are one or more suppurating cavities in one lung? At the present time these patients will die if a proper operation is not performed. Here again, medicine and surgery to-day join hands. Advanced pulmonary tuberculosis has become a borderland disease. Fruitful work in this connection has been done, principally, by Friedrich, Sauerbruch and Wilms. The result aimed at is most thorough compression with every means we know. The diseased lung can be thoroughly compressed in the following manner: resection of a sufficient number of ribs, tenth to second or to first inclusive, so called "extrathoracic thorocoplasty," if necessary, also sometimes of the inner portion of the clavicle under regional plus local novocaine anesthesia; then by phrenicotomy for paralyzing the respective half of the diaphragm, which latter by the intraabdominal pressure will then gradually ascend 3 to 4 ribs and permanently stay there, finally also by Tuffier's operation which first loosens and then compresses the apex, with a plomb that remains permanently *in situ* (apicolysis). The walls of a round cavity, kept before permanently distended by the pleural adhesions, will thus drop together to one that has the appearance of a narrow slit. Fever and night sweats often disappear, the sputum becomes free from bacilli and greatly reduced in quantity or cease entirely, the lung itself becomes carnified, due to the pronounced connective tissue formation on basis of the chronic hyperemia, dependent on the collapse.

It has been shown that at least two thirds of these otherwise absolutely lost patients can still be improved or cured.

Tumors of the lung are treated just the same as an advanced suppuration. Lobectomy can bring a cure in cases that come to operation early.

7. *Posterior Mediastinum.*—The principal disease that interests us under this heading is cancer of the œsophagus. Lack of time does not permit me to even briefly consider the treatment of acute mediastinitis, foreign bodies in the œsophagus diverticula, cardiospasm, benign cicatrical strictures, etc., etc.

Cancer of the œsophagus is the most benign of all carcinomas in our system. It is more benign than cancer of the colon, at least in so far as its pathologic dignity is concerned. One of the reasons for this is that the greater percentage of these tumors are of the squamous-celled type, the kind of tumor, we so often meet with on the face and otherwise on the surface of the body (epithelioma), and which in the latter location is treated with the greatest benefit by radium, a fact known to you all.

Thoroughly aware that conditions accompanying and arising from the resection of the œsophagus are complicated and still mean a great risk to the patient, every thinking surgeon interested in this chapter was ready and only too happy to have the effect of radium thoroughly tested in these cases. We hailed it with intense satisfaction when such a trustworthy, reliable colleague as Dr. H. H. Janeway took this matter up at the Memorial Hospital, New York, and we were grateful when he consented to give us a preliminary report on the result of his experience at the March meeting of the New York Society for Thoracic Surgery, three months ago. For, it stands to reason that if radium could cure cancer of the œsophagus, we should not have to operate. Dr. Janeway then reported 35 cases thus treated, of which some were much improved, but only one was cured, and in this one a piece for microscopic examination could not be excised, to prove that it really was an epithelioma.

Mr. President and Gentlemen: Although Dr. Janeway's preliminary communication is, of course, not the final answer to this question, it is my personal belief that the treatment of cancer of the œsophagus will revert to operative surgery. If radium cannot cure these cases, surgery must learn to do it, and

we are fully justified in going ahead and trying further, in view of the fact that medicinal treatment has a mortality of 100 per cent. At the present moment the radical operation for cancer of the œsophagus is clearly indicated in suitable cases. What we still lack mostly is the ability to render an early diagnosis. Attempts have been made by colleagues abroad, as also by Crump and Stewart of New York, to establish such an early diagnosis with the help of a special method for *x*-ray examination. Special sounds have also been constructed to find a beginning constriction on retracting the instrument.

But neither of these methods has as yet been entirely successful. Still, I am convinced that with further unremitting efforts the early diagnosis and, therewith, early operation will become a reality. Meanwhile, in these years of trial and observation we have evolved a satisfactory method of operation and of after-treatment. Every operator will agree that the surgery as such, required in these cases, is not extraordinary, nor technically particularly difficult.

To-day, after obtaining a wide access, as furnished by the curved incision (Torek), we expose and resect the tumor in the posterior mediastinum, invert and firmly close the distal end of the œsophagus, then extract the proximal portion and transplant it extrathoracically under the skin of the chest. A rubber tube connects the upper opening of the œsophagus with a watertight gastrostomy-fistula. Through it the patient swallows any kind of food as was proven by Perthes, and as Dr. Torek's brilliant case, the only one on record of a cure after resection of the thoracic portion of the œsophagus, so beautifully shows.

If gastrostomy is done by means of the Beck-Jianu method, that is to say, if, with gastrostomy, an inferior œsophagoplasty is incidentally performed, we may, in special cases, hope to at once reconstruct the entire œsophagus extra-thoracically. Certain it is, that operative surgery can to-day make a new œsophagus. There are prospects for further improvements.

The greatest danger in the operative treatment of cancer of the œsophagus is found in a resection behind the aortic arch, the place where the pneumogastrics and the sympathetic nervous system join hands and send their branches to heart and lungs. This place represents the "Achilles tendon of life." The tumors here are often very firmly attached; frequently they have perforated the thin œsophageal wall and grown diffusely into the posterior mediastinum, involving the vena azygos. This is particularly so after prolonged sounding, done in the attempt at widening the stricture. Such preliminary treatment, which is always absolutely contraindicated from the standpoint of operative surgery, is the worst enemy of the surgeon. It often renders the case inoperable.

Naturally, there are limits to radical operation. We are often confronted with cases which simply are beyond the reach of surgery. But do we ever think of excising a cancer of the pylorus that has grown into the liver and into the pancreas? Thus there are also to be found tumors of the œsophagus which simply cannot be excised. Let us leave these alone. We shall have done our duty if we have ascertained, with the help of exploratory thoracotomy, whether a tumor is operable or not. Certainly those that are situated between the aortic arch and the diaphragm are the most favorable for operation, and those adherent behind the aortic arch, the most unfavorable. I am sure, that, if we get the cases early, many a patient's life will be saved and many more will derive benefit from surgery, provided we make air-tight post-operative thoracic drainage a *conditio sine qua non.* Inasmuch as we are going to continue this question in the afternoon, I shall not dwell on it further now.

What has been said about cancer of the œsophagus, holds good for cancer of the cardia. There are many surgeons who would not touch a patient thus afflicted. But how shall we ever make progress in this chapter of operative surgery, if we do not touch it?

I was greatly pleased to hear our President make a similar remark at the last meeting of the New York Society for Thoracic Surgery, when the present status of the treatment of cancer of the œsophagus was the topic of the evening.

These cases, if left alone, die a most terrible death. Quite a number can be diagnosed at a time when operation can still bring help. The surgeon's hand if introduced into the vault of the diaphragm at the time of the gastrostomy operation will make out mobility, glandular infiltration, etc., in one word, the operability or inoperability of the tumor. We have learned also, how to deal with these cases technically. Already five cases of successful operation for cancer of the cardia are on record. I believe that help could be rendered to a great many more patients if we arranged our abdominal operation for an intended gastrostomy in such a way that the thoracic operation could be added at the same time, and particularly, if we practiced Ach's method of inversion with extraction of the œsophagus, pulling it temporarily out of the mouth, and then reinverting it under the skin, extrathoracically. This would mean a one-stage operation, which seems to be the best for the patient, provided his condition permits it. Often, however, operation in two or three stages will be indicated.

I must close, gentlemen. As our President has said: the outlook for thoracic surgery is wonderful. What particularly is to be emphasized is, that the thorax to-day is not only open to surgery, but that it is "*safely*" open to it. Let us further emphasize the fact that to-day there is not one angle or corner in our entire system that the surgeon's knife cannot reach. The thorax was the last fortress to be attacked, and it has been laid open safely to the surgeon's knife by differential pressure methods.

I am sure that any one who has started work in intrathoracic surgery will never give it up. It is of such engrossing interest. However, in order to be successful, he should provide himself with proper apparatus and practise post-operative safe drainage.

It is to be hoped, that a constantly increasing number of men will enter upon this fascinating work. Many minds working in the same direction will get quicker results, for the benefit of suffering humanity.

700 Madison Avenue.

WHAT SHALL BE DONE WITH THE OPEN CHRONIC SUPPURATIONS OF THE CHEST CAVITY?*

By EMIL G. BECK, M.D.,

CHICAGO, ILL.

IT is evident that during the past year we have met quite a different type of empyema from that which we have been accustomed to see. The cases here reported by the previous speakers usually began with a violent infection of the throat, or measles, a pneumonia which terminated in an accumulation of pus in the pleura. The high mortality which accompanies this type marks the principal difference.

We have in the past regarded drainage of an empyema as of very little danger and could usually promise the patient a speedy recovery. In my experience, at least nineteen out of twenty cases would close with the ordinary method of drainage within two months after the operation. The type with which we deal now not only has a high mortality, but the tendency to spontaneous closure is not as favorable. The paper read by Dr. Stewart shows that even with the best methods employed there was a mortality of twelve out of forty-four cases, and those remaining did not close as readily as we would expect.

In addition to the large number of cases which will persist suppurating after empyema resulting from pneumonia, there will be a vast number from the thousands of gunshot wounds of the chest now produced in the war. I trust that the Carrel-Dakin method of irrigation will minimize the number of these chronic suppurative cases, but even under best conditions there is bound to be a large residue of cases when we consider the enormous number occurring through the war. This is one of the reasons why I have chosen the discussion of this subject at this time.

During the past ten years I have had an exceptional opportunity to see and treat many of these chronic suppurative chest cases. Practically all had been treated previously and in some of them the resection of several ribs and decortication of the lung had been tried, but the suppuration persisted nevertheless.

In order to treat these cases intelligently, we must first study the cause for the persistence of the suppuration. The following causes have been found:

1. The retracted and infiltrated lung tissue cannot expand sufficiently to fill the dead space existing between itself and the rigid chest wall. Nature tries to diminish this space by contracting the chest wall, so that the ribs almost overlap, and in many cases there are no intercostal spaces except at the insertion of the ribs at the spine. The diaphragm very often is drawn up two or three inches in its attempt to obliterate the space. The pleura also thickens and diminishes this space to a certain degree. Nevertheless there often remains a cavity holding two or three hundred cubic centimeters of fluid.

2. The pleura often contains microorganisms which are very difficult to reach by flushing with any antiseptic solution, and thus the secretion of pus continues indefinitely.

*Read at a meeting of the American Association for Thoracic Surgery, held in Chicago, June 10, 1918.

3. At times there are foreign bodies present, such as rubber tubing which has slipped in unknown to the surgeon and remained there, keeping up suppuration.

4. In cases of abscess of the lung, the tendency to non-closure is greater because there is usually a communication with a bronchus, which is very often dilated, and reinfection of the abscess cavity after drainage keeps up the suppuration.

5. These chronic suppurative abscesses are often multiple, and when one or two are opened, the drainage and suppuration persists in many small recesses, and only communicate through the branches of the bronchi.

6. In abscesses due to tuberculosis of the lung, the reason for non-closure is still more apparent when we consider the pathology of the tuberculous lobe.

In some cases, especially those of tuberculous origin, the lung retracts upwards toward the hylus, leaving a space below and to the sides. The various shapes of these cavities can be visualized by introducing some substance which produces a shadow on the *x*-ray plate, preferably the bismuth paste, and then taking a set of stereoroentgenograms. Such roentgenograms will give us a clear picture of the location, size, and depth of these cavities. Studying them, we can judge whether the cavity is anterior or posterior and thus plan our operation and treatment accordingly. To illustrate this, I here present this first patient.

This patient is a man of thirty, was in good health before and became ill about one month ago with an infection of his throat, which was followed by a severe pneumonia. The temperature ran from 103° to 105° for ten days, at the end of which time the left chest was filled with a fluid.

After probatory puncture (pus with numerous streptococci) an inch of the ninth rib was resected posteriorly. A counter opening was made at the same time anteriorly and a large perforated rubber tube was introduced, passing through both openings.

This drainage was kept up for two weeks, the patient improved rapidly, and the pus changed somewhat in character, becoming thicker and more purulent. I then withdrew the tubes and injected the cavity with 300 grams of bismuth paste, a mixture containing 10 per cent. bismuth subnitrate and 90 per cent. vaseline.

A set of stereoroentgenograms was taken, the patient being in a horizontal position. From the single plate we would judge that the entire left chest cavity is filled with the mixture. Viewing, however, this set of roentgenograms (Fig. 1) through the stereoscope, we find this is not the case. We note that the mixture simply gravitated to the posterior surface of the pleural cavity, producing a shadow covering practically the entire left chest. It does not fill the entire depth of the pleural space; the somewhat retracted lung and heart are in front of it. This fact can only be visualized by the stereoscopic roentgenogram and not by the single plate.

Proof of this is seen in another roentgenogram taken in the sitting posture (Fig. 2). In rising the bismuth mixture has gravitated downward and left the upper two-thirds of the cavity empty and thus transparent. The mixture accumulated at the bottom, giving a square shaped-shadow, A. We note, however, that a portion of the mixture has been retained in a pocket in the upper portion of the chest. It evidently ran in front of the lung, near the apex. It gives a distinct outline of another walled-off abscess, with a straight waterline mark on its upper margin, B. Such radiograms as this are essential for a correct diagnosis and greatly facilitate the treatment.

In other cases the pleura obliterates nearly the entire chest cavity and leaves a long sinus leading

into a pocket not larger than a crabapple, and this accounts for the persistence. The injection of bismuth into the sinus will here likewise give a clear picture of the existing condition. In some instances radiograms will show a straight channel

Fig. 1.—Bismuth injection in a case of empyema, the patient being recumbent; the mixture covers nearly the entire posterior pleural space.

from the drainage opening of the chest wall directly into the bronchus, which indicates that the pre-existing abscess cavity has shriveled down to a straight sinus, but has not closed on account of the communication with a bronchus.

If there is a suspicion of a foreign body being the cause of a lung abscess, it is of course absolutely necessary that the foreign body be discovered and localized before any treatment is attempted. Here also the stereoroentgenogram is almost indispensable for the determination of the exact location of the foreign body. I have made an extensive study of this subject and refer the reader to my publication entitled: "The Localization of Foreign Bodies by Means of Stereoroentgenograms," published in the "Stereo Clinic" in 1917.

To determine the presence of a communication between the abscess cavity and a bronchus, the injection of bismuth paste is most dependable, because the patient will cough up the mixture. As soon as the existing cavity has been completely filled, the overflow will penetrate into the bronchus and the patient will get a coughing spell, in which he will eject some of the paste.

A word of caution is here necessary, namely, that the paste should in such a case be injected very slowly and the patient be asked not to inhale during this injection, for he may aspirate some of the mixture into the other side of the lung while it is passing up through the trachea. It may also produce a choking spell if a large amount of the paste is forced into the trachea. The mixture must be liquid for this reason. If you realize that the trachea is several inches long and its lumen not very wide, you will realize that it is very easy to clog up this lumen by a column of thick paste and the patient will be unable to inspire. Since there is very often an accumulation of pus in the abscess cavity, the paste mixture will displace this pus and the patient will cough up a quantity of pus before any paste will appear in the expectoration.

I could illustrate to you a large variety of conditions which have been disclosed by means of these roentgenograms, but lack of space for illustrations forbids. I recommend to you very highly the stereoscopic roentgenograms with the injected cavity or sinus before any treatment is attempted. They have been a most useful adjunct in my armamentarium for the treatment of chronic empyema.

After a satisfactory anatomical diagnosis has been made by means of these radiograms, the next step is to ascertain the character and quantity of the discharge. In some cases it is a green, foul smelling pus, in others a serous semi-purulent fluid resembling dirty dishwater, in others a pinkish or chocolate colored thick pus. The color of the pus depends very often upon the substances which have been used in treatment. Irrigations of permanganate or of silver nitrate especially change the character and color of the secretion.

We invariably take a culture and smear of the pus, and, whenever it seems necessary, we inject one or two guinea pigs with a ten per cent. solution of the pus. In practically all the cases we find the staphylococcus; in addition to this we find the

Fig. 2.—Bismuth injection of empyema; patient in sitting posture, showing the bismuth mixture has gravitated downward (A); part of it, however, was retained in a pocket in the apex (B).

streptococcus in about 20 per cent. of the cases. The tubercle bacillus is rarely found in the secretion, even in the cases in which the empyema is positively of tuberculous origin.

We have observed one remarkable fact in this

connection, namely; that in the cases known to be of tuberculous origin in which tubercle bacilli could not be found in the secretions with repeated examination, we have, after inspecting the cavity with bismuth paste, found the tubercle bacilli within twenty-four hours in very large numbers in each smear preparation, often as many as a hundred in each field. This surprising finding was verified in a great number of cases during the past ten years. The tubercle bacilli, however, differ somewhat in their appearance and staining qualities from those which we usually find in the tuberculous sputum; they are beaded, resembling somewhat a miniature chain of streptococcus, staining also much darker than the tubercle bacillus usually does. The number of these bacilli gradually diminish, and within two or three weeks the secretion will be free from the same.

My explanation for the appearance of these bacilli after the injection is the following: The tubercle bacilli live within the walls of the sinuses or the abscess wall and not in the secretions. It requires some irritating substance to provoke their exit. The injection of a substance like bismuth subnitrate produces a leucocytosis within the walls and by this means the bacilli are carried out in the discharge. I suppose the *modus operandi* consists in a battle between the tubercle bacilli and the leucocytes, resulting in the death of the bacilli and their expulsion in the secretion. Possibly the same action may hold good in the case of other microorganisms, and this would in a degree account for the surprisingly rapid sterilization of large infected cavities. I have as yet no confirmatory laboratory evidence of the above theory, but the theory seems plausible and supported by many clinical corroborations.

Treatment.—When the anatomical, pathological, and bacteriological diagnosis is established, the treatment is very much simplified. In former times we used to irrigate these suppurating empyema cavities with various solutions, such as permanganate of potash, weak iodine, boric acid, and other similar substances, but this practice has been discarded by most hospitals, and during the past few years we have rarely seen this practice carried out. It was supplemented usually by secondary operations. These operations, however, were not always successful, unless they were very extensive, consisting of resection of the entire chest wall and decortication of the lung. The patient as a rule would not consent to this extensive, hazardous procedure unless he was very much inconvenienced by the chronic suppuration, and if the condition was not very annoying he preferred dressing his wound indefinitely.

Ten years ago we introduced into surgery a new method of dealing with this class of cases; namely, the injection of bismuth paste. It is unnecessary here to repeat in detail the advantages and technique of this method. By this time the bismuth method is well known and the results from its employment and its dangers are all well defined. Let it be said that after ten years of trial, in almost all parts of the world, it has retained its place and is employed more extensively now than ever. The reports in the literature indicate that at least four out of five cases of the very old neglected suppurative empyemata or lung abscesses may be cured by this simple procedure. Ochsner, of Chicago, reported to the American Surgical Association on June 4, 1909, fourteen cases of empyema, all of which had been operated on (two by Estlander's operation) with sinuses in all cases persisting nevertheless. He applied the bismuth paste in each of these cases, with the result that twelve cases healed completely and two were still under treatment at the time and very much improved. Others have reported equally good results. In my own series of 110 cases, approximately 80 per cent. were cured by the bismuth injection treatment alone.

Omitting minor details, it will be of benefit to mention some practical points in the technique:

Subsequent to a physical examination, a stereoscopic roentgenogram of the entire chest (plate size 14 x 17) should be taken and then the cavity injected with 10 per cent bismuth-vaseline paste: bismuth subnitrate, 10.0; vaseline, 90.0.*

When the cavity or sinus is completely filled with this mixture, another set of stereoroentgenograms is taken. This set will illustrate the exact size of the cavity and its relation to the ribs and other structures in the chest. Whenever a communication with a bronchus exists, the patient will at once cough up the excess quantity of paste.

The second roentgenogram shows the cavity entirely filled with bismuth, and plainly marks the inner boundary of the cavity formed by the thickened pleura. The sizes and shapes of these cavities vary so much that there are no two cases alike. Sometimes we find a small globular sac communicating with the outer chest wall by a long tortuous channel, and then again we find that there exists merely a long sinus which communicates with a bronchus, without any cavity whatsoever.

The first injection does not always produce healing. It requires at times repeated injections during several months, but whenever the discharge changes from pus to a serous character, the injections should be stopped because healing will usually follow. Only when the discharge continues to be purulent should we consider a more radical surgical procedure.

I have tried to ascertain why some cases respond to the bismuth treatment and why others do not. I have noted that whenever the cavity holds more than 200 grams it will be less likely to heal by bismuth injections. Cases which communicate with the bronchi are also more resistant than simple empyema. Some cases will heal shortly after the injection and remain closed for a year or two and the patient be in good health, often gaining as much as thirty pounds, and then the sinus will reopen. The injections are then to be repeated. Closure usually follows for another year or two, and then another relapse after a long period. The patient often prefers to keep on treatment in this way, not being much inconvenienced and perfectly well in the intervals.

There remains a small number, about one in five cases, which have no tendency whatever to heal under any form of treatment, and these require the most radical surgical procedure.

*In former years I employed a mixture containing 30 per cent. bismuth subnitrate, but found that the above mixture produces equally good results and is not likely to cause symptoms from bismuth absorption.

The methods in vogue in dealing with these refractory cases are known as the Estlander, the Schede operation, or the decortication of the lung. The patient who has to submit to one of these extensive surgical procedures is, of course, in a desperate situation. He is told that the operation causes a high mortality and the surgeon cannot promise him an absolute cure even with this method. Aside from that, the surgeon must warn him of the prospect of a considerable deformity of his chest, whether he be cured or not. I have always hesitated to advise such an extensive procedure, and in the last seven years I have not resorted to any of the above mentioned operations. In such cases I have resorted to the skin sliding operation, described in my previous publication on this subject.

2551 N. Clark Street.

POSTOPERATIVE THORACIC DRAINAGE.*

By WILLY MEYER, M.D.,

NEW YORK.

THIS topic of discussion was placed on the program of this, our first meeting, on account of the great importance of the after-treatment of intrathoracic operations for the further evolution of thoracic surgery. "Exclusive of empyema" was originally added to the title because the treatment of empyema takes a place of its own in thoracic surgery. It was desired to call particular attention in our deliberations here today, not to the treatment of empyema, a question which it was known would be discussed by most able gentlemen, but to the best method of after-treatment of operations that concern organs situated in the thorax, *beyond the pleura*, particularly of operations which reach beyond the "virgin"-pleura, not the infected one. That means, operations on lungs and bronchi, heart and large blood-vessels, diaphragm, and the anterior and posterior mediastinum, inclusive of the esophagus. But, inasmuch as the president has now decided to include empyema in this discussion, I shall venture later on to say a few words on that subject also.

Whoever attacks the thoracic cavity for operative purposes will frequently find reason for drainage on general principles, same as in other parts of the body. He will say to himself: "This case ought to be drained." However, the colleagues who have the greatest experience in thoracic surgery, principal among them Sauerbruch, have again and again emphatically advised against post-operative thoracic drainage. On basis of clinical observations they were convinced that these patients had a much greater chance for recovery with the thorax closed air and watertight, than drained.

We have just heard from Dr. Green what a difference it makes if the thorax is not closed in acute injuries. We shall consider the question of whether or not to drain in cases in which, for instance, on separating the adhesions around a suppurating lung a superficial tear had occurred, or on excising the esophagus the thin friable wall of the latter was injured.

*Remarks in a discussion on this subject at a meeting of the American Association for Thoracic Surgery held in Chicago, June 10, 1918.

In 1904 I saw Sauerbruch do a resection of the esophagus on a dog in his negative chamber at Breslau. The pleura was soiled, but he closed the wound completely without drainage after the lung had been thoroughly distended. The dog developed a septic pleurisy, but pulled through the infection, the resulting empyema having been opened and drained in time. But he there had to deal with a strong, healthy dog. If one has to deal with sick human beings, conditions are generally entirely different. Their thorax must be drained from the start, right after the operation, should they recover.

If we drain without taking special precautions, the result will be a postoperative acute pneumothorax, which has the same great dangers to the patient as an acute pneumothorax which sets in during the operation.

The question then arises, how can we avoid the postoperative pneumothorax if we drain.

Having the differential pressure apparatus at our hospital, I worked out a useful method with its help some six to seven years ago. I will describe it by showing the lantern slides. The method provides for free drainage of the pleural cavity through a special stab in a lower intercostal space, the inevitably following acute postoperative pneumothorax being avoided by retaining the patient under a difference of air pressure from eighteen to twenty hours.

I. The first illustration (see illustrations in *Annals of Surgery*, Vol. 68, p. 156, 1918) shows the after-treatment bed which was specially built for this purpose, and corresponds in height to the cut-out which allows the patient's head to slip into the positive cabinet. The original thoracic incision has been sutured throughout after the free cut had been made in one of the intercostal spaces, two or three ribs lower down, and such kind of drainage put in place as the surgeon considered wise. The rubber tube or tubes were cut through outside, close to the wound, and secured with safety pins. Dressing is applied as usual, and the entire drainage wound with tubes and gauze covered by a large square piece of sterile rubber dam, which was made to adhere to the chest wall by means of freely used zinc ointment.

Immediately after operation the patient was left under differential pressure. One nurse then went with the patient's head inside of the cabinet, while a second one ministered to his needs outside, just as though he were in his bed and under ordinary circumstances in his room or the ward. The difference in pressure was kept up continuously, but inasmuch as we made use of positive pressure—merely for convenience's sake—it was necessary to relieve the right heart at regular intervals by stopping the pressure and making artificial respiration, a procedure which can be easily effected with the apparatus. The collapse of the lung, followed by a thorough distention, is one of our best physical means of supporting the heart's action. Usually, after fifteen to eighteen hours, the pressure was turned off and the patient now observed under ordinary atmospheric conditions. If he remained well, he was removed from the apparatus and wheeled into one of the observation rooms in the Thoracic Pavilion, where he remained for another

twenty to twenty-four hours. If his condition continued satisfactory, he was returned to the ward or to his private room. The method, which has been tested out in quite a number of cases, proved very satisfactory and efficient; but it was cumbersome on account of the necessity of having two special nurses.

II. A second method was introduced not long after by Tiegel, who constructed a special metal tube of flexible material which could be lengthened inside of the chest by adding a piece of rubber tubing. Tiegel's drain carries at its outer end a piece of rubber dam properly fastened, which acts as a valve, allowing the fluid to be discharged from the thorax, but preventing air from entering it. Although I have this apparatus in my possession, I have never used it, but Tiegel states that he has seen satisfactory results with it. It is introduced either at one end of the thorax incision or through a special stab.

III. In looking around for a simplified method of postoperative drainage, I struck on Dr. Kenyon's method employed for empyema in children, as described and illustrated in "Johnson's Operative Therapeusis." By special means a rubber tube is fastened airtight in the small intercostal wound which otherwise is closed by layer sutures tightly around the tube. Precautions are taken to prevent its slipping in or out, and the pleural secretions are drained off by syphonage into a bottle below the bed. After some discussion with Dr. Kenyon, this method was adopted for ordinary thoracic operations in the adult.

It was tried for the first time by me in a case of resection of the esophagus for carcinoma at the Post-Graduate Hospital in 1915. The method proved very satisfactory. Air and fluid were seen bubbling out into the bottle. Inasmuch as the tumor, which was situated behind the aortic arch, had perforated into the posterior mediastinum, ligation of the vena azygos became necessary. The ordeal of the various steps necessary in this operation was too much for the patient's general condition. He survived the operation by but a few hours. However, the method had been tested and found extremely satisfactory. The next suitable case presented thirteen months later, in January, 1917, when a man of thirty-two, suffering from bronchiectasis, needed operation. On incising the chest, a free pleural cavity was encountered and the lung found adherent only in one area near the spine, where the aspirating needle proved the presence of pus. The pleural cavity was drained as before, and closed, and then the lung incised. The abscess was found and the cavity in the lung tamponed. On the second day of the after-treatment a suppurative pleurisy developed; the effusion could be nicely observed as regards quality as well as quantity in the syphonage bottle. The patient pulled through and made a complete recovery.

The third case was one of resection of the chest wall for tumor. Although many successful cases of thoracic wall resection *without* drainage have been reported, in this case drainage was employed, and the patient made one of the smoothest recoveries imaginable. In two exploratory thoracotomies for cancer of the esophagus it also proved successful. In the sixth case, a man suffering from bronchiectasis involving both lobes of the left lung, it was decided to do the operation in two stages. At the first stage it was found that adhesions bound the left lung to the costal pleura from base to apex. The lung was loosened throughout, so that it could collapse, and then the cavity tightly packed with gauze. The thorax was closed by suture and Kenyon's drain put in place. More than 1000 cc. were discharged in the first twenty-four hours and a pretty large amount in the following. On the fourth day the patient, who had difficulty in expectoration, developed an aspiration pneumonia and died. However, here again it was shown how freely, by means of this drainage, exudate within the pleural cavity is discharged, the latter remaining at the same time hermetically closed.

Kenyon's method of drainage, it seems to me, bids fair to greatly improve the results of our thoracic operations, to make them oftener successful than seen heretofore. The pleura is a membrane which is much more sensitive to traumatism than the peritoneum. While the latter forms adhesions, the pleura forms an exudate and usually an infected one. The sooner the contents are drained off from this closed sac, the better for the patient. Therefore drainage should be started immediately after the operation, or rather *during* the operation.

Dr. Kenyon has tried the method in one case of so-called internal injury of the thorax which seemed extremely dangerous. It occurred in a boy whose chest had been crushed. In this case the airtight introduction of the drainage method proved almost like magic. From the moment it was in place the boy began to recover.

And now just one word on the treatment of empyema. I think it may be worth while with the many cases of empyema in our cantonment and war-hospitals, where the patients are under most scientific observation and treatment, to test this method of drainage on a larger series of cases. Under local anesthesia the tube might be easily introduced some time between the fifth and seventh day of the original pneumonitis and the thorax drained. By exchanging the syphonage bottle for another sterile bottle containing Dakin's solution or dichloramine-T, the chest might be filled with any quantity of the antiseptic desired, and as often as required, by simply raising the bottle and then lowering it for syphonage. If the patient were then left resting on his side and gently shaken like a barrel, afterwards moved on his stomach, then on his side and his back, also brought into Fowler's or Trendelenburg's posture, the fluid would be made to come into contact with the entire pleural cavity. Inasmuch as Dakin's solution is able to dissolve the coagulated fibrin, and the dichloramine-T also breaks up this material, it is not impossible that one may perhaps be able to dispense with rib resection, as done heretofore, as well as with the old method of the open treatment of the empyema cavity. Of course, this is a mere suggestion. Should it be found successful in practice, it would greatly help the treatment of these patients on account of the immediate restoration of the physiological function of the lung and allowing the pathological fluid to be drained off at the same time.

700 Madison Avenue.

THE VENEREAL SORE PERIL.*

By A. STRACHSTEIN, M.D.,
NEW YORK.

THE disastrous effects that follow an error in the diagnosis of a genital sore are so appalling that it may not be out of place at this time to call anew for extreme vigilance when confronted with the diagnosis of venereal sores.

In a clinical and statistical study of nearly six hundred genitourinary cases, two years ago, the writer[1] came to the conclusion that the safest rule to be guided by is the following: Every genital sore should be considered as a probable chancre until definitely proved to be otherwise.

Major J. V. Klauder,[2] who has recently reported his findings after critically studying 115 cases of genital sores, practically came to the same conclusion. He stated that "every genital sore should be considered syphilitic until proved otherwise."

The means at our disposal for the early diagnosis of a primary lesion are, as is known, the dark field vision, the Wassermann test, the clinical appearance of the ulcer, and lastly, the period of incubation.

It seems that all errors in the diagnosis are caused principally by the fact that the diagnostician relies almost entirely upon a negative finding of only one of the agencies at our disposal instead of all. Even a negative dark field examination with one negative Wassermann test does not exclude the sore from being a primary lesion. The following cases, briefly enumerated, will illustrate some of the points at issue.

Recently the writer came across a case in which a competent dark field examiner pronounced the sore a simple non-syphilitic ulcer because three examinations failed to show the presence of spirochetes. The patient, however, developed a macular rash three weeks later.

Another patient, who was treated for acute urethritis, had a most innocent, simple-looking, non-indurated sore on the foreskin. No dark field examination was then made. He was, however, advised to have a Wassermann test taken, and this was done once on the fifth week and once on the ninth week after exposure. Both tests were then negative, but he came back at the end of three weeks with a typical luetic macular rash on his body. Another similar gonorrheic had several superficial abrasions on the scrotum and developed a positive Wassermann test six weeks later.

A third patient, several years ago, while being under treatment for gonorrhea, remembered having had some ulcerations on the foreskin which were cured by cauterization. He was not told then of the possibility of the lesion being a syphilitic sore. Although he was in robust health for many years following his infection, he recently called at the clinic complaining of incontinence of urine. Examination revealed incipient tabes dorsalis, with a negative Wassermann of his blood but a three-plus Wassermann of his spinal fluid.

What are the important data to investigate when confronted with the diagnosis of a genital ulcer? The following points enumerated, if carefully and jointly utilized in the diagnosis, would practically eradicate all sources of error:

1. Any genital sore appearing over ten days after exposure is most likely a chancre. This, however, is not reliable if the agencies of infection were more than one during that stipulated time.

2. Chancres may be single or multiple, contrary to many text book writers, who still cling to the old version that a single one is a chancre, and when multiple they are chancroids. In the writer's experience, the appearance of the ulcer is very helpful. The chancre is usually a clear-cut, punched-out ulcer having a clean, healthy, and beefy-looking floor. Induration, when present, is diagnostic, but the chancre may be very superficially situated without any induration whatever. There is a sharp line of demarcation of the edge of the ulcer and the tissues surrounding it show no inflammatory changes. The edge is neither elevated nor serpigenous in contour. These features, of course, may vary when there is a secondary infection. There are a great many instances in which the clinical features are so pronounced that one is justified in making a diagnosis of syphilis rather than call the lesion a simple ulcer because two or three examinations have failed to reveal the presence of *Spirochæta pallida*.

3. A positive finding of the *Spirochæta pallida* in an ulcer makes the diagnosis conclusive; but negative findings, no matter how many times done, do not by any means exclude syphilis.

4. The Wassermann test. This serological test is of particular value in those cases in which the observer has no opportunity to study the lesion in its earlier days; also when in repeated examinations by the dark field vision spirochetes cannot be found. One must, however, bear in mind that this reaction does not appear early. Hence, a negative dark field examination and an immediate negative Wassermann by no means exclude syphilis. In order to exploit the full value of this test the blood should be examined during the sixth, tenth, and fourteenth weeks after exposure to the infection before we can say positively that the patient has a negative Wassermann. These conclusions are based on actual experiences with this test.

In conclusion, the writer wishes to state that with all these means at our disposal to make a correct diagnosis there is no excuse on the part of any one to err in so serious a question.

REFERENCES.

1. A. Strachstein: A Statistical and Clinical Survey of 591 Genitourinary Cases, *N. Y. Med. Jour.*, May 26, 1917.

2. J. V. Klauder: The Early Diagnosis of Syphilis, *Jour. of the A. M. A.*, March 8, 1919.

17 EAST THIRTY-EIGHTH STREET.

*Read before the Eastern Medical Society of New York City on May 9, 1919.

Male Pseudohermaphrodism.—Girou relates the case of a supposed girl who came to operation for left inguinal hernia. The condition proved to be an ectopy of a testis as shown by the result of operation and microscopy. There was a pseudovulva present which would have deceived the average anatomist. The clitoris (in reality penis) was 2 cm. long and a hypospadias extended downward to the meatus. The labia majora and nymphæ were perfect. The vagina was a mere dimple 1 cm. in depth. Another gonad was apparently present on the opposite side in the inguinal ring. The breast was masculine, as was also the voice. The upper lip showed a rudimentary beard. There was nothing to suggest menstruation. The subject was quite indifferent to men and was psychically a female. —*La Presse Médicale.*

Medical and Surgical Lessons of the War.

PATHOLOGY OF EPIDEMIC PNEUMONIA IN CAMPS AND CANTONMENTS IN 1918.

By W. G. MacCALLUM, M.D.,

BALTIMORE,

JOHNS HOPKINS UNIVERSITY.

DURING the year 1918, throughout which great numbers of men were gathered for military purposes in camps, there occurred a phenomenal number of cases of pneumonia not only among the crowded troops but among civilians as well.

In looking back over this period it becomes evident that this pneumonia offering as it did a great variety of forms did not correspond in any of its main features with the lobar pneumonia with which clinicians had been familiar before. Indeed, one receives the impression that lobar pneumonia has appeared rather rarely during this time and that it has been in a sense replaced by the other types. Much study has for years been devoted to lobar pneumonia, and it was well known as a disease beginning without definite predisposing infection or illness of another sort, caused by one of the types of pneumococcus and proceeding through a fairly constant febrile course to recovery often after a sudden crisis or to death. At autopsy we have been accustomed to find a broad area of uniform consolidation occupying one or more lobes or parts of lobes resulting from the even filling up of all the alveoli with a fibrinous exudate rich in leucocytes and red corpuscles. That there is much that is puzzling about the mechanism of the production of this evenly distributed exudate has long been a subject of discussion. It will suffice to say here that the form of pneumococcal pneumonia referred to as lobar pneumonia has such clinical and anatomical characters as to make it possible to outline it sharply as a definite disease. The cases arise in scattered fashion and it is only exceptionally that anything approaching the development of a small epidemic of true lobar pneumonia is described.

Among the many cases studied during the year 1918 there were few which presented the clinical and anatomical features of lobar pneumonia, and these occurred in about the proportion to other disease that might be found in any other year. Their relation to the time of the year and to exposure and chilling seemed to be exactly what it always has been.

But in contrast with this expected occurrence of the usual number of cases of lobar pneumonia, there arose epidemics of pneumonia of very different character which seemed to be the immediate sequelæ of other epidemics of some predisposing disease. It is difficult to say how many of these epidemics there were or how many forms of infection may have acted as predisposing influences, but it is certain that measles and epidemic influenza have been the most important of the latter. The statement is made thus vaguely because it has been maintained, not without evidence, that lesser epidemics of influenza occurred in the early part of the year long before the main and generally recognized outbreak. The majority of observers agree, however, that during the winter of 1917 and the spring of 1918, when there were great epidemics of measles, especially in the Southern camps, pneumonia was caused chiefly by a virulent hemolytic streptococcus. After a lull during the early summer there arose suddenly the great epidemic of influenza which swept through camps and civilian population from east to west, and this was followed by pneumonia caused by secondary bacterial invaders which comprised all types of pneumococcus, *Staphylococcus aureus*, *Streptococcus hæmolyticus*, and the influenza bacillus of Pfeiffer.

It will be the aim of this paper to describe the forms of pneumonia caused by each organism and the modifications which result from the nature of the predisposing disease, the virulence of the bacteria, the resistance of the infected person and other less tangible factors.

It would be a relatively simple matter to describe the changes which arise in the course of a pneumonia produced by a single organism, but it must be remembered that in most of the cases several kinds of bacteria were found in the lungs. This is especially true of the cases which followed influenza. One might speak of the first bacteria to gain a foothold after the preliminary disease had become well established as secondary invaders, the next as tertiary invaders, and so on. This is on the assumption that measles and influenza are not bacterial diseases, an assumption which we may safely continue to hold until such time as some one shall succeed in proving their bacterial nature. It appears that in each case one of these bacteria assumes a predominant rôle and multiplies far more rapidly than the others, and it is perhaps reasonable to suppose that it is this predominant organism which produces the inflammatory reaction and stamps the pneumonia with characters which are peculiar to its effects. But it is probable that another organism may then add features which it alone can produce or even entirely cover up with new changes the lesions produced by the first. Thus it is perhaps possible that when the predominant organism in the lung is a penumococcus, the influenza bacillus may be present in the bronchi and cause some alteration in their walls, or that after changes in the framework of the lung have been excited by the influenza bacillus, the hemolytic streptococcus in vast numbers may spread through the whole area causing necrosis of the lung substance and a hemorrhagic exudate.

Our own studies were begun in February, 1918, in San Antonio, Texas, where we found many wards of the hospital at Fort Sam Houston filled with cases of measles. Measles had been very prevalent and there was no doubt in the minds of clinicians that the pneumonia which was proving so fatal was in a great many cases the direct sequel. Other cases did appear, it is true, in considerable numbers, with no history of measles nor of any other predisposing disease but with a story of exposure or chilling or even without that, the illness beginning with headache or nausea, cough, and epistaxis often with pains in the chest or abdomen. But that measles played a great part was most evident to anyone who spent any time in the wards where the

measles patients were collected. The onset of the pulmonary symptoms was awaited in each case with anxiety.

The sputum or smears from the throat in many of these patients showed the presence of the hemolytic streptococcus often associated with the influenza bacillus, staphylococcus, and pneumococcus. We soon came to regard the streptococcus with especial apprehension, however, for it became evident that those who harbored that organism were particularly likely to develop pneumonia. At that time the influenza bacillus was not looked upon as being of such serious import. I was ill myself for two days and my throat gave pure cultures of the influenza bacillus of which I heard with relief. Such was our very proper respect for the streptococcus that we advocated strongly the separation of those patients with measles who harbored this organism in their throats from the rest of the measles cases, being convinced that when they were housed together in a crowded ward it was a matter of only a short time before all became similarly infected so that the proportion of cases of pneumonia was greatly increased. We felt that if we could separate the clean cases of measles from those who carried and distributed the streptococcus we could save them from pneumonia. Such a separation proved impossible there, but was carried out later by Levy and Alexander with the happiest results.

In describing the conditions at Camp Pike, Opie has also emphasized the fact that the introduction of even one patient infected with the hemolytic streptococcus into a ward in which there are patients suffering from pneumococcus pneumonia will give rise to an increased mortality through the engrafting of the streptococcus upon the original condition. A patient convalescent from infection with pneumococcus of one type may in the same way be infected with a pneumococcus of another type and die.

Later, in the epidemic which occurred at Camp Dodge there was a sudden or explosive appearance of great numbers of cases of pneumonia without the coexistence of any epidemic of measles. The pneumonia was of the same type as that met with in Texas and from every case the hemolytic streptococcus was isolated, if we except a few instances of lobar pneumonia which were due to the pneumococcus. We were impressed with the idea that after long passage through many individuals the organisms thus transmitted from one person to another may have gained in virulence so as to be able to give rise to an epidemic of pneumonia without any predisposing disease. Toward the end of the epidemic a few cases of measles which had been isolated were infected and in these the pneumonia was especially severe and ran a rapid and fatal course.

Thus in Texas, and later in Camp Dodge in Iowa, we studied many cases of peculiar bronchopneumonia in which the predominant, if not the sole infecting organism, was the hemolytic streptococcus. These forms of pneumonia commonly followed or were associated with measles but there were numerous cases in which there was no history of measles. There were, of course, other cases of lobar pneumonia which were due to the pneumococcus and occurred during the epidemic just as they would at ordinary times, and these were sometimes complicated by the super-position of the streptococcal pneumonia.

While the hemolytic streptococcus was isolated from all the cases of the epidemic bronchopneumonia and appeared to be in general the predominant organism, other bacteria were also found in some cases. The influenza bacillus was present in the upper respiratory tract, the trachea and bronchi or even in the lungs in a number of the cases (16 of 49), and in one or two it appeared to be present in such numbers that a considerable part must be ascribed to it in the production of the lesions. Staphylococci, pneumococci, and miscellaneous bacteria were occasionally found in cultures from the lungs but not in great numbers except in the old cases, in some of which there was a great mixture of bacteria.

In the autopsies which we performed in these cases the outstanding feature was the occurrence of a form of bronchopneumonia in which the consolidation was nodular in character or extended along and about the bronchioles so as to present itself upon the cut surface of the lung in the form of branched grey opaque projecting foci surrounded by areas of hemorrhage, edema, and collapse. No single sentence can convey the manifold variety found in this lesion, which was, nevertheless, fundamentally the same throughout, although encountered in various stages and different degrees of intensity. Except in the earliest stages it was always accompanied by an effusion of fluid in the pleural cavities with a rather abundant exudation of fibrin. The most striking character of this form of pneumonia is found in the rapid infiltration of the substance of the lung tissue with wandering cells and the new formation of connective tissue in the bronchial and alveolar walls, the interlobular septa, and pleura, and even in the exudate which is found in the bronchi and adjacent alveoli. It is for this reason that the name interstitial bronchopneumonia has been applied to it.

This peculiar reaction to the presence of the streptococcus might be assumed to be the constant effect of the hemolytic streptococcus upon the human tissue, but it appears that, as in the case of the tubercle bacillus, the tissue may react in several ways to the presence of the same organism. This is shown by the fact that in certain cases in which the lesions of the interstitial bronchopneumonia were well developed there were also patches in which the alveoli of the lung were filled with an exudate of leucocytes arranged in a network of fibrin exactly as in the case of lobar or lobular pneumonia caused by the pneumococcus. Since the bacteria are present in relatively small numbers in the interstitial bronchopneumonia and restricted to the bronchi and lymphatics in the lung, and are present in great numbers in the leucocytic exudate of the lobular pneumonia, it appears that the latter is an evidence of a certain lowering of resistance on the part of the tissues. This becomes far clearer in other cases in which there is no induration of the substance of the lung and no organization of exudate but an extensive confluent lobular pneumonia with much hemorrhage in which the alveoli are filled with a fresh exudate of leucocytes, and streptococci in masses lie everywhere throughout the

lung. It will be seen that these forms are comparable with (a) tuberculosis of the lungs with induration and encapsulation of tubercles, (b) similar tuberculosis with the addition of disseminated foci of caseous and gelatinous pneumonia, and (c) confluent or lobar caseous and gelatinous pneumonia.

To make these relations plainer it will be necessary to describe these three forms in greater detail.

INTERSTITIAL BRONCHOPNEUMONIA.

When death has occurred a few days after the onset of the symptoms, as happens sometimes when a streptococcal infection of the lungs supervenes upon measles, the lungs are found distended with air, the surface smooth and the pleural cavity free of fluid. When the lung is incised, all or most of the bronchi are found to contain a purulent exudate, their walls are distinctly swollen and bordered with a band of hemorrhage. The larger bronchi and the trachea are deeply reddened. Microscopically such a lung shows in the bronchi an accumulation of leucocytes with streptococci; the walls of the bronchus are infiltrated with mononuclear cells and so are those of the immediately adjacent alveoli. These alveoli contain a few leucocytes and much blood, but rarely any streptococci. At a slightly later stage the epithelium of the bronchus is often found to be necrotic and merged in a coagulum or false membrane, the wall distinctly thickened by the edema and infiltration with mononuclear wandering cells, the alveoli for a greater distance filled with rather dense fibrin, desquamated epithelial cells, blood corpuscles, and mononuclear cells. Such peribronchial areas are bordered as a rule by edema and collapse of the lung tissue.

If the process has lasted much more than a week the changes found at autopsy are far more advanced. Fluid is found to have accumulated in one or both of the pleural cavities often in very great amount. This is a thin, watery, turbid fluid with a greenish brown sediment and floating shreds of fibrin. Streptococci are present in enormous numbers. The pleural surfaces are covered with a shaggy fibrinous exudate which may be rubbed off, revealing a red velvety granulation tissue underneath. The lung, when surrounded by such a collection of fluid is collapsed, airless, flabby, and dark blue but contains palpable firm nodules of consolidation or even larger dense patches, especially in the lower and posterior portions. Much of it can, however, be distended with air forced into the main bronchus.

When incised it is found that the bronchi as before are filled with a muddy brownish purulent exudate rich in streptococci. The cut surface of the lung is studded with nodules which project above the surrounding lung. These are most often about pea size but they may be much larger and sometimes become confluent. Nearly always there is about them a wide zone of hemorrhage and outside this an area of viscid edema. Closer examination shows a cross section of a bronchiole in the center of the nodule or there is a group of nodules which are seen to surround the terminal branches of a bronchiole. Indeed if the bronchus chances to be cut longitudinally it is found that the firm tissue corresponds with a dense mantle which accompanies it and is composed of the greatly thickened bronchial wall with the surrounding consolidated tissue.

One may see in the center the yellowish or brownish pus, then the thick grey wall of the bronchus itself merging into a rather more yellow border of densely consolidated tissue on each side. Outside this are the zones of hemorrhage and edema. The lobules are marked out sharply in many instances by the very conspicuous thickened interlobular septa which sometimes stand up like grey walls dividing the cut surface into polygonal fields in each of which there are several solid nodules. The lymphatics which belong to these septa are often very greatly dilated and because they are filled with thrombi rich in leucocytes appear as broad white beaded channels almost as large as the bronchioles and occasionally much larger.

This is the usual gross appearance of the streptococcal interstitial bronchopneumonia and microscopically there is found a great exaggeration of what has already been described for the earlier stages. The walls of the bronchi are very greatly thickened chiefly by infiltration with wandering mononuclear cells but also by the formation of a great deal of new connective tissue and a great increase in the vascularisation. The wall which has generally lost its epithelium looks like a dense granulation tissue almost solidly packed with cells which have the general character of lymphoid or plasma cells. The adjoining alveoli are bounded by walls which are enormously thickened by the same process. As one passes away from the bronchus this thickening of the alveolar walls diminishes, to reappear as the interlobular septa or large blood vessels are approached. The alveoli contain dense solid plugs of fibrin with relatively few wandering cells and red corpuscles but numbers of desquamated epithelial cells. Organization of this exudate and of that in the bronchi is frequent. Further away from the bronchi red corpuscles tend to fill the alveoli and there is much fluid.

The interlobular septa are greatly widened by the spreading apart of their tissue by fluid, fibrin, and mononuclear wandering cells. Lymphatics which run in this and in the walls of bronchi and blood-vessels are distended with thrombi which are composed of a network of fibrin without special arrangement, loaded with leucocytes and mononuclear wandering cells. These extend, of course, to the pleura and are almost everywhere plugged and occluded by the thrombi. The pleura, like the interlobular septa, is greatly thickened chiefly by the growth of a layer of granulation tissue with abundant blood vessels springing up into the overlying fibrin.

Streptococci are abundant in the bronchi, in the thrombosed lymphatics, and on the surface of the fibrin which overlies the granulation tissue of the pleura, but they are not to be found in the alveoli or anywhere else in the lung. This appears to be a matter of much importance as may appear later. It is thought that from the bronchi they extend by a process of growth through the obstructed lymphatics to the pleura.

Other cases in which in all parts of the lung these lesions of interstitial bronchopneumonia are predominant and conspicuous may, however, present a few patches of a compact grey consolidation of the lung tissue which differs in appearance from the

more familiar peribronchial nodules. These patches are found to be areas in which the relatively unchanged alveoli are filled with an exudate of polymorphonuclear leucocytes with a network of fibrin. They differ from the other areas not only in that the alveoli are filled with leucocytes instead of epithelial and mononuclear wandering cells but especially in the presence in this intra alveolar exudate of great numbers of streptococci. This is regarded as the combination with interstitial bronchopneumonia of areas of lobular pneumonia which because they contain a luxuriant growth of streptococci seem to present the effect of a lowering of resistance.

This lowering of resistance of the host to the invading organisms goes further, however, in other cases in which there is no restriction in the multiplication and invasion of the bacteria. Instead of being imprisoned in the bronchi and carried to the pleura only by migration along the lymphatics, the whole alveolar substance of the lung is full of them. There is no barricading growth of connective tissue, no filling of the alveoli with dense plugs of fibrin which quickly become organized and strengthen the barricade, but instead without any thickening of alveolar walls, interlobular septa or pleura, the alveoli throughout great areas are filled with an exudate of leucocytes and blood in which tangled masses of streptococci thrive and soon bring about widespread necrosis not only of the cells of the exudate but of the tissue itself. This is a confluent lobular streptococcal pneumonia and appears to correspond with the lowest resistance in the invaded host. It is in a sense comparable with what is found in the lobar pneumonia caused by the pneumococcus but is, of course, different in detail and lacks the uniform sudden spread of the process in lobar pneumonia.

In all these cases, but especially in the more acute forms, the infection of the trachea, larynx, and nasopharynx is very intense; streptococci and many other kinds of bacteria are found in quantities strewn along the surface of the mucosa. The tissue itself is very hyperemic, rather swollen, and infiltrated with leucocytes and mononuclear cells. In many instances it was noted that the voice became toneless and husky and finally all voice sounds were lost so that the patient could speak only in a hoarse whisper or with the most violent efforts bring forth an audible sound. This aphonia seemed especially common in the severe cases which followed measles. At autopsy the trachea and larynx were deeply reddened in those cases and the tracheal mucosa was often covered with little flecks of bran-like exudate and superficially ulcerated in places. Similar ulcers of a much greater size and covered at times with a greenish pseudomembrane were found on the pillars of the fauces, the edges and base of the epiglottis, the aryteno-epiglottic folds, the mucosa of the pyriform sinuses, or within the larynx. They were especially common upon the vocal cords and in the cases of aphonia were found to have eroded deeply both cords from end to end. Occasionally the streptococci which are abundant in these ulcers extend into the substance of the larynx wall causing a deep phlegmonous infiltration in those tissues.

The tonsils were not especially inflamed, and although the crypts occasionally contained masses of organisms including streptococci there was nothing to suggest that they had been primarily infected.

Mention has been made of the regularity with which there occurred an abundant effusion of fluid into the pleural cavities about the affected lungs and of the rapidity with which the pleura became thickened by the formation of granulation tissue. This accumulation of fluid which soon assumed a purulent character became the especial concern of the surgeons who devised various methods of treatment. There was for a time much discussion as to whether it were better to aspirate the fluid or to lay open the thoracic cavity either by an incision between the ribs or by the excision of a portion of a rib. There were advocates of both methods, since it seemed that the great object must be to remove the infected fluid as thoroughly and as quickly as possible. Difficulty was experienced in accomplishing this in some cases because of the fact that some of the exudate had become encapsulated or imprisoned between adjacent surfaces within the pleural cavity by adhesions. Even though these encapsulated pockets, which might lie anywhere but were very often found between the mesial surface of the lung and the pericardium, could be evacuated the result was often unfavorable, the patients became cyanotic and died in a sort of shock. In many other cases they died many days after the operation, usually with abscesses in the lung and with complications produced by the infection of other organs. The Empyema Commission, which worked at Camp Lee, concluded that the rapid death after the establishment of an open pneumothorax was chiefly the result of asphyxia due to the complete collapse of the lung on that side and the partial compression of the opposite one, which in a man whose lungs were already largely occluded by pneumonic exudate was too great a burden. They decided to risk the danger of the presence of the infected fluid and to operate only in a late stage when adhesions had fixed the lung to the chest wall and thereby made it difficult for the mediastinal tissue to bulge over into the opposite side when the pleura was opened. The results were greatly improved by this delay. Later, Major Evarts Graham and Captain Bell worked out this matter experimentally and found that a great effort is required to maintain adequate distension of the lung and aeration of blood when the opening is made in the chest and that the yielding of the mediastinal tissues is such that the opposite lung is also greatly embarrassed since so much of the negative pressure ordinarily exerted on it by the chest is responded to by the bulging of the mediastinum. They found that if the opening in the chest bore a certain relation to the size of the orifice of the glottis, respiration might be successfully maintained but that if it surpassed in size these calculable dimensions no effort however violent on the part of the animal could maintain the distension of the lungs and aeration of the blood. When adhesions and thickening of the pleura have been produced, however, the mediastinal tissues are held more rigidly and a very much greater opening can be made with impunity. They thought the presence of the fluid with its bacteria less dangerous.

In the older cases which had survived many days

it was often found that the lung, although completely collapsed showed extremely little indication of having been the seat of a severe pneumonia. On the other hand, many presented quite large abscesses or areas of cheesy necrosis about which the consolidation was dense. These were commonly infected with several kinds of bacteria but sometimes contained streptococci alone. They appeared rather more frequently in the cases in which there was lobular pneumonia but were sometimes found in those in which only the evidences of interstitial bronchopneumonia remained. Many of these abscesses had discharged their contents through the bronchi and there remained in their place cavities with rough necrotic lining.

Occasionally such cavities communicated also with the pleura so that there was a fistulous tract extending from the bronchus to the pleura. In a few cases the bronchi throughout the lung became greatly dilated, but this, in our experience, was not a common occurrence.

The other organs of the body were surprisingly little altered in these cases. In most instances the streptococcus appeared not to invade the circulating blood so that our blood cultures were sterile although whenever there was a combined infection with the pneumococcus the latter organism grew out on blood cultures.

It was rare, therefore, to find endocarditis caused by the streptococcus and equally rare to find infected infarcts in the distant organs. Pericarditis with fibrinopurulent infusion was more often seen. It appears, however, that a few organisms gain the general circulation from time to time, as will be shown by the occurrence of infection with these organisms in certain places in which necrotic tissue and hemorrhage have given rise to a point of lowered resistance suitable to their growth. This is seen in those cases in which degenerative changes in the rectus abdominis muscles are followed by rupture with hemorrhage and localization of the bacteria in the necrotic tissue.

It is difficult to understand the reason for the development of hyaline degenerative changes in the muscle fibers of the rectus muscles but as in typhoid fever they are to be found in various stages in muscles which show no gross alteration whatever. It is only when this degeneration has proceeded to an advanced degree that some slight exertion or an attack of cough causes the muscle to tear across with the extravasation of a quantity of blood which appears as a bluish mass bulging into the peritoneal cavity and retained by the sheath of the rectus.

Microscopically the early stages show single fibers involved with a loss of the cross striations and later the collection of the substance of the fiber into formless clumps of red staining material still enclosed in the loose sarcolemma sheath. Later the nuclei of the sarcolemma seem to sink into the central mass and to multiply greatly so that a gradually disappearing clump of pink stained material is seen to be surrounded by numbers of cells which appear to have arisen from the sarcolemma itself although it is also possible that they may be wandering cells. The intervening connective tissue increases greatly in the number of its cells so that the whole area comes to look like a very cellular granulation tissue, in which, however, one can always distinguish the peculiar elongated groups of sarcolemma nuclei which mark the place of the original fiber. The rupture of the muscle occurs usually in a rather earlier stage and about the mass of blood are found the torn ends of the degenerated fibers. In some instances abscesses are formed in the same symmetrical way in the lower third of each rectus muscle, but the bacteria cultivated from these have proven to be pneumococci.

Another curious phenomenon which accompanied these intense infections with streptococci and pneumococci was recognized only by microscopical study. It was the cessation of spermatogenesis in the testes. Every stage in the degeneration of the epithelium of the tubules could be recognized, beginning with those in which all stages down to the spermatids are found without the formation of actual spermatozoa and ending in those in which, since mitosis is brought to a standstill, nothing remains but the line of spermatogonia and of Sertoli cells. Still more profound changes which result in a complete hyalinization of the whole tubule is also found, but when these are in patches there may be some question as to the part played by some former infection such as mumps or syphilis. Dr. Mills will publish later a detailed report upon these changes.

The description of the pneumonia in this simple fashion may perhaps be regarded as misleading, since the complexities of the bacteriology are well known and have already been mentioned. It is true that cultures from the sputum may show a variety of organisms often including the influenza bacillus and different staphylococci, but this might be expected since sputum passes through the pharynx and mouth in which it readily becomes contaminated. The general predominance of the streptococcus was very marked, however, and it was the only constant factor. Furthermore, its relation to the lesions in sections stained to show all the bacteria in the lung left its rôle indisputable, and this seems after all the only perfectly trustworthy guide as to the significance of an organism. Even so, the influenza bacillus was found in the bronchial exudate in a number of the cases, and it is impossible to say that it may not have played a considerable part in the production of the lesions, especially as in one case the streptococci were very few, so that the Gram negative bacilli held the predominant place. In this case, too, the lesions were strikingly like those which we found later in cases in which the influenza bacillus was present in pure culture.

The pneumococcus in this epidemic was always associated with lobular pneumonia, but it could be overgrown by the streptococcus, and in several cases, although it was cultivated from the circulating blood and persisted in the distant organs and in endocardial vegetations at the autopsy, it could not be cultivated from the lung. Nothing but the hemolytic streptococcus grew there, although the pneumococci were still recognizable in great numbers in the sections.

Once or twice we found such a combination of infections that in the same lung there was lobar pneumonia in one lobe with living pneumococci, and an interstitial bronchopneumonia in the rest of the lung with streptococci. These lesions seem not to have overlapped, and it was remarkable that in the area of lobar pneumonia there was no induration or

infiltration of the framework or pleura, while immediately on passing over into the other area where the streptococcus prevailed the pleura became thickened with a layer of granulation tissue, and the interlobular septa and bronchial walls stood out with unaccustomed prominence as dense walls. In these cases the pneumococcus had circulated in the blood, but no streptococci could be found there until just before death. After death, of course, the heart's blood contained them.

But no matter what the complexities and variations of these cases, they allowed themselves to be analyzed into those caused by the pneumococcus which were lobar pneumonias and those caused by the hemolytic streptococcus, which were of these types, interstitial bronchopneumonia, interstitial bronchopneumonia with patches of lobular pneumonia, and confluent lobular pneumonia, without any change in the framework of the lung. The influenza bacillus was present in a few cases, and may have been the exciting cause in one or two. The streptococcus was present in all cases, and was often in pure culture, as shown by all bacteriological methods and by the study of the bacteria stained in sections, which latter method demonstrated its causal relation to the lesions most convincingly. How measles affected the respiratory tract is not known, but it is certain that it predisposes to the streptococcal pneumonia, and that the lesions are more rapidly developed and more severe in the cases in which it has preceded the pneumonia than in those others which started in its absence.

——o——

The second epidemic began, as every one knows, in the late summer and early autumn, and spread like the most grim pestilence that has ever been described over the whole continent, and indeed over the whole world. Hundreds of thousands died in this country from the pneumonia which followed close upon it, and there seems to be nothing which has far surpassed it in its destructive effect. Of course, the idea which has somehow come into existence in the minds of the laity that it was, in truth, the pneumonic plague such as ravaged Manchuria some years ago, is entirely absurd. It would not have been possible to miss the plague bacillus in cultures from the very first case, nor to have failed to distinguish its peculiar distribution in the lungs when they were studied at autopsy. Far from being a disease so easily studied bacteriologically and pathologically as the pneumonia caused by the plague bacillus, the cause of influenza is still unknown. In spite of the extraordinary opportunity given to all the scientists of the world to study this disease, and in spite of the great amount of work done in striving toward some elucidation of the cause, no credible statement has been made as to the nature of the living virus, as to its mode of transmission, or as to the anatomical lesions that it produces.

It is true that we state confidently that it is transmitted from infected to healthy persons by a spray of droplets exhaled with the breath, and received in the respiratory tract of people who come near, but we have no proof of this, nor of any other method. No one has died of influenza, so far as is definitely known, although the reports from various cities give figures which would indicate in some cases that great numbers died of influenza, smaller numbers of pneumonia, in other cases about the same number of each. Every one who died in the course of the epidemic disease was found, when there was an autopsy performed, to have died of pneumonia. It was for this reason that no one has observed the anatomical lesions produced by the epidemic disease influenza.

It is known, however, that there are many reasons for believing that this disease is not primarily a disease of the respiratory system, but rather a generalized infection. There are cases in which no respiratory symptoms develop, but which throughout show evidence of some general intoxication or infection which causes great depression, aching, and malaise. Others develop intestinal disturbances with diarrhea, which ultimately pass off without any coryza or cough.

In all the cases there was, however, a change in the biological relation to bacterial infection, such as to lower the powers of resistance to a degree scarcely to be paralleled in any other disease. An index of this is found in the usual leucopenia, which persists in spite of the invasion of bacteria and the development of pneumonia.

The pneumonia was due to the secondary invasion of many kinds of bacteria, including especially, however, the various types of pneumococcus, the hemolytic streptococcus, the staphylococci, and the influenza bacillus. Several of these organisms might invade at once or in succession. The influenza bacillus was searched for with great diligence because of its name and its supposed causal relation to the epidemic disease, and it was found in a great number of cases; in some places in every case, less commonly in other places.

There has been much discussion as to its actual significance, and at first many of those who found it so regularly insisted that it was the cause of the epidemic disease influenza, and were intolerant of any one who failed to find it. But recently it has become rather difficult to find a supporter of this view, and nearly every one has come to look upon it as a common and important pathogenic invader of the lungs, but strictly as a secondary bacterial invader responsible for the pneumonia it may be, but not proved to be the cause of the primary epidemic disease. It is known to be a common inhabitant of the throats of normal persons, and might be expected to occur with increased prevalence among people whose resistance was lowered by such a disease as epidemic influenza, just as the pneumococcus and other organisms were found in greater numbers in these throats.

Bloomfield has felt, as we have ourselves, that the epidemic influenza has many points of resemblance to measles, and that the mechanism of predisposition to secondary pneumonia is quite similar, but greatly intensified in its effects. He has observed a characteristic enanthem in the mouth and pharynx, and a less characteristic but very distinct exanthem or rash in many cases, and has based his belief in its relation to the common exanthematic diseases largely upon these facts. He has also noted the fact that as in measles the skin reaction which should follow the von Pirquet test is absent during the height of febrile illness in influenza, but comes out brilliantly as soon as the fever is over.

Our own experience has been chiefly with the anatomical and bacteriological investigation of the forms of pneumonia which accompany and follow influenza, and these we have studied at Camp Lee, in Virginia; at Camp Dix, in New Jersey; and at Johns Hopkins Hospital, in Baltimore. At Camp Lee we worked at the height of the epidemic, at Camp Dix the influenza itself had just ceased, and there remained cases of pneumonia which were consequently in a somewhat later stage. At Baltimore our material for study comprised all the cases dying at the hospital throughout the epidemic.

At Camp Lee and in Baltimore we found in the fresh cases a pneumonia which was sometimes very sharply lobular in its distribution. In many cases the consolidated secondary lobules stood out with extreme distinctness, separated by air-containing or collapsed lobules so as to present a checkerboard appearance over the pleura and even on the cut surface. But in most instances the areas of consolidation were not so limited, but became confluent throughout several lobules, ultimately involving most of a lobe. In these fresh cases the consolidation presented peculiarities which we have all despairingly attempted to recall in words. It was evidently seen in identical form by most of those who studied these cases, and was clearly a very rapidly produced condition, to be found only in those who succumbed after a short illness. There was no effusion of fluid into the pleural cavity, the surfaces were smooth except for patches of opaque bloodstain, like dull red paint, on the surface. The bronchi contained only a brownish, frothy fluid, and their mucosa was pale. The lung was evidently consolidated and airless in part, especially in the posterior and lower portions of its lobes, and on section these areas were found to be swollen, firm and elastic, but smooth, moist, dark red, and elevated above the surrounding surface, into which they sloped off through an edematous zone. No plugs of opaque rigid exudate were to be seen in alveoli or bronchioles. Instead, there were little depressions like pin holes everywhere, filled with a red gelatinous fluid and separated by thick, slightly firmer lines of lung tissue. These proved to be the dilated ductuli alveolares separated by areas of distended alveoli. The whole area oozed bloody viscid fluid and the change has been spoken of as hemorrhagic edema, but it was more than that, although compact plugs of exudate had not yet formed.

Microscopically, the alveoli are found to be filled with the freshest possible delicate network of fibrin entangling red-blood corpuscles, leucocytes, and mononuclear cells many of which are desquamated epithelium. Every cell in this exudate is perfectly preserved, and in the millions of red corpuscles not even a crenated cell appears, so that the exudate must have reached the alveoli a very short time before. The bronchioles and ductuli alveolares are filled with fluid which gives with the fixing fluid only a delicate fibrillar coagulum. The walls of these bronchioles and ductules are overlaid by a curious hyaline material which is not fibrin and which extends down into the mouths of the atria.

It is, therefore, an extremely fresh pneumonia, qualitatively, but not in distribution like the rather hypothetical stage of engorgement which precedes red hepatization in lobar pneumonia. The dilatation of the ductuli alveolares and minute bronchioles with gelatinous fluid is peculiar, and so, too, is the laying down of a hyaline layer over the epithelium of the bronchioles. Scattered through all the exudate, whether in bronchioles or alveoli, are pneumococci, sometimes fairly numerous, sometimes in incalculable numbers, so that every phagocytic cell is loaded with them and there are millions free in the alveoli. In a great many cases there are absolutely no other organisms in the lungs—culture, mouse inoculation smears, and, best of all, careful staining of the sections for bacteria showed this. It is possible to scan these sections for Gram negative and Gram positive bacteria, so that scarcely one Gram negative organism need be missed, and certainly no significant number of influenza bacilli could pass unseen. Everywhere the pneumococci are in intimate relation with the lesions, and are evidently the cause of the pneumonic inflammation.

This may serve as a description of the early stage of a pneumonia caused by the pneumococcus. It is probably the same whether the organism be of Type I or Type IV. Later stages show a further confluence of the consolidated areas, and before very long the appearance of definite opaque and rigid plugs of exudate in the alveoli. Hemorrhage continues to be predominant, however, and at all times it seems that one may discern the spaces of uninvolved lung tissue between the areas of consolidation. Pleural effusion is still absent, although the pleura itself is often fairly packed with bacteria.

The striking feature is the phenomenal multiplication of bacteria in the non-resistant lung, which proceeds so rapidly that in the lack of many phagocytic leucocytes those which do appear are soon filled to their capacity while most of the organisms remain free.

In some instances the hemolytic streptococcus was found to be the predominant organism, appearing in incredible numbers in the lungs and bronchi, and outgrowing all other bacteria which may have been present. Then the gross appearance of the respiratory organs was somewhat different. There was no great pleural effusion, since death occurred too quickly to allow of that, but a thin, bloodstained layer of fibrin covered the surface with patches of brownish opacity, and a small amount of bloody fluid was found in the pleural cavity. The lungs were very voluminous and heavy, and bloodstained fluid ran from the bronchi. The anterior portions were usually air-containing, but the whole posterior part was consolidated. On section the consolidated areas were almost black, uniform in appearance, and moist except where grayish brown patches seemed somewhat dryer and still more opaque. It was difficult to see the outlines of lobules of any of the framework of the lung in such areas. The surface of the consolidated area was rather spongy, without any definite alveolar plugs of exudate. The bronchi were deeply bloodstained.

Microscopically, such a lung shows a loose edematous exudate of fibrin with leucocytes, and a great quantity of red-blood corpuscles in all the alveoli and bronchi, with very numerous streptococci in chains and pairs. Most of these are not inclosed in phagocytes, but lie scattered free in the fluid. They are so extremely numerous that the recogni-

tion of their presence in the tissue of the interlobular septa, lymphatics, etc., seems hardly worth while. They pervade everything, and it is not surprising to find that great areas of the consolidated lung have become completely necrotic. Indeed, it is only in the rather marginal portions that the character of the exudate can be made out clearly, for elsewhere it is all merged into the necrotic mass which includes the whole tissue of the lung. In the alveoli within the necrotic areas the streptococci form a tangled mat or feltwork which fills up most of the space. They have grown there as though in the most favorable culture medium in a thermostat.

Intense inflammatory changes in the bronchi, trachea, larynx, and pharynx, are accompaniments of this pulmonary lesion.

It will be observed that this condition corresponds very well with that which we observed in the first epidemic, and described as confluent lobular pneumonia due to the streptococcal invasion of persons of low resistance. The effect of the extreme lack of resistance following influenza makes the rapidity of the invasion even more striking here.

Such were the cases observed at Camp Lee and in Baltimore. There were cases also in which the *Staphylococcus aureus* appeared to be the predominant organism, and in these it was once associated with the influenza bacillus. This case presented a pneumonia rather like that produced by the pneumococcus as described above, but nothing can be determined from one case, and it is to be hoped that those who have found many cases with predominant staphylococcus infection will study the type of pneumonia produced by it most carefully.

We were surprised to find at Camp Dix cases of a quite different character. There were a few which resembled those described above, but in many cases there was no such edema and hemorrhage throughout the lung as we had found at Camp Lee. Instead, the lungs presented the following appearances:

The pleural cavities contained no fluid, but the pleural surfaces were adherent or covered with a thin layer of fibrin. The bronchi were pale, and exuded a thick, sticky, yellow pus. The lungs were pale, and rather distended with air, but throughout their substance could be felt many shotlike nodules and firm areas of rather larger size. On section the whole cut surface was pale and rather dry, and there projected everywhere firm, yellow nodules with smooth, dense, shiny surface or larger area of similar grayish yellow, firm tissue. In the center of many of the nodules could be seen the lumen of a bronchiole exuding a tiny droplet of pus.

The bronchi, trachea, and larynx were pale, but covered with a sticky mucopurulent exudate. This exudate, whether from the bronchioles in the lung or from the trachea, was rich in influenza bacilli. In two cases these were in pure culture, as shown by bacteriological methods and by the staining of the bacteria in sections of the lung. In several other cases the bacillus of Pfeiffer was the predominant organism, although there were other bacteria in small numbers in the lungs.

In every case studied at Camp Dix the influenza bacillus was found either in the lungs or in the upper respiratory tract or nasal sinuses.

Microscopically, the changes in such a lung reminded one at once of those in the interstitial bronchopneumonia caused in the former epidemic by the hemolytic streptococcus, and it is indeed an interstitial bronchopneumonia.

The bronchiolar walls are greatly thickened by infiltration of mononuclear cells and by an enormous new formation of connective tissue. Leucocytes are abundantly strewn through these walls also, and extend into the walls of the adjacent alveoli.

The bronchi are filled with an exudate of polymorphonuclear leucocytes, many of which are loaded with influenza bacilli, while numerous bacilli lie free in the fluid. The adjacent alveoli contain leucocytes, with some fibrin and epithelial cells, but no conspicuous hemorrhage. Instead, the exudate is rapidly undergoing organization, and the strands of connective tissue add to the density of the nodule. The alveolar walls are very greatly thickened, partly by the leucocytic infiltration referred to above, partly by the inwandering of mononuclear cells and the new formation of connective tissue. The walls of blood vessels, the interlobular septa and the pleura are all moderately thickened in the same way. The change differs from that produced by the streptococcus in several ways. The influenza bacilli are restricted to the bronchi, and do not appear in the alveoli, the lymphatics are quite inconspicuous, and are not found distended with thrombi laden with bacteria, and the pleura is not infected as in the streptococcal pneumonia. The absence of great pleural effusions of fluid makes these cases very different from those caused by the streptococcus. Organization of the exudate is a far more striking feature in the pneumonia caused by the influenza bacillus than in the streptococcal form.

The opinion was expressed that such an interstitial bronchopneumonia, when caused by the streptococcus, represented a rather unsuccessful invasion by that organism stoutly resisted by the forces of the body.

A somewhat more successful invasion would show side by side with the interstitial changes certain patches of alveoli filled with an exudate of leucocytes with very numerous streptococci.

In the cases of interstitial bronchopneumonia caused by the influenza bacillus the bacilli are even more sharply restricted to the bronchi by the dense barricade, so that this may be looked upon as an even better example of a stoutly resisted invasion. But there are some cases in which a few patches of alveoli contain a leucocytic exudate loaded with influenza bacilli. This must represent a distinct local victory on the part of the bacilli. In none of our cases, however, was the resistance of the host so lowered by the epidemic disease influenza as to allow the influenza bacillus to invade easily and to produce a widespread intra-alveolar exudate. If we can trust to our observations, the influenza bacillus is not so virulent an organism as the streptococcus. In any one person with resistance depressed by an attack of influenza, secondary invasion of the streptococcus would produce an extensive hemorrhagic intra-alveolar exudate with millions of bacteria, while secondary invasion of the influenza bacillus would succeed only in causing a bronchitis and peribronchitis with induration of the lung. It must be a great lowering of resistance which allows the influenza bacillus to stir up patches of an intra-

alveolar exudate in which it still thrives. One receives the impression that the lowering of resistance after measles is rather less than after influenza, for after measles most of the streptococcal infections ended in an interstitial bronchopneumonia, but after influenza all of them produced a devastating confluent pneumonia, with hemorrhage and necrosis. Even under these latter conditions the influenza bacillus produces only an interstitial bronchopneumonia. I suppose this must indicate a relatively low virulence for the influenza bacillus as compared with the streptococcus or pneumococcus, and perhaps explains the rarity of influenza bacillus pneumonia under ordinary circumstances and the failure of the influenza bacillus to invade except in the train of some predisposing disease.

To summarize, we may say that in the second epidemic the country was swept by a disease long familiar as epidemic influenza, but still of unknown etiology.

The anatomical changes produced by this disease have not been seen by any one; at least they have not been clearly recognized, but every one has realized that the disease produced an extraordinary depression or lowering of the ordinary powers of resistance so that these persons were intensely predisposed to the invasion of any pathogenic bacteria which happened to prevail in their mouths and throats. Pneumonia, therefore, often followed immediately, and all who died showed the pneumonic changes in their lungs, changes which were exceptionally severe and rapidly fatal, on account of the unparalleled spread of the bacteria in the unresisting tissues.

But the type of pneumonia was different according to the organism which happened to invade, and it was possible to recognize pneumococcal, streptococcal, and staphylococcal forms of confluent lobular pneumonia and to distinguish them from each other and from the interstitial form caused by the influenza bacillus of Pfeiffer.

Stress must be laid upon the epidemic character of the secondary invasion, which made it appear that in one camp nearly every case presented a pneumococcal pneumonia, while in another almost every case was due to the influenza bacillus. It is not surprising that with the one-sided view obtained at first by those who observed these cases in one hospital only, there should have been announced the conviction that the bacillus of Pfeiffer was the cause of the primary disease as well as the pneumonia. But broader experience has shown, it seems, that this prevalence of the influenza bacillus in some camps, as in those of the New England States, represented a local condition. In other places, pneumococci and streptococci were the opportune invaders, and we are still quite ignorant of the cause of the primary disease.

Artificial Lemon Juice.—Huerre gives the analysis of lemon juice as follows: Citric acid, 7.50 c.c.; malic acid, 0.50; saccharose, 0.45; invert sugar, 2.00; potassium citrate, 1.00; calcium citrate, 1.00. In addition there are traces of iron and phosphorus. Water, of course, to make 100 parts. If a synthetic lemon juice cannot be substituted for the natural product it must be because something akin to vitamine is present in the latter.—*La Presse Médicale.*

Military Medical News.

High Praise for Roosevelt Unit.—In a letter to the Board of Trustees of the Roosevelt Hospital, Surgeon General Ireland has expressed his appreciation of the work done by the Clarence Mackay-Roosevelt Hospital unit which went to France in 1917 under the command of Col. Charles H. Peck, M. C., U. S. A. More than 33,000 soldiers passed through the hospital of the unit during its operations in France. The unit was first stationed at Vittel and later transferred to Chaumont and was one of the first two units to function in the Medical Department of the A. E. F. In one day more than 3,000 men were passed through the hospital as a result of which the unit received a citation from General Pershing. Colonel Peck received the Distinguished Service Medal while his second in command Col. Rolfe Floyd won the French Military Medal. During the hard fighting at Chateau-Thierry and in the St. Mihiel salient, the unit was changed from a base to an evacuation hospital, caring for as many as 10,000 patients a month.

Dr. Joseph A. Blake, who had charge of the American Ambulance Hospital at Neuilly, near Paris, and later of a hospital of his own near Ris Orange, under the British Red Cross, and who served as general consultant for the American Army in the Paris region, returned to this country on the *Lorraine* on April 27. Dr. Blake has been decorated with the Cross of the Legion of Honor by the French Government for his services in the war and has received the Medaille d'Honneur de Santé de France.

Deaths in the Service.—Major WILLIAM PETER FAUST, M. C., U. S. Army, of Schenectady, N. Y., a graduate of the New York Homeopathic Medical College, New York City, in 1895, a member of the staffs of Ellis and Mercy Hospitals, Schenectady, surgeon to the American Locomotive Works, and health officer of Schenectady who went across with the Schenectady Base Hospital Unit, and afterwards was assigned to Base Hospital No. 33, died from acute nephritis at his home on March 27, aged 45 years.

Lieut.-Col. FRANCIS JOSEPH DUFFEY, M. C., U. S. Army, of Brooklyn, a graduate of the Long Island College Hospital, in 1896, recently returned from service with the American Expeditionary Forces in France, died suddenly while attending a patient in Manhattan, at the age of 44 years. He was a member of the New York Academy of Medicine, assisting visiting physician to the Post-Graduate Hospital and the Neurological Institute.

Capt. JOHN J. HISLOP, M. C., U. S. Army, of Miner's Mills, Pa., a graduate of Jefferson Medical College, in 1892, on service at Camp Wheeler, until discharged for disability in December last, died of cardio-renal disease at his home, on March 5, aged 53 years.

Capt. SHELDON GUTHRIE EVANS, M. C., U. S. Navy, a graduate of the College of Physicians and Surgeons, Baltimore, in 1890, died in Lankenau Hospital, Philadelphia, on March 10, aged 49 years. He was a member of the Association of Military Surgeons of the United States. His last station was at League Island Navy Yard, Philadelphia.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, May 10, 1919.

THE IDIOPATHIC SPLENOMEGALIES OF CHILDHOOD.

WHEN the word "idiopathic" is employed it refers to all cases which the limitations of our knowledge of clinical medicine prevent us from classifying, but with the evolution of the science of medicine their number is decreasing. Any case of splenomegaly the etiology of which is known and confirmed should be placed in its special list. Such, for example, are the tuberculous splenomegalies, even when there is no specific lesion existing in any other viscus, and this likewise applies to the splenomegaly of syphilis. The splenomegalies may be the primary manifestation of an infection the causal agent of which is the bacillus of tuberculosis or the *Spirochæta pallida.*

Two clinical types of splenomegaly in childhood are the only ones to be included in the term idiopathic; the first of these is splenic lymphadenia without leucemia. The onset of the affection is insidious, the patient is pale and weak. There is anorexia with vague abdominal pain, and finally a tumor will be discovered in the left side of the abdomen. Hypertrophy of the spleen is now an accomplished fact and the phase of full development is reached. The digestive disturbances become more accentuated. Blood examination shows a considerable decrease in the number of red cells without any increase of the whites. Soon the lymphatic system becomes involved in the process; the lymphnodes of the neck, groin, axilla, mesentery, and mediastinum become hypertrophied with all the consequent symptoms of compression. Later on, nervous and psychic disturbances ensue, the urine becomes dark in color and hemorrhages are frequent. The patient dies in cachexia and anemia after a lapse of several years. This symptomatology is unquestionably that of a serious form of anemia; but the splenomegaly precedes the blood changes, therefore it is not the consequence. The splenomegaly is the direct cause of the anemia, while blood examination shows numerous changes and deformities of the red cell unknown in essential anemia.

The second form of iodiopathic splenomegaly is the so-called primary form described by Debove and Bruhl. The onset is also insidious with a sensation of weight in the left hypochondrium. It rarely begins suddenly with a visceral paroxysm or with general phenomena, such as asthenia, emaciation, and dyspeptic disturbances. Two principal symptoms occupy the stage, namely, splenomegaly and anemia with all the train of phenomena relating to each. The liver is increased in size, while pleuropulmonary accidents are common. The affection is apyretic and hemorrhages are multiple. Blood examination shows a considerable decrease in the number of red cells as well as in the percentage of hemoglobin. The terminal phase of the process is marked by advanced cachexia, anasarca, nervous disturbances, albuminuria, and hemorrhages. The evolution of the affection occupies from three to four years or even more. In this process the symptomatology might be regarded as that of a high grade anemia, but here also the splenomegaly precedes the anemia. What also differentiates the primary splenomegaly of Debove and Bruhl from splenic lymphadenia without leucemia, is the integrity of the lymphatic system. And lastly, there is also a difference in the blood. Unquestionably there is no increase in the leucocytes, there is a decrease in the percentage of hemoglobin and in the number of red cells, but these have not undergone any visible change.

Thus the question stands today, and it is to be hoped that the mystery surrounding the etiology and pathology of these two processes may be solved in the near future.

THE ONEIROSCOPY OF EPILEPSY.

THE number of epileptics whose affection is clinically detected is considerable, that of unrecognized epilepsy is perhaps greater still. Therefore, every diagnostic means at our disposal should be employed and for this reason the dreams of attack should be recalled. A patient offers certain symptoms that the physician may not dare to classify as indices of epilepsy, but if a careful study of the case be made, dreams of attacks will be discovered in the patient's history and the diagnosis of epilepsy can be unhesitatingly made. This is important, because the affection frequently begins with nocturnal attacks and the case will go untreated until the day comes when vigil crises, casting a light on the diagnosis, expose the subject to serious psychic and physical disorders.

From the viewpoint of the prognosis, the dream of attack is of the utmost import, and it is an acknowledged fact that convulsive epilepsy, when there is a tendency to recovery, passes through the attenuated forms of incomplete crises before completely disappearing. When the disease is in retrogression the attacks again become nocturnal, but so long as the dream of attack is reproduced with its four periods, the epilepsy is not cured because it is still in the phase of complete crises. But as soon as the dream becomes simplified and reduced to the first phases only it may be assumed that the patient is on the road to recovery. Also, from the viewpoint

of the prognosis, there is the question of oneiric and postoneiric psychoses. The dream produces delirium acting either as a psychic trauma or by intermingling its elements with the conceptions of the waking hours in such an intimate way that the patient, incapable of discerning them, falls into a state of mental confusion. This applies particularly to children and elderly subjects. If the reported cases of oneiric psychoses be examined, the characters of epilepsy can be detected in most instances and it can logically be questioned whether these psychoses are not largely epileptic manifestations and in reality the dream plays a part in their etiology. If it is true that the oneiric psychoses are usually transitory and mild in character, it is likewise certain that the fits, by recurrence, may end in producing an incurable state of mental degeneration. Now, if the attack which is hidden behind the dream be detected, a rational treatment can be carried out and the patient cured.

What has been said naturally leads to a reference to the benefit which modern therapeutics may derive from the oneiroscopy of epilepsy. The first indication, since the dream of attack is equivalent to an epileptic manifestation, is to submit the patient to a general treatment. It is also known that the waking aura occasionally passes off unnoticed, while by a careful analysis the images of the dream can be separated. Now, the knowledge of the aura is very useful in many cases from the viewpoint of treatment, because when it is peripheral in origin a circular blister can be applied to the starting point of the aura on a given limb, and the successful results of this treatment are no longer to be doubted.

A few words now as to the forensic aspect of the question under consideration. An epileptic is in some countries irresponsible before the courts of law, but it is often difficult to determine if an individual given over to justice for some delinquency is an epileptic. The way in which the offence has been committed is not always an indication in this respect. The two great characteristics which formerly were regarded as epileptic in nature—unconsciousness and amnesia—have long since been recognized as far too inconstant for forming the basis of a serious diagnosis, at least by the French courts. If, therefore, in these circumstances, an examination as to the individual's dreams be made and it can be recognized that they offer the characters of dreams of attack, the logical conclusion will be that the subject is an epileptic. It clearly remains to find out if the act for which the subject is charged was perpetrated under the direct influence of the neurosis. This task is still a delicate one for the expert, but it will have been facilitated by the knowledge already gained from an analysis of the case-history.

In questions of marriage, life insurance, etc., the detection of dreams of attack is unquestionably of the greatest interest, as in the frequent cases where the diagnosis of epilepsy is doubtful but extremely useful if it can be made with certainty.

TYPHUS FEVER.

THE war has taught some facts with regard to typhus fever, the principal of which is that it is mainly spread by means of infected lice, and consequently there should be no great difficulty in preventing its dissemination. Cleanliness prevents the spread of typhus, as it is primarily and eminently a disease of dirt. As is well known, typhus fever prevailed extensively in certain of the prison camps of Germany owing to the flagrant and inhuman disregard by the German military authorities of the recognized ethics of civilized warfare. Little or nothing has been heard of these outbreaks from German sources until recently, when German medical papers are beginning to come into allied and neutral countries. In the *Archiv für Schiffs u. Tropen Hygiene* for August, 1918, Drs. Stojan Kirkoviz and Vladimir Alexieff give an account of typhus fever in a war prisoners' camp.

At the end of 1914, and in the beginning of 1915, the authors had the opportunity of studying in one of the camps a simultaneous outbreak of typhus and recurrent fever. There were thirty-three cases of double infection. In eight instances infection must have occurred of both diseases at practically the same time, since the pyrexia due to typhus was grafted immediately, or after a slight interval, upon that caused by the first paroxysm of recurrent fever. In other cases there was an interval of some days before the cessation of the latter and the appearance of symptoms suggestive of the former. It is supposed that these became infected with typhus by contact with other patients during removal to hospital. In all cases the symptoms of recurrent fever preceded those of typhus, and consequently the course of the epidemic was such that while in the beginning there was a predominance of cases of recurrent fever over typhus, the relative proportion at the end was the reverse.

Regarding the fall of blood pressure, which is a distinctive feature of typhus fever, Drs. D. Danielopolu and D. Simici, writing in the *Archives des Maladies du Cœur* for January, 1918, explain the marked fall in blood pressure which occurs in typhus fever by the damage done to the adrenals, with the concomitant results of vasodilatation and diminution of peripheral resistance. In a paper contributed to the same journal for February, 1918, Danielopolu records his conviction that the blood changes occurring in typhus fever follow precise rules, and have an important prognostic value.

Lastly, Drs. B. Moellers and G. Wolff, writing in *Deutsche medizinische Wochenschrift*, June 20, 1918, deal with the possibility of applying to typhus the principles of prophylactic inoculation which hold good for other epidemic diseases. The authors confined themselves to attempts to obtain active immunization by repetition of the method followed by several investigators, that of utilizing as an inoculum the blood of patients actually suffering from typhus fever. The main modification introduced is the employment of 0.2 per cent. formalin as a means of

preserving the infected blood which forms the inoculum. They claim the following results from this treatment: (1) Prophylactic inoculation against typhus fever with formalinized blood is quite as harmless as that against typhoid fever or cholera. (2) Although it offers no absolute protection against all possibility of infection, there would appear to be a diminution of both incidence and mortality among those inoculated, but even so, no relaxation of the campaign against lice, even among the inoculated, is permissible. (3) In certain cases it has been possible to immunize guinea pigs against inoculation with virulent typhus blood by means of preliminary injections of formalinized typhus blood. (4) Of over 650 persons who underwent this prophylactic inoculation, 11 contracted typhus; of these, 6 acquired the disease within 3 months, and 5 between 3 and 8 months from the time of inoculation. Death occurred in one case; the remainder recovered. Besides the 11 mentioned above 4 individuals who had only received two injections instead of three contracted the disease, as well as six others who were inoculated during the incubation period.

OCULAR SENSIBILITY TO PRESSURE AND ITS CHANGES IN TABES DORSALIS.

THE eyeball in the normal state possesses a special sensibility to pressure, made manifest by a deep-seated acute pain, *sui generis*. It can be aptly compared to deep-seated sensibility of various viscera, such as the trachea, mammary gland, ovary, and testicle. Ocular sensibility to pressure is largely due to setting into activity of the sensitive nerve endings in the choroid and its appendages and consequently is entirely within the domain of the fifth cranial pair by the intermediary of the ciliary nerves. Ocular sensibility to pressure will become disturbed in morbid processes involving the structures composing ocular tunics and the intraocular substance, but the study of these disturbances is yet to be undertaken.

Sensibility to pressure on the eyeball may likewise be modified in affections of a more general order and more particularly in locomotor ataxia. In this process the changes are, firstly, an increase which constitutes ocular hyperalgesia to pressure; secondly, a diminution which may very properly be termed ocular hypoalgesia to pressure; and thirdly, an abolition which represents an ocular analgesia to pressure. Under the latter term may be included all the variations in minus of ocular sensibility to pressure.

Ocular hyperalgesia in tabes is very uncommon, analgesia being by far the most frequent, being met with in somewhat over fifty per cent. of tabetics and in all the phases of evolution of locomotor ataxia. This analgesia appears to have little or no direct relation with the intraocular tension, the condition of the retina and optic nerve, and in general with the ordinary ocular manifestations commonly encountered in tabes, and, above all, with the state of corneal sensibility.

The ocular analgesia of locomotor ataxia is easily detected, while its frequency and the characters properly belonging to it make it a symptom which when elicited may well serve in the diagnosis of doubtful cases. The pathological interpretation of tabetic ocular analgesia is still hypothetical, but it is quite logical to look for the cause in a ciliary neuritis which may be included among the peripheral neuritides of locomotor ataxia. Probably also the ciliaryneuritis is of a sympathetic type, similar to the visceral neuritides belonging to this parasyphilitic process. Ocular analgesia does not belong to tabes exclusively, as it is met with in local affections and those of a more general order, such as hysteria, in which case it affects the same characters as in tabes.

LITERARY ACTIVITIES OF COLLEGE FACULTIES.

EVERY medical school, large or small, endowed or not, doubtless cherishes the ideal of an all star faculty, every member of which must have done something to make a name for himself and thereby reflect glory on the schools. When a man receives an appointment to a chair it is intimated to him, vaguely perhaps, that he must make good by writing a book or publishing the results of experiments or advocating some policy of teaching and so on. The metropolitan universities have little trouble in fulfilling these ideals by reason of the great reserve of competent men immediately available who can supplement any weak point in the regular faculty. In an older generation the small provincial school got along by adding to the local men professors from metropolitan schools. The system of consolidation of small schools to form a large one and of absorbing the small school has greatly raised the standard of medical education and one is curious to know whether this integration movement has contributed directly to the ideal of a faculty of men of renown. A preliminary survey rather goes to show that such a result is as yet unattained, and that outside the great metropolitan schools the faculties as heretofore comprise a few stars, while the balance of the teaching body, however competent and well known to their special colleagues, have no extended reputation.

By way of contrast, and also to indicate clearly just what is meant, let us select at random a small European medical school, that of Bordeaux, a city of about 300,000 inhabitants. We select only a few of the faculty, the names perhaps comprising men recently deceased. The incumbent of the medical chair, Pitres, one of the leading authorities on neuroses and a former collaborator with Charcot, is also the author of a two-volume work on hysteria and hypnotism, not to mention other volumes. His colleague, Arnozan, is author of a large monograph on medical hydrology. Villar, one of the incumbents in surgery, has published a work on operative surgery and a monograph on surgery of the pancreas. Lefour is author of a monograph on fibroids and pregnancy, Lagrange of one on tu-

mors of the eye, and Loumeau, the urologist, of a two-volume work on his special field. Denucé, with Nové-Jusseraud, has just published a standard work on orthopedics. Better known, perhaps, than any of the preceding are Pachon of the chair of physiology, whose blood pressure apparatus (oscillometer) is the one in common use in France, and the celebrated electrologist and physicist, Bergonié, who incidentally devised a method of electrical treatment of obesity.

POSTINFLUENZAL IMMUNITY

THIS question is naturally fraught with numerous difficulties, for the natural immunity varies greatly with the particular outbreak and the mild or masked attack which confers acquired immunity may have escaped observation. The incidence of a second outbreak is usually smaller than that of the first, although more deadly, and the escape from a second attack may be due to nonexposure. Pseudogrippe, endemic winter grippe, or winter catarrhal fever confers no immunity but rather increased susceptibility, and who shall decide where true influenza leaves off and endemic grippe begins? It is apparent that acquired immunity can be studied only in the first two or three waves of a pandemic. If such is in evidence, is it complete or does the victim develop a mild type of true influenza? If there is protection, how long may it last? The last query is most difficult to answer, but the claim has been made that the victims of 1890 have shown resistance to the disease of 1918 even if they have suffered repeatedly in the meantime from endemic winter grippe. The subject is best studied in institutions which have been visited by successive waves of the pandemic. Not a few reports from asylums and other institutions have apparently shown the presence of immunity.

Falcioni, in *Il Policlinico* for February 2, takes up the subject in connection with an orphan asylum in Rome which was visited a second time in January of this year. The data, which are not given in detail, appear to show the existence of a double tendency to contract the disease anew and to resist a second attack. During the second outbreak the diffusibility was great and the children were smitten almost simultaneously, yet with the same exposure a certain number did not develop a second attack. To offset this view it may be added that an institutional epidemic is not a fair criterion, for, owing to the communal existence and overcrowding, ordinary winter grippe may exhibit epidemic behavior. The endemic form has not been obliterated by the pandemic, for the New York practitioners regard the grippe cases now among us as largely of the endemic type in everything save prognosis. They fear lung complications and hence prolong the convalescence as much as possible. Institutional epidemics are not necessarily part of the pandemic, for they could readily occur in its absence. To prove them to have a pandemic origin it would be necessary for the region to be actually in the grip of a pandemic wave.

ALLEGED POISONING BY MINUTE DOSES OF RHUS TOXICODENDRON.

DR. DE HAAS of Rotterdam describes in the *Nederlandsch Tijdshrift voor Geneeskunde* for January 25 a case of poisoning attributed to the ingestion of a presumably harmless remedy. The latter is a popular homeopathic preparation and has never so far as known given untoward results. The writer was consulted by a woman who was very anemic and who complained of headache of a frontal localization. Evidently he found nothing serious the matter, as she was free from constitutional symptoms. His diagnosis seems to have been anemic headache. No treatment is mentioned. Several days later he was again summoned. The headache had partly disappeared. He noted that the pupils were dilated, reacting freely to light and accommodation. Vision was found normal. Several days later it became evident that some disorder of the eyes was present. The pupils had become sluggish to light and visual acuity was diminishing. An earnest request was made to call in an ophthalmologist, but this was refused with firmness. Soon afterwards, the woman having complained of abdominal pain, it was found that urinary retention was present. The catheter brought away a liter and a half of normal urine. The ocular disturbance had now become so serious that a specialist was called in who made a diagnosis of probable poisoning, such as might arise from lead or arsenic—the actual diagnosis was toxic retrobulbar neuritis. The examination of the urine was quite negative. The author mentions no treatment for the interval, but merely states that a month later the visual troubles had disappeared. Pressed for more enlightenment, the woman confessed that before she had first summoned the doctor she had been taking a homeopathic remedy obtained from a druggist. This proved to be rhus toxicodendron, five drops of a 1-1000 solution (3x in the homeopathic potency scale) three times daily. Search through the literature reveals nothing akin to this case, only local untoward effects being known. It has been shown that 1/1000 mgm. of toxicodendrol, the active principle, can cause a local skin reaction. It has also been stated, but without details, that this substance is toxic to the dog, although many herbivora seem immune. Search of homeopathic literature reveals no data as to toxicity unless we include subjective phenomena. The mother tincture is made from one part of dried plant and two parts of alcohol, and in one day the patient received only ¾ milligram of this mother tincture. The author leaves the solution of the puzzle to his readers.

WAR ILLEGITIMATES IN FRANCE.

LAUMONIER discusses this subject so far as it concerns France in the *Gazette des hôpitaux* for February 20. The dead of France number 1,500,000 on the battlefield and in the military hospitals alone, while the civilian deaths for the war period, greatly augmented by the grippal pandemic, are sufficient to make the gross depopulation 4,000,000. On the other side of the ledger 1,500,000 inhabitants accrue to France through the recovery of Alsace-Lorraine. The kilometric density of population is now but seventy, far too low in comparison with

Germany. In regard to the rate of natality unfavorable influences comprise the social maladies—tuberculosis, syphilis, and alcoholism. But a singular element has been interjected which, while criminal in origin, makes for the other side of the question. This is the generation of a race of bastards as a result of the systematic violation of French women by German officers, who, having first isolated the men of the conquered communities, wrought their will among the women. The cynical justification was that the superiority of German blood would tell in the long run and that some day these spurious children would be found on the German side in any future dispute, and, like the children of legitimacy of international unions, would favor annexation. In other words, rape becomes German propaganda and germanization of the conquered. The French, to meet this argument, were for interruption of all of these pregnancies. But the author's study of the past has convinced him that these half-breeds tend to take after the mother so long as they are reared in their own country. In Alsace-Lorraine Frenchmen with German names are extremely numerous, showing that the influence of the father has been greatly exaggerated, even in a country which has changed hands several times. Further study shows that, whatever their paternity, children of French mothers reared on French soil remain French.

Influenza Nostras.

It seems strange that the useful adjective "nostras," used in the sense of domestic, has never come into use for the ordinary endemic winter grippe which has prevailed among us annually for about thirty years and certainly in special localities for a much longer period. The term "cholera nostras" used in Europe as a synonym for our "cholera morbus" is a very useful term to distinguish the latter from epidemic or imported or Asiatic cholera. There is no implication in using this adjective that the domestic and imported diseases are identical, but it is very difficult to distinguish between them clinically. In the *Brazil-Medico* for February 8 Dr. Ribiero da Silva contrasts pandemic with domestic influenza (*Grippe pandemica e grippe nostras*). As nothing is said of the antiquity of the domestic form we may perhaps assume that he regards it as perennial. The old malady, the one which we know from long experience, is not the pandemic form, and the thoughtful student must become a pronounced dualist. The parallel between the clinical expression of the two affections need not be carried out, for it is or should be sufficiently known to all medical men. There are certain districts in the interior of Brazil in which grippe appears annually in the early autumn or spring which serves as a type of influenza nostras. It varies much in severity and is apt to kill old people by bronchopneumonia. In these subjects the *Diplococcus capsulatus* is found in the lungs in large numbers. This domestic type is somewhat contagious. In S. João del Rey, a locality visited annually by domestic grippe, a small episode of the latter appeared last September. When in November the pandemic reached this locality the same individuals were promptly attacked, furnishing a fine concrete proof of dualism.

News of the Week.

Influenza in the South Sea Islands.—Influenza is reported to have played havoc in the South Sea Islands, Samoa, Fiji, Tonga, and Tahiti having suffered great loss of life. There were about 8,000 deaths from the disease in German Samoa, two-thirds of these being men. It is said that at one time as many as 80 to 90 per cent. of the population of Sidney were lying ill with the disease. Most of the missionaries and 56 per cent. of the Government officials have died. In New Zealand during a few weeks there were almost 6,000 deaths. A Pneumonia-Influenza Commission appointed to study the epidemic in that country characterizes it as one of the gravest calamities which ever befell the people of the dominion. Fearing that if the influenza gained a foothold in the former Bismarck Archipelago or on the mainland of New Guinea it would decimate or even exterminate the native population, the Australian Military authorities at Raboul took extensive steps to prevent such an occurrence by inoculating between six and seven thousand blacks in Raboul, and arrangements were made for sending a steamship with doctors and vaccine through the many islands near New Guinea.

Association for the Study of Children.—The National Association for the Study and Education of Exceptional Children held its annual meeting at the Hotel McAlpin, New York City, on April 30. Among the speakers were Dr. Maximilian, P. E. Groszmann, founder and leader of the Association; Dr. Frederick J. Farnell, examining psychiatrist of the public schools of Providence; Dr. Arthur D. Jelly, examining psychiatrist of the public schools of Boston; Dr. E. Bosworth McCready, associate editor of the *Journal of Sociological Medicine;* Dr. Julius Levy, Director of the Bureau of Child Hygiene of the Department of Health, Newark, N. J.; Dr. Francis N. Maxfield, psychologist, Department Medical Inspection, Newark, and Dr. Ira S. Wile of New York City.

Red Cross to Teach Home Nursing.—The American Red Cross has rented an apartment in a tenement house at 510 West 26th Street, in which the women of the West Side will be taught elementary hygiene and home nursing. If the experiment is successful similar centers will be established elsewhere in the city. Health Commissioner Royal S. Copeland and Dr. John Lovejoy Elliott are cooperating in the enterprise.

Deaths in the Army.—A report from the Surgeon General's office, issued by the War Department, gives the total number of deaths reported during the war to April 29, 1919, as 111,179. Of these 56,632 or 51 per cent. were from disease, 43 per cent. in battle or from wounds received in battle and from other injuries. Of the deaths from disease about 12,000 have occurred since hostilities ceased.

New Site for Orphan Asylum.—The Hebrew Orphan Asylum of New York City has purchased a site for new buildings consisting of 103 acres on 233rd Street in the Bronx, at a cost of $350,000. Plans are being made for the expenditure of $1,000,000 for new buildings which will probably be on the cottage plan with separate buildings

for the hospital, dispensary, and schools. The institution cares for about 12,000 children.

Dr. Frank P. Norbury of Springfield, Illinois, has returned to his home and resumed private practice after having served since August 1, 1918, as Acting Medical Director of the National Committee for Mental Hygiene in New York. Major Frankwood E. Williams, having received his discharge from the Medical Corps of the Army, has resumed his duties in the office of the National Committee for Mental Hygiene.

Dr. Elbert M. Somers has completed his service with the American Red Cross as hospital superintendent in France and has resumed his practice in Brooklyn.

Dr. C. E. K. Vidal of Great Falls, Mont., has been appointed superintendent of the State Tuberculosis Hospital at Galen.

The American Board of Ophthalmic Examinations will hold its next examinations at the Willis Eye Hospital, Philadelphia, June 6 and 7, 1919. The coming examination will be the fifth to be conducted by the Board, which is composed of members of representatives of the American Ophthalmological Society, the Section on Ophthalmology of the American Medical Association, and the Academy of Ophthalmology and Oto-Laryngology. By arrangement with the American College of Surgeons, the Board has become the Ophthalmic Credentials Committee of the College, and conducts the ophthalmic examination of the ophthalmic candidates for Fellowship in the college. Details with reference to the examination may be had upon request from the Secretary, Dr. William E. Wilder, 122 South Michigan Avenue, Chicago, Ill. The Board is doing a valuable work in trying to raise the standard of ophthalmology in this country.

Hospital Bed as Memorial to Roosevelt.—The American Fund for French Wounded, which is prepared to erect a Memorial Hospital in Rheims, announces that friends and admirers of Theodore Roosevelt have raised a sum to endow a bed in the hospital as a memorial to the former President.

Bequests.—The will of John B. Manning makes the following bequests to New York City Hospitals: St. Vincent's Hospital, $25,000; St. Francis and St. Joseph's Hospitals each $10,000, and Misericordia Hospital, $2,000.

By the will of the late Sarah Lamb of Lockport, N. Y., the sum of $500 is bequeathed to the Woman's Medical College of Pennsylvania.

By the will of the late Moses J. Blitz of Philadelphia the income from an estate of $30,000 is bequeathed to the Jewish Hospital for the maintenance of three beds.

County Society again Remits Dues of Men in Service.—The Comitia Minora of the Medical Society of the County of New York has passed a resolution empowering the Treasurer to remit the dues of members in service who so request. Such requests must be filed at once in order that the books of the society may be brought up to date.

Positions for Physicians in Panama Canal Service.—The United States Civil Service Commission announces an open competitive examination, for men only, on June 18, 1919, to fill vacancies in the Panama Canal service, at salaries of $150 a month with promotions up to $300. Applicants must be unmarried, must have been graduated from a recognized medical school whose graduates are eligible for commission in the United States Army, and must have had at least one year's post-graduate hospital experience. Those desiring to take the examination should apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Medical Society Elections.—The SOUTH CAROLINA STATE MEDICAL ASSOCIATION, at its annual meeting, held in Florence, April 15-17, 1919, elected the following officers for the ensuing year: *President*, Lieut.-Col. E. W. Pressley of Greenville; *First Vice-President*, Dr. D. M. Smith of Florence; *Second Vice-President*, Dr. O. C. Shecut of Orangeburg; *Third Vice-President*, Dr. C. A. Mobley of Rock Hill; *Secretary and Treasurer*, Dr. J. P. Taylor of Adams Run; *State Board of Examiners of optometrists and opticians*, Dr. E. M. Whaley of Columbia.

The WOMEN'S MEDICAL SOCIETY OF THE STATE OF NEW YORK, at its thirteenth annual meeting, held at the Hotel Onondaga, Syracuse, May 5, 1919, elected the following officers for the ensuing year: *President*, Dr. Elizabeth B. Thelberg of Poughkeepsie; *First Vice-President*, Dr. Florence I. Staunton of Utica; *Second Vice-President*, Dr. Sarah J. McNutt of New York City; *Third Vice-President*, Dr. Matilda K. Wallin of New York City; *Secretary*, Dr. Ethel D. Brown of New York City; *Treasurer*, Dr. Phoebe M. VanVoast of New York City; *Scientific Program*, Dr. Grace N. Kimball of Poughkeepsie.

The FAIRFIELD COUNTY (CONN.) MEDICAL ASSOCIATION, at its 127th annual meeting, held in Bridgeport, April 8, 1919, elected the following officers for the ensuing year: *President*, Dr. George R. Hertzberg of Stamford; *Vice-President*, Dr. Eli B. Ives of Bridgeport; *Secretary*, Dr. C. W. Gardner of Bridgeport; *Treasurer*, Dr. H. B. Lambert of Bridgeport.

New Dean of the College of Physicians and Surgeons.—Dr. William Darrach, formerly professor of clinical surgery, has been appointed dean of the medical department of Columbia University, to succeed Dr. Samuel W. Lambert, who recently resigned. Dr. Darrach sailed from New York with Base Hospital No. 2, May 14, 1917. After serving in various posts he was made chief consulting surgeon at the Third Army Headquarters. On March 7 last he was promoted to colonel for distinguished service. He received his discharge April 12.

Clinical Society of the Hospital and Dispensary for Deformities and Joint Diseases.—A stated meeting of this society will be held at 41 East 123d Street on Tuesday, May 13, at 8.30 P. M. Dr. Sidney A. Twinch will read a paper on "Tuberculin in Tuberculous Joint Diseases," and Dr. Lewis Hart Marks one on "Specific Chemical Therapy."

Sailor Brings Smallpox to New York.—The second mate on the coastwise steamer *Desha*, plying between New York and Mobile, was taken from this vessel on April 22 suffering from smallpox. The woman who conducts the boarding house where he stays when on shore leave is also in the hospital with this disease.

Red Cross Formulates Peace Program.—The American Red Cross announces the passage of a resolution at the Red Cross conference at Cannes, agreeing to formulate and propose to the Red Cross societies of the world an extended program of Red Cross activities in the interests of humanity. The resolution provides for the utilization of a central organization which shall stimulate and coordinate the voluntary efforts of the people of the world through their respective Red Cross societies in the development of sound measures of public health and sanitation, the welfare of children and mothers, the education and training of nurses, the control of tuberculosis, venereal diseases, malaria and other infectious and preventable diseases, and which shall endeavor to spread the light of human science and the warmth of human sympathy to every corner of the world.

Dr. Abraham Jacobi's Eighty-ninth Birthday was celebrated on Tuesday of this week. It is one of the privileges of May time to offer our felicitations to Dr. Jacobi on this day each year, and we look forward with pleasurable anticipation to the celebration, eleven years hence, of his first centennial.

Dinner to Mt. Sinai Unit.—The officers and men of Base Hospital No. 3, the Mount Sinai Unit, which was under the command of Lieut.-Col. Howard Lilienthal, were given a dinner at Sherry's on the evening of May 3 by the trustees of Mt. Sinai Hospital. The headquarters of the unit was at Vauclaire, and during the period of hostilities it cared for 14,500 patients, among whom were 3,500 gassed men. There were 1,700 operations performed by the unit, with a mortality of less than 1 per cent. The medical mortality was about 3 per cent.

Spain Honors Mme. Curie.—King Alfonso has signed a decree awarding the Great Cross of the Civilian Order of Alfonso XIII to Mme. Sklodowska Curie, the distinguished French scientist, chief professor in the faculty of sciences of the University of Paris. Mme. Curie was the discoverer of polonium and codiscoverer with her husband of radium.

Obituary Notes.—Dr. MORTIMER FRANK, a graduate of the University of Illinois Medical Department, in 1901, died from an apoplectic stroke at his home in Chicago, on April 28, aged 45 years.

Dr. ZACHARIAH T. SOWERS, a graduate of George Washington University, Department of Medicine, in 1869, died at his home in Washington, D. C., on April 23, after a long illness, at the age of 73 years. He was a Civil War veteran, a member of the Medical Society of the District of Columbia, of the National Geographical Society, and the Anthropological Society. He was president of the Washington Foundling Hospital, and on the visiting staff of the Garfield and Providence Hospitals.

WILLIAM TYLER SMITH, a graduate of Jefferson Medical College, Philadelphia, in 1883, died at his home in Sheridan, Ore., on April 17.

Dr. FREDERIC A. WILLIAMS of New York City, adviser of the New York State Insurance Fund, died as the result of injuries received in an automobile accident, in Atlantic City, on May 2, aged 49 years. He was formerly on the staff of the Hudson River State Hospital, at Poughkeepsie.

Correspondence.

THE ADMINISTRATION OF ARSPHENAMINE.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—It appears that there is a lamentable want of care on the part of many physicians who administer arsphenamine as to the concentration of the drug used and the time required for administration.

The Hygienic Laboratory receives many complaints in regard to untoward results from the administration of arsphenamine made by various American producers. When careful investigation is made it is almost invariably found that the drug has been used in a solution that is too concentrated, and that it has been administered too rapidly. We have reports of a dose of 0.4 gm. being given in a volume of as little as 25 c.c. and injected within 30 seconds. Such practice is abuse, not use, of a powerful therapeutic agent.

If, in addition to the usual precautions as to the use of perfect ampules and neutralization, physicians would give the drug in concentration of not more than 0.1 gm. to 30 c.c. of fluid and allow a minimum of two minutes for the intravenous injection of each 0.1 gm. of the drug (in 30 c.c. of solution), the number of reactions would be very materially reduced. This would necessitate from 90 c.c. to 180 c.c. of the solution for the doses usually given and would require from six to twelve minutes for the injection.

Any physician who fails to observe these precautions should be considered as directly responsible for serious results that follow the improper use of the drug.

G. W. McCOY,
Director, Hygienic Laboratory,
U. S. Public Health Service.

WASHINGTON, D. C.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, April 9, 1919.

A Health Conference of Insurance Organizations.—It goes without saying that since the National Insurance Act, and to a certain extent since the institution of Old Age Pensions, the position of all the insurance organizations with regard to the practice of medicine has been a very intimate one. It is a little unfortunate that it has not always been quite a friendly one, but the proceedings at a recent Health Conference, held by these organizations and other bodies engaged in social work, were of such a practical nature that we look forward to much valuable cooperative work in the future. The presidential address to the conference, delivered by Mr. P. Rockliff, indicated that every endeavor would be made by the Government in the new Ministry of Health Bill to meet the views of the Friendly Societies. Now it is believed that every endeavor will also be made by the Government to meet the views of the medical profession, while it is the Friendly Societies with whom the medical profession are sometimes upon strained terms. Mr. Rockliff's speech suggested that mutual understanding was

approaching. The Friendly Societies, it will be understood, are those groups of mutual aid members who, by payment to a society, secure for themselves medical assistance and treatment; but as, under the National Insurance Act, such assistance and treatment has to be furnished through the medical profession by a system of panels, the payment of the panel doctors proceeds from these mutual aid groups, *i.e.* it proceeds from the patients, the employers, and the State, indirectly through the Friendly Societies. The Friendly Societies resent the fact that they have, or consider they have, no control over the doctors whom they pay, and from this feeling arises most of the opposition which the medical profession suffers when the improvement of panel conditions is in question. For the doctors, of course, see that they are neither employed by nor paid by the Friendly Societies, but their employment arises as officers of the National Insurance Act. It is, therefore, significant that at the National Health Conference of Insurance Organizations of Social Workers no criticism was made by the president of existing panel methods. If the parties to the misunderstanding between the panels and the Friendly Societies will be silent peace will come sooner.

The next speaker at the conference was Sir Laming Worthington Evans, the Minister of Pensions, who said that arrangements were being made by the Ministry of Pensions to take over orthopedic hospitals from the Army and to establish out-patient clinics in surrounding towns and districts under the direction of the surgeons attached to the orthopedic hospitals. How much work lies before the Ministry of Pensions can to some extent be realized by the figures which he gave. With regard to training, he estimated that the classes falling within the terms of the Pensions Warrant numbered about 350,000 men. He did not mean that the whole of these 350,000 men desired to receive, or were even qualified to receive, training, but from among these we should expect to find a large number for whom training ought to be provided. "For example," he said, "there were 24,000 men who had lost a limb by amputation; there were 36,000 men who had suffered from neurasthenia; many of these would require outdoor employment; there had been 60,000 suffering from chest complaints, including tuberculosis, and there had been 54,000 men suffering from heart trouble who might have to change their occupation if it previously called for heavy physical strain."

Sir Kingsley Wood then introduced the subject of the relation which medical research should bear to the State, and said that the House of Commons had unanimously supported the establishment under the new Health Bill of a great Research Department. Sir Walter Fletcher, the secretary of the Medical Research Bureau, followed, and no doubt many members of the public thought that it was his bureau to which allusion was being made. This, however, is not the case. Sir Walter Fletcher's bureau, the Medical Research Bureau, which came into being in connection with the National Insurance Act, is now to be transferred to the ægis of the Privy Council and, instead of working in the interests only of those benefited by the National Insurance Act, it will now take on international activities. Under the new Health Bill a *new* Research Department will be founded, and its necessity is well indicated by the fact that the cost to the State of the recent epidemics of influenza is said to have been £120,000,000, while during the year the State contributed £65,000 to the existing Medical Research Bureau. Sir Walter Fletcher's address was an excellent exposition of his text that, "If the war had taught us nothing else, it had taught us the dependence of the State for its existence on scientific work." He ran rapidly through the benefits that had occurred to the human race through the work of medical research, which he said was none the less done by a small army of unseen, little-known workers, and practically the whole of the work was unpaid. In connection with this fact he said that while in England a man would receive £100 to solve an important scientific problem and spend £90 on the actual materials required for research, in the United States the endowment for research was measured by millions. Sir Walter Fletcher was followed by General Sir William Leishman, who spoke of the part that had been played by hygiene in keeping our armies in a fit condition in the field and in warding off epidemics which in the past had so often brought fighting to a standstill. He enumerated directions in which medical research had been especially valuable in times of war, while he indicated in the times of peace the medical department of the army would be the best body available for carrying on works of research. The officers of that department, as he pointed out, had the advantage of being able to observe for long periods bodies of men under varying conditions of climate and in an environment that does not obtain in civil life, but which is particularly suitable for research.

The conference was held at the Central Hall, Westminster, under the auspices of the Faculty of Insurance, and may be said to have been promoted by persons who, through their organizations and group movements, can command a great deal of money and can influence a great many votes. The approval with which speakers were listened to, whose one common plea was that money should be poured out in behalf of medical research, should be of good omen for the medical profession.

Vacancies in the Council of the Royal College of Surgeons of England.—The affairs of the wealthiest medical corporation in England, the Royal College of Surgeons, are managed by a council of twenty, two vice-presidents and a president. Two vacancies are occurring by seniority, but Sir Berkeley Moynihan is offering himself for re-election and is sure to succeed. There are five candidates for the second vacancy, of whom Colonel Cuthbert Wallace and Colonel A. H. Tubby have the best chances.

The Dogs' Protection Bill.—A bill for the Protection of Dogs has passed the committee stage, and will now be reported in amended form in the House of Lords. The bill, if it becomes a law in the shape in which it is now amended—in spite, it may be added, of the efforts of the Government—

will prohibit any experiments on dogs, whether conducted with or without anesthetics, having for their object medical research. There has always been acute dislike on the part of the public to the idea that the dog should be used for research or experimentation purposes, and the feeling is so natural that it did not really require the exploiting which it has received at the hands of very many sentimental and some mendacious persons. There is, of course, no rational basis for suggesting that the dog should be exempt from medical experiment any more than another animal except sentiment. If there is anything immoral in the act toward the dog, it is equally immoral toward the horse and the monkey, but the intimate association of the dog with man has prevented reasonable argument in regard to the matter. Physiologists, far from being cruel people, have not the slightest desire to experiment on the dog rather than on any other animal, if only because they are perfectly aware that physiological research, with the dog as a subject, causes enormous pain to the public, even though in the great majority of cases it causes none to the dog. For which reason the important question at issue is: How far is the use of the dog essential to physiological experiment? The leaders of physiological research, if this question were put to them, would unanimously point out that some of the most valuable work which has ever been performed in practical physiology was associated with experiment on the dog. This, of course, is certainly true, and at the present moment there are in England researches being conducted through the medium of experiments on dogs which may have a vastly beneficial effect upon child life, but, of course, until experiments with similar objects have been carried out on other animals than dogs, no one can dogmatically assert that the dog was essential to the experiment. To the medical profession the institution of an act exempting the dog from physiological experiment would be a perfectly welcome proceeding if it were not for two things. The first is the underlying assumption that the physiologist is a cruel person, and the second thing is the fear of dictation from lay authorities upon purely medical points.

The second of the objections to the Protection of Dogs' Bill should today be disregarded. The sooner the medical profession learns to trust the public, for whom, but also through whom, they exist, the better for all. The first objection has its origin also, to some extent, in the medical attitude. Why are not the reasons for the employment of dogs in certain physiological experiments clearly stated? The public talks as if the dog might be spared by using the rabbit, which is herbivorous; the rat, which is too small; the pig, which is unnecessarily large, and the monkey, which is too expensive. Those who desire to stop all physiological experiment again exploit the natural and honorable position of the dog as the friend of man," as a reason for removing the dog from the laboratory, but they forget that this long association with man is actually a quality recommending the dog for certain experiments. What other animal sleeps at home, walks abroad, eats omnivorously, and shares the delights and restrictions of civilization? None. If the experiment turns on a condition of civilized life, the dog is obviously the best medium through which to acquire knowledge.

The Clinical Meeting of the British Medical Association.—This meeting is proceeding successfully. A fairly representative crowd of doctors, military and civil, home and Colonial, are present and some of the proceedings have already been very interesting. A paper by Colonel G. E. Gask on the biology of wounds, another by Colonel T. R. Elliott on gunshot wounds of the chest, another by Colonel F. W. Mott, on war neuroses, and another by Colonel L. S. Dudgeon on bacillary dysentery are among the most important communications yet read, and sufficiently indicate the range of the congress's activity.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

PARIS, March 27, 1919.

Work of the Pittsburgh Field Ambulance.—Much has been written and said about the great national organizations auxiliary to the army. There are many smaller and individual organizations that have done noble work and among them is the Pittsburgh Field Ambulance, the central committee of which has, from the beginning, found collaborators, inspired with a true spirit of fraternity, who have always worked without compensation. The Pittsburgh Field Ambulance General-director in Paris, Dr. de Gerin, has devoted himself entirely to his task. Wounded and having lost the use of one arm through blood poisoning he has given all his time and strength to aid the sick and wounded poilu.

Since it began its work the Pittsburgh Field Ambulance has presented more than 346,000 gifts to over 700 ambulances, without counting some 13,000,000 sheets of writing paper and envelopes given to enable the men to write to their families. The value of these gifts amounts to nearly 3,000,000 francs. The most interesting of its work is perhaps that which was done in the invaded regions of the Vosges, where more than sixty villages were occupied for four years by the Germans, who robbed the population of everything and carried off the inhabitants to Belgium and Germany.

These "évacués" have been returning gradually since November 11, and find nothing but heaps of stones where their houses formerly stood. The organized devastation by the enemy was so thorough that the inhabitants are in great need of help.

Thanks to the good will of the Service de Santé and the constant facilities it has placed at the disposal of the General Director of the Pittsburgh Field Ambulance, Dr. de Gerin has been able since August last to travel in the region of the Vosges over roads at one time constantly bombarded and to organize the supply of food and clothing in the whole country between Saint-Die and Raon-l'Etape. By his wise forethought supplies were forwarded before the armistice and the numerous gifts were all the more appreciated, since they arrived when most needed.

During the day which immediately followed the signing of the armistice prisoners from the camp at Schirmeck continued to arrive at Raon-l'Etape. They were scarcely covered with a paper shirt and often had only slippers as footgear without socks, and walked forty kilometers in the mountain snow, having received no food on leaving. They were received by the Regional Director, Mr. Bastien, who untiringly distributed food and clothing to these unfortunate men. These released prisoners were mainly soldiers of the Allied forces: Englishmen, Scots, Irishmen, etc.

Dr. de Gerin has visited and conveyed help to more than sixty villages. The destruction everywhere was terrible, and seven villages even to-day are without a living soul. In many other places the evacuated populations are returning, with nothing more than they have on their backs, to find their homes utterly destroyed.

The Pittsburgh Field Ambulance considers that the transition period between the state of war and the economic reorganization will be a most trying one; it has therefore adopted this invaded region and has decided to continue for many months its help to those of the population who have been stripped of everything. They number nearly 50,000 persons. Certain other societies have sent some help. Among them is the Canadian Red Cross, which has responded favorably to Dr. de Gerin's request for the donation of a fine large wooden house, worth about 40,000 francs. This is to be given to the village of Vexincourt and will be used to house the mothers and children while their homes are being rebuilt. The house will afterwards be used as a recreation hall for the young people of the village. The best reward for the constant work done by the Pittsburgh Field Ambulance is contained in the words of many of the mayors of the villages of the region: "Our people feel that they have not been abandoned."

The Crusaders.—When the detailed history of the war can be written, one of the most stirring chapters will deal with the initiative, courage and self-sacrificing spirit shown in countless instances by "Young America." The spirit of these youths was: "Do or Die"; usually they did, often they died. Little by little particulars of individual deeds of daring and abnegation and devotion to duty are coming to hand; and they cause a thrill of national pride in all Americans. The following relates an incident truly typical of this fine spirit: "On November 14, two of us left Venice for Trieste to distribute underclothing and boots to Italian prisoners who were pouring in from the neighboring concentration camps, the conditions at which were appalling beyond belief. The number of ex-prisoners varied from day to day. One day when we were there 105,000 arrived. We fed 30,000 per diem, and the English Red Cross about the same number. We gave clothing and, in many cases clothing and boots, to 30,000 men. Three young American Red Cross workers, Messrs. Rodgers, McConnell, and Dalzell, had in mid-August started from Venice with a motor-kitchen to feed the Italian troops in the trenches. When the Italian offensive began, they managed to secure a camion, provisioned it, and taking it in tow, made their way across the Piave and trundled into Trieste (flying a white flag between Old Glory and the Italian one) before the Austrians had evacuated the city, and were feeding the starving prisoners in less than an hour after arrival. It is to be hoped that great credit will be given in recognition of the "sand" shown by these gallant boys from New York and Boston, for their prowess in practical philanthropy."

The Scottish Women's Hospital at Royaumont, which was started on November 30, 1914, closed its doors this week. During the four years 8,752 French and Allied soldiers and 572 civilians have been cared for by its personnel, and 7,204 operations have been performed. The hospital material, including three *x*-ray installations and the outfits of three operating theaters, has been despatched to the Hôpital Saint-Sauveur, Lille, to replace equipment removed by the enemy.

The death rate in Paris during the past week was below the normal. There were 998 deaths, as against 1,133 in the previous week. The average for the season is 1,071. Grip was responsible for 100 deaths, and 161 were credited to diseases of the respiratory organs.

The American public health experts who are in Paris on their way to Cannes to attend the conference of the Committee of Red Cross Societies, beginning on April 1, were guests at a dinner given on Tuesday evening by Henry P. Davison, chairman of the committee. In thanking his compatriots for coming across the seas to devote themselves to this new international movement in the interest of humanity, Mr. Davison paid tribute to the enthusiasm with which the leading French specialists have joined in the movement, together with the foremost experts of Great Britain, Italy, and Japan.

Progress of Medical Science.

New York Medical Journal.

April 26, 1919.

1. Treatment of the Two Commonest Sequelæ of Labor and the Two Most Frequent Diseases of Women. Barton Cooke Hirst.
2. Physiotherapy in the Treatment of Osteomata. P. Kouindjy.
3. The Bacillus of Spanish Influenza. A. J. Hinkelmann and Carol P. Hinkelmann.
4. Artificial Pneumothorax in Pulmonary Tuberculosis. LeRoy S. Peters.
5. Influenza in Horses and in Man. George A. Soper.
6. Influenza. A. B. Leeds.
7. Prevention and Treatment of Seasickness. Nathan Rosewater.
8. The Fleet Surgeon. Caswell A. Mayo.

7. Prevention and Treatment of Seasickness.—Nathan Rosewater suggests the following method of preventing seasickness, which he has employed in a number of cases with perfect success. He points out that to prevent seasickness or carsickness treatment should be begun preferably one or two days, or at least a few hours, before sailing or traveling, and should be continued during the trip so that nausea, dizziness, and vomiting may be prevented. To this end, the patient should be treated for fully one or two days before sailing by emptying the bowels and maintaining a constant preponderance of peristalsis to prevent the overbalancing of the peristaltic forces by those of antiperistalsis, and that preponderance should be kept up during the trip. Since the greatest tendency to antiperistalsis would be after the stomach was full, a tablet of one-sixtieth grain of strychnine sulphate and one of one two-hundredth grain of atropine sulphate should be given one hour before

meals three times a day, and a tablet of aloin, belladonna, and strychnine each night for two nights before going aboard. In this way the normal, but often insufficient, peristaltic force of stomach and bowels is increased and the antiperistaltic forces are prevented from overpowering the normal peristalsis. The author's experience has led him to conclude that the prevention and cure of seasickness by obtunding drugs is neither practical nor advisable. He remarks that no time like the present may ever again be offered to try this method on a large scale, under army discipline and medical supervision.

Journal of the American Medical Association.

April 26, 1919.

1. Tropical Diseases Observed in Siam. Ralph W. Mendelson.
2. Systematic Care in the Sexual Diseases. James Bayard Clark.
3. Myasthenia Gravis: With Report of a Case. Charles Rosenheck.
4. Model Barrack for Prevention of Respiratory Diseases in the Army. F. T. Woodbury.
5. Tonsillectomy in Myositis and Arthritis: Results in Two Hundred Consecutitve Cases. H. I. Lillie and H. R. Lyons.
6. Injection of Hot Sodium Chlorid Solution in Treatment of Varicose Veins F. W. Kappelman.
7. Camphorated Oil Poisoning with No. Mortality: Report of Twenty Cases. R. W. Benz.
8. Limitation of Roentgenotherapy in Surface Epitheliomas. William Thalhimer.
9. Studies on Malaria Control: II. The Treatment of Malaria, with the Special Object of Disinfecting Infected Persons, Adopted After Wide Experience in Malaria Control by Treating Malaria Carriers in the Mississippi Delta. C. C. Bass.

5. Tonsillectomy in Myositis and Arthritis.—H. I. Lillie and H. R. Lyons discuss the results of tonsillectomy, as reported in November, 1918, in two hundred consecutive cases which were operated on between July 1 and December 31, 1917. Of these patients, 87 were 30 years of age or less, and 113 were over 30, the average age being 30 years. Of those not over 30, 81.6 per cent. were better after tonsillectomy; and of the second group, who were over 30, 77.7 per cent. showed improvement. Improvement was also reported in four out of ten cases of chronic disease, the patients being invalids at the time of operation. In the entire series only 57.7 per cent. of the patients gave a history of tonsillitis. The authors summarize the results of their observations and the reports of the patients' condition as follows: (1) It is justifiable to advise a tonsillectomy in every frank case of myositis or arthritis. (2) A marked improvement may be assured from tonsillectomy alone in 79 per cent. of all cases. (3) It is necessary to remove all possibility of dental sepsis; by so doing a larger percentage of patients will be improved. (4) The duration of the myositis or arthritis is a factor in the ultimate results, although benefit and even complete cure is obtained in some long standing, chronic cases. (5) Forty per cent. of the patients with chronic myositis or arthritis who are invalids will respond favorably to tonsillectomy. (6) The size of a tonsil has no bearing on its possibility as a focus of infection. A careful expression of the tonsillar crypts and a history of throat trouble associated or not associated with the myositis or arthritis is essential in the diagnosis. (7) An absence of a history of diseased tonsil in no way eliminates the organ as a focus of infection. (8) A clean tonsillectomy, with the removal of the plica tonsillaris, is necessary in every case.

The Lancet.

April 5, 1919.

1. Lumleian Lectures in Cerebrospinal Fever. Delivered before the Royal College of Physicians of London on April 3, 8, and 10, 1919. Sir Humphrey Rolleston, K.C.B.
2. The Causation and Prevention of Industrial Accidents. H. M. Vernon.
3. Left Scapular Pain and Tenderness in Heart Disease and Distress. John Parkinson.
4. Report upon the Autumn Influenza Epidemic (1918) as It Affected the N. Z. E. F. in the United Kingdom. John W. H. Eyre and Captain E. Cronin Lowe.
5. Some Points in the Treatment of Complicated Influenza. Captains A. J. Eagleton and H. H. Butcher.

3. Left Scapular Pain and Tenderness in Heart Disease and Distress.—John Parkinson submits the results of observations made on fifty cases in which soldiers complained of pain below the left breast which went through to the back or under the left shoulder blade. The scapular pain did not seem to occur in the absence of submammary pain. In character it was sharp and stabbing, or dull and aching, and of gradual onset. In a few cases, this scapular pain began at the same time as the submammary, but in most cases it had been gradually superadded after the lapse of some months or years. As a rule, exertion was found to be the exciting cause. The most constant accompanying feature was shortness of breath; there were also frequently palpitation, dizziness, and general weakness. The author draws attention to the fact that the pain of heart affections may be accompanied by hyperalgesic areas on the posterior as well as on the anterior surface of the chest. In the present series 28 out of 100 consecutive cases complained of pain on the left side of the chest in front and in the left scapular region, and of these 10 showed hyperalgesia on the posterior surface of the chest, involving in every case the lower part of the scapula, though sometimes extending far beyond it. Parkinson remarks that the pain and hyperalgesia described arise from the heart and that in the absence of physical signs of heart disease, the rheumatic history (20 out of 50 cases gave a history of rheumatic fever), the relation to exertion, and the accompanying shortness of breath, indicate at least some physical impairment or functional disorder of the heart, cases showing an extension down the left arm providing additional evidence. The localization of pain and hyperalgesia can only be interpreted on the basis of referred pain in visceral disease. It may be that our ideas upon this subject have been influenced too much by the study of angina pectoris, where the hyperalgesia is often evanescent and the segments involved are the lower cervical and upper two or three thoracic. In chronic heart disease, on the other hand, the hyperalgesia may be present week after week and the segments involved are at a lower level of the spinal cord. From these observations the author concludes that: (1) Pain at the lower angle of the left scapula often supervenes in the course of chronic pain below the left breast, especially when this is severe and long standing. (2) The causes of left submamary, as also of left scapular pain, include valvular and myocardial disease, arterial and renal disease, especially with high blood pressure, functional heart disorders with or without nervous symptoms, and general ill-health where the symptoms suggest cardiac distress. It is therefore present in many cases of "soldier's heart." (3) The sixth thoracic spinal segment, alone or in combination with the fifth, supplies the submammary and infrascapular regions where pain is commonly felt in these heart affections. The accompanying hyperalgesia may be limited to the distribution of the sixth, or fifth and sixth segments, but it often extends to a larger area and occasionally even to that representing most of the segments of the thoracic cord. (4) This submammary pain and hyperalgesia of chronic heart affections with extension to the left scapula forms a contrast in many respects with the sternal and supramammary paroxysmal pain of angina pectoris with extension to the left arm. (5) If hyperalgesia persists or recurs frequently in the course of chronic heart disease or disorder, it indicates a new and troublesome phase. Hypersensitive tissues are not merely concomitant, they induce and supplement pain. It is now provoked even by slight pressure or tension, such as by lying on the left side or turning over in bed or by taking a deep breath, which otherwise would not produce characteristic cardiac pain.

British Medical Journal.

April 5, 1919.

1. The Treatment of the Bladder in Gunshot Injuries of the Spinal Cord. Frank Kidd.
2. Remarks on Chest Wounds. From a Physician's Notebook. Colonel J. A. Nixon, C.M.G.
3. Resuscitation Work in a Casualty Clearing Station. Major Richard Charles and Captain Arthur F. Sladden.
4. Colloidal Manganese in Gonorrheal Ophthalmia. Captain Donald McFarlane Livingstone.
5. Methylene Blue in Purulent Discharge from the Eye Socket. J. Hamilton McIlroy.
6. Preliminary Note on the Response to Calcium Shown in Maniacal States. Captain T. C. Graves.

7. The Lumleian Lectures on Cerebrospinal Fever. Sir Humphrey Rolleston, K.C.B.
8. The Milroy Lectures on Half a Century of Smallpox and Vaccination. John C. McVail.

3. Resuscitation Work in a Casualty Clearing Station.—Major Richard Charles and Captain Arthur F. Sladden report the results of resuscitation work in a tented casualty clearing station on the Western front during the three weeks from September 27 to October 15, 1918. During this period 2,823 wounded were admitted and 903 operations were performed. The authors first draw attention to the value of gas and oxygen anesthesia, given by means of a Boyle's apparatus; this was found to be of great assistance in badly shocked cases and in severe gas infections. In order to avoid the onset of gas gangrene, everything was done to effect quick resuscitation. The lines of treatment followed were those usually employed: warmth applied by hot air, from a paraffin stove, ventilating over the patient into his blankets, and from hot water bottles, was the most important element. Water, sweetened lemonade, and other mild drinks were given to quench thirst, but in many cases of shock and abdominal wounds in which vomiting was persistent, it was necessary to prevent excess of drinking. Morphine, heroin, and camphor were all administered when desirable; so far as possible, however, morphine was not given in larger doses than ¼ grain once in twelve hours. Intravenous injections were largely used in the worst cases. Gum infusion was given unless there was obvious bleeding not controllable by mechanical means, when it was thought better to avoid methods which increased the blood pressure; and in urgent cases blood transfusion was preferred. Operation was done as soon as possible. As a general rule, blood transfusion was reserved for the postoperative stage when all bleeding points had been secured. The authors state that although this work was done under conditions of stress and the treatment was controlled by simple clinical methods of observation only, they do not think a discussion of results is thereby invalidated and they conclude that: (1) Resuscitation methods such as have been developed during the war are of the utmost value in war surgery and will be equally applicable in the every-day surgery of accidental injuries and in obstetric work. (2) Gum infusion is an advance on the infusion of normal saline, and may enable a patient who has not lost blood excessively to be operated upon successfully. It is not evident that the benefit due to gum can extend over more than a few hours. (3) Where hemorrhage is severe, blood transfusion is the only reliable treatment, and should be given without delay. In such cases it is much superior to gum. In blood transfusion no important difference was found between whole blood and citrated blood. (4) Previous to transfusion a blood-grouping test ought to be done in every case. If possible, the donor should be of the same group as the recipient; failing that, recourse must be had to a Group IV donor. (5) The authors wish to emphasize the need for observing the strictest surgical aseptic technique toward donor and recipient. The donor must be free from known general infections, such as syphilis or malaria, in so far as can be ascertained by inquiry.

6. Preliminary Note on the Response of Calcium Shown in Maniacal States.—Captain T. C. Graves has made some observations on the effect of calcium in persons suffering from various degrees of excitement, and for this purpose he chose the lactate as the most suitable salt. He found that the action of the drug became evident during the twenty-four hours following its exhibition. The acute mental symptoms were alleviated without the production of the stupor so commonly observed after "sedative" drugs, and the circulatory response was equally interesting. Instead of the rapid, at times almost uncountable, pulse with its flaccid artery and low variable systolic pressure, the pulse became slower, the artery normally constricted, and the pulse wave stronger, indicative of an improved action of the ventricular myocardium. The action of the drug was equally satisfactory in the distressing restlessness and excitement of agitated melancholia and confusional states as with the simple mania, and cases in which influenza had been assigned as the principal cause reacted well and are making good progress toward recovery. In other cases, in which recovery can hardly be expected on account of the duration of the mental disorder, the acute symptoms have been ameliorated. Captain Graves has given 10 grains of the drug three times a day with food until a response has been obtained, when the dose has been reduced to 5 grains. In one case of agitated melancholia, in addition to the doses by day, one or two doses were given at night. In one case of mania with diarrhea, not only was the restlessness and excitement allayed, but the number of stools passed fell from six to one. No untoward effects have been observed and the author remarks that with the small doses employed these can hardly be expected if careful observations on the pulse are made.

The Canadian Medical Association Journal.

April, 1919.

1. The Policy of the Ostrich. J. G. Adami.
2. Simple Goiter. Malcolm H. V. Cameron.
3. Venereal Diseases from the Preventive Aspects. Gordon Bates.
4. Causes and Consequences of Disturbances of Respiratory Rate and Rhythm. J. C. Meakins.
5. A Report of Two Cases of Spina Bifida. Max O. Klotz.
6. The Diagnostic Value of the *X*-ray Examination in Pulmonary Tuberculosis. W. A. Wilkins.
7. Anatomical and Bacteriological Findings in the Recent Epidemic Pneumonia. Horst Oertel.
8. So-called Trench Mouth and Other Manifestations of Vincent's Disease as a Spreading Infection in Canada. G. F. Laughlen, W. P. Warner and H. A. Holmes.
9. Official Report on Influenza Epidemic, 1918.

4. Causes and Consequences of Disturbances of Respiratory Rate and Rhythm.—J. C. Meakins first says a few words concerning the normal regulation of respiration and after the review of the regulation of breathing mentions some of the more important variations which occur. These variations may be of depth, or of rate, or a combination of these. 1. Normal rate with greatly increased depth, as in severe diabetic acidosis. 2. Diminished rate with little change in depth, as in morphine poisoning. 3. Increased rate and increased depth, as in severe muscular exertion. 4. Increased rate and diminished depth, as in gas poisoning and pneumonia. 5. Periodicity of rhythm or Cheyne-Stokes breathing. The following are one or two of the more important changes: 1. The respiration of diabetic acidosis is well known to all of you. The deep stertoric breathing gives abundant evidence of increased total ventilation. During the early stages of the acidosis the formation of ammonia and eliminative power of the kidneys keep the H-ion concentration in gross equilibrium. When, however, these fail and the H-ions increase, the respiratory center is stimulated and showers impulses to the subcenter to increase the pulmonary ventilation. The points of the Hering-Brener reflex widen; each respiration becomes deeper in the vain attempt to eliminate enough CO_2 to return the H-ion concentration to normal. Meakins wishes to emphasize the character of the breathing of true acidosis, the enormous depths of the individual respirations. 2. The action of morphia upon the respiratory center is to depress it or to make it less sensitive to the action of CO_2. The alveolar CO_2 and the CO_2 content of the blood are raised. This causes an increase in the CO_2 capacity or "alkaline reserve" of the blood, due apparently to the passage of alkali from the tissues into the blood. 3. In severe muscular exertion there is an increased production of CO_2 and lactic acid. This quickly increases the H-ion concentration of the blood, and there is an immediate response of the respiratory center to reduce this by increased elimination of CO_2. This elimination is first accomplished by the widening of the points of the Hering-Brener reflex, or in other words, an increase in the volume of the individual respirations. Eventually this will be supplemented by increase of the rate. 4. It is with the type in which the respirations are rapid and shallow that Meakins deals particularly. The main problem of Professor Haldane, Captain Priestley and himself was to investigate the respiratory disturbances following pulmonary irritant gas poisoning. While it is now generally admitted that in acute gas poisoning the chief danger to life arises from impaired oxygen supply to the tissues, there are several points which require to be elucidated. In the first place, it became more and more evident that the symptoms in the gas poisoning cases were similar to

a group of symptoms occurring also in the cases classified for military purposes as "irritable heart" or "disordered action of the heart" and diagnosed under various headings in civilian practice. In the second place, it was found that though the symptoms on exertion were ameliorated during the breathing of oxygen, they were not removed, and that certain very marked objective symptoms persisted, even when oxygen was breathed. Of these symptoms the most striking was excessive frequency, combined with abnormal shallowness of breathing. In a normal individual the breathing becomes deeper, as well as more frequent, on exertion; and usually the increased ventilation of the lungs is attained by increasing the depth, rather than the frequency, or breathing. In the patients, on the other hand, the increased ventilation was attained mainly by increased frequency, so on ordinary exertion, such as walking, the breathing went up to sixty or seventy a minute, whereas in a normal individual there is usually very little increase in frequency, but a very large increase in depth. The shallow breathing seemed to be in some way connected with the signs already referred to, of distinct anorexia, particularly o.. exertion. The next step was, therefore, to endeavor to discover the connection. For this purpose the investigators devised an apparatus for artificially limiting the depth of breathing in a normal subject. With it they were not only able to regulate the depth of breathing without interfering with the rate, but they could obtain a graphic record of the actual volume and rate of the respiration. By means of their apparatus they could completely reproduce the classical rhythm of Cheyne-Stokes breathing and there could be no doubt that in some way it was due to anorexia. The chief interest in the matter, then, lies in the consequences or the deleterious effects of rapid shallow breathing, which if persisted in beyond a certain degree produces an increasing anorexia, which in turn accentuates the rapidity of the respiration. In this manner a vicious circle is established which will evidently produce a condition incompatible with life. Although this condition has been chiefly investigated in relation to patients recovering from irritant gas poisoning, other striking and important examples may be cited. Perhaps one of the most urgent is pneumonia. As yet the therapeutic value of CO_2 in certain respiratory diseases has not been extensively investigated. The theoretical indications are that it has a definite field which has been very little worked. The use of oxygen has passed through many phases of enthusiasm and condemnation. But, like any other method of treatment, it has to be used with intelligence and with a realization of what oxygen can and cannot do. The usual method of spraying the atmosphere near the patient with a stream of oxygen is absolutely useless and is money thrown away. If oxygen is to be used with best effects, it must be early in the stage of blue cyanosis and in a proper manner. By enriching the oxygen in the inspired air by four or five liters a minute the maximum effect of oxygen will be obtained. This oxygen, however, must be intimately mixed with the inspired air by means of a proper mask. Furthermore, the oxygen must be given continuously. A very satisfactory means of administering oxygen in this way has been devised by Haldane for use in the treatment of acute gas poisoning. This has been so modified that it can be carried in the stretcher and oxygen used as long as is necessary. Meakins points out that in venesection we have therapeutic measure little, if any, secondary in importance to oxygen in these conditions. When cyanosis is well developed and the pulse begins to fail, it is almost certain evidence that the right heart is overburdened and that the venous pressure is too high. If this be not relieved by bleeding, shock and collapse of the cardiovascular system soon will follow with all the attending phenomena of concentration of the blood, progressive diminution in the CO_2 capacity, or alkali reserve of the blood, or to deeper effects of which CO_2 is an index. In order to relieve this condition of impending cardiac and vasomotor failure, venesection is of prime importance.

8. So-called Trench Mouth and Other Manifestations of Vincent's Disease as a Spreading Infection in Canada.—G. F. Laughlen, W. P. Warner and H. A. Holmes point out that during the past two years a number of articles have appeared in British and American medical journals bearing on Vincent's disease of the gums, which in the majority of cases is primary to Vincent's disease elsewhere, and seems to have attracted but little attention prior to 1917. Since then the so-called "trench mouth" among the overseas troops has been identified as Vincent's disease, and many statistics are now available. Statistics, however, seem to be largely wanting in the United States and Canada, and Greeley, *American Journal of the Medical Sciences*, May, 1918, says that he knows of no statistics to show the frequency of Vincent's disease in the United States. The authors state that as a result of investigation during the recent months they have been able to ascertain that Vincent's disease is of more frequent occurrence than is generally suspected. They have found that the disease is prevalent among the civilian population and among soldiers who have not served overseas, although many cases recur in returned soldiers who have suffered from so-called trench mouth overseas. Others develop for the first time after their return to Canada in men who have not suffered from affection of the mouth or throat overseas. Several of their cases showed the lesions about the teeth and tonsils and ulcerative areas tending to spread backward from the molar teeth. The involvement of the tongue is of special interest, as it is very rare. They have records of a case which was admitted to the Toronto General Hospital on January 3, 1914, suffering from an ulcerated condition of the mouth. The ulcers involved tonsils, gum margins, cheeks and right side of the tongue, where it lay up against the last molar tooth. In their experience the diagnosis of Vincent's disease from smears is comparatively easy. They have made smears from the throats of individuals who did not show any lesion and from sloughs which so frequently occur following tonsilectomy. Although spirochetæ and bacilli were present in a few of these smears, the microscopic picture could not well be confused with that given in Vincent's disease. The organisms common to this disease, namely, *Bacillus fusiformis* and *Spirocheta macrodenis*, lose the stain in Gram's method. They have found Gram's stain unsuitable for the demonstration of the spirochete, unless special care was taken in counterstaining. A diagnosis of Vincent's disease cannot be made from cultures alone. Smears were made from swabs sent to them for the culture of diphtheria bacillus and fusiform bacilli, and spirochetæ were found. McKinstry, *Practitioner*, July-December, 1917, states that the disease does not appear to be highly infectious. That the disease occurs in epidemics there can be no doubt. A number of cases came under the notice of the authors, who had been receiving the treatment for syphilis in the form of diarsenol intravenously without any improvement in a concurrent Vincent's disease of the mouth. They desire to emphasize that a correct understanding of the nature of the disease is the all-important factor in the treatment. If the case is mistaken for syphilis, the treatment is usually insufficient to effect a cure. A positive Wassermann test, though it bears a relationship to Vincent's disease, is often present. The authors deplore the fact that literature on the subject is lacking in the United States and Canada. Their investigations have led them to believe that Vincent's disease of the gums is more common and more often undiagnosed than Vincent's angina and that this is by far the most common site of the primary lesions. Vincent's disease seems to be on the increase and affects the health of soldiers as well as the civilian population. As it is a curable and communicable disease, it is of the highest importance that it should be recognized in all its manifestations.

Berliner klinische Wochenschrift.

February 24, 1919.

Alimental Anemia in Nurslings and Early Childhood.—K. Blühdorn refers to the well-known researches of Bunge and attempts to show that the development of alimental anemia presupposes a constitutional anomaly. Insufficiency of a provision of congenital iron plays an important part. Besides this, the writer invokes the nefarious influence of a limited and abusive use of milk (elimination of alkali). Other various factors of infectious or toxic nature may readily favor an exhaus-

tion of the hematopoietic organs, thus having an unfavorable influence on disease. There are some very common hybrid forms both to the alimental anemia and that due to a toxi-infectious factor. From the viewpoint of treatment, the amount of milk consumed should be watched and a mixed diet, rich in salt, is to be ordered, while toxi-infectious influences are to be guarded against.

The Treatment of Influenzal Pneumonia.—H. Kohn raises his voice against the conclusions of a paper published by von Frey, which advises discarding a cardiotonic treatment and adopting a vasotonic one. The writer always combines digitalis with opiates and also quinine given hypodermically.

Clinical Considerations on Myopia.—H. Beckers reviews the various theories relating to myopia. He believes that this affection is in fact a mild dioptric astigmatism (not a corneal one), and if this state of affairs is not recognized in time and if a proper cylindrical lens does not neutralize the vision, prolonged accommodation finally ends in myopic astigmatism. Correcting glasses, on the contrary, prevent the development of myopia, the writer claims.

Münchener medizinische Wochenschrift.

February 21, 1919.

The Treatment of Inflammations with Protein Bodies, and Inhibition.—E. Starkenstein develops to an extreme degree the modern notion of the nonspecific treatments with sera, various albumins and even colloidal preparations and the most varied chemical products. He says that the idea of a particular specific action of each and every medicament should be discarded, in order to study the total action exercised on the organism, likewise the reactions which take place in all the tissues, and, lastly, the manifestation of the changes taking place in the general state at the *locus* of the pathogenic agent. From this general viewpoint the writer studies the influence of numerous products on conjunctival edema following irritation produced by essence of mustard. An inhibitory action on inflammation was thus made evident for methylene blue, fuchsin, eosin, colloidal silver, and subcutaneous injections of milk. Yet more. A physiological solution of sea-salt, likewise distilled water, possessed a similar action (the weakest action belonged to an isotonic salt solution, the action being reinforced by + + hyper or hypotonic solutions). The fundamental action of this antiphlogistic action was found to be due to a decrease of the vascular permeability. This fact is proved by the delay in the appearance of coloring substances in the anterior chamber of the eye of rabbits, when the animal is under the action of the drug. Inversely, the urinary elimination of the coloring substances (for example, fluorescein) is hastened by this vasotonic action on the vessels. Certain toxic actions—strychnine, for example—are functionally decreased by a preliminary injection of milk, calcium chloride, or atophan. This is also due to the general vascular impermeability as well as the early renal elimination. The action on poisoning by the phenols is quite the same.

Deutsche medizinische Wochenschrift.

February 20, 1919.

A New Radiological Procedure for Abdominal Diagnosis.—A. Schmidt backs up the results obtained by Goetze, by gas insufflation of the peritoneum in order to facilitate radio diagnosis. He maintains that the procedure is inoffensive and may be of the greatest utility. Hepatic and gall-bladder affections are those which give the most satisfactory results. Enlarged spleens show up extremely well. The outline of the stomach, brought out by insufflation of the organ, has permitted the writer to make an early diagnosis of carcinoma of the lesser curve in several instances, later on confirmed by operation. The writer offers several drawings made from the most characteristic radiographs taken by him. He likewise studies the field of usefulness of this procedure and states that insufflation of the peritoneal cavity can be combined with the introduction of a laparoscopic tube, thus allowing direct inspection of the viscera which can be compared with the radiological picture of their contours.

Radiological Diagnosis by Means of Pneumoperitoneum.—E. Rautenberg offers a paper on the above subject and puts forward the question of priority. Cases of considerable diagnostic difficulty which have been settled by this procedure are particularly diseases of the liver. The writer also reports some instances of splenic and renal morbid processes which were diagnosticated by this method.

A Familial Affection Resembling Acromegalia, Involving the Skeleton More Particularly.—C. Oehme has had under observation four sisters who presented certain symptoms appearing at puberty, consisting of a diminished development of the secondary sexual characters, an excessive growth in width of the bones of the limbs, particularly of the forearm and legs, with a moderate hypertrophy of the soft structures of the limbs as well. There were no facial changes nor radiographic evidence of morbid change of the sella turcica. The writer completes his paper by a general discussion on the possible part played by the hypophysis in the production of this morbid condition.

La Presse Médicale.

March 6, 1919.

Bacteriological Diagnosis of Diphtheria.—According to Costa, Troisier and Dauvergne, the diagnosis of diphtheria is very simple—too simple in fact. A smear of tonsillar mucus is placed on the surface of a tube of coagulated serum. In twenty-four to thirty-six hours we find in positive cases massed colonies. A bit of culture is smeared on a slide and a gram stain used. The microscope then shows an abundance of organisms having a characteristic morphology. The entire question is one of morphology. Such simplicity is not seen in the case of other germ technique. There are doubtless not only true diphtheria bacilli which are avirulent but also spurious diphtheria bacilli. The latter should possess points of difference under cultivation, and several such methods have been in use. The authors have devised one in connection with army laboratory activities which they assert to be very simple. A special culture medium consists of horse serum and glucose, 10 parts in 100, to which is added a solution of sulphuric acid (3 c.c. of a 1/100 concentration) and 30 drops of a tincture of sunflower as indicator. This serum is coagulated by heat and should be of horizon blue color with a suggestion of green, firm and elastic. Smears are obtained and sown as usual, although the technique of the authors in reference to the exclusion of accidental flora is unusually strict. Examined at the end of twenty-four hours, the true diphtheria bacilli are seen to be present in very small pinhead isolated colonies of a reddish hue. Colonies of pseudobacilli are readily distinguished by absence of stain and in other respects. These differences are accentuated with time and are so numerous that it is hardly practicable to relate them, especially those seen under the lens but the stain of the true germ deepens with time, while the other continues colorless. Accidental germs which may have been present in the throat may take the stain but are readily excluded, if necessary, by the microscope. The authors have now examined over 3,000 specimens, and with such success that the harmless saprophyte should no longer mask as a virulent germ and lead to needless isolation, especially of wrongly suspected carriers.

Autoplasmotherapy of Grippe.—The autoplasm of a grippe patient, when injected into the patient's venous system, has a temporary favorable action which is no specific but due to the action of foreign protein. Unlike many albumins, it is quite safe for the patient. In certain cases its action seems permanent and the defervescence, etc., final.—*La Presse Médicale*

Pyotherapy in the Lymphangitis of Horses.—Belin relates that he treated 1100 cases of lymphangitis in horses with crude pus or dead cultures of the bacilli with 75 per cent of good results. Of these cases 40 were of cryptococcic and 700 of bacillary origin. He prefers to associate the crude sterilized pus with the killed cultures of bacilli.—*La Presse Médicale.*

Book Reviews.

United States Army X-Ray Manual. Authorized by the Surgeon General of the Army. Prepared under the Direction of the Division of Roentgenology. Two hundred and nineteen Illustrations. Price, $4. New York: Paul B. Hoeber, 1918.

This is a remarkably well written and compiled text-book which has been prepared under the direction of the Surgeon General of the Army to serve as a guide to roentgenologists who are doing the *x*-ray in military hospitals, and, generally speaking, as a means for instruction in military roentgenology. Perhaps the part of the book to which attention should be especially called is that devoted to the localization of foreign bodies and to a description of new apparatus. The importance of the *x*-ray in military surgery has been amply demonstrated and it is therefore eminently fitting that such a work should be issued. It is extremely well illustrated.

Essentials of Surgery. A Text-book of Surgery for Students and Graduate Nurses and for those Interested in the Care of the Sick. By Archibald Leete McDonald, M.D., Johns Hopkins University, Formerly in Charge of Department of Anatomy, University of North Dakota; Lecturer on Surgery, Nurses' Training School St. Luke's Hospital, Duluth, Minn. Forty-six Illustrations. Philadelphia: J. B. Lippincott Co.

This book is made up of notes prepared for the use of senior nurses in connection with a course on "The Principles of Surgery." The course covers the general principles of surgical diseases and the pathological changes which result. Also under separate headings, the more important surgical lesions involving special regions of the body, are considered. The book should prove of much service to nurses who are ambitious to progress in their chosen calling and should enable them to become better nurses.

Lice and Their Menace to Man. By Lieut. Ll Lloyd, R.A.M.C.(T.), Chief Entomologist in Northern Rhodesia. With a Chapter on Trench Fever by Major W. Byam, R.A.M.C. New York: Oxford University Press, American Branch, 1919.

This is a small treatise on the head, body, and crab lice written for the general reader. It presents a brief but adequate description of the natural history of these parasites and the manner in which they spread the diseases which have been determined to be associated with them. The author recounts the experimental work which has demonstrated that lice tend to leave those hosts who have fever and locate on afebrile individuals and that the excreta of the lice carry the infecting material which is introduced into the skin by means of scratches. Brief descriptions are given of typhus fever, relapsing fever, and trench fever and the particular relation of the louse to each of these diseases. Principles and methods of disinfestation are also laid down. The work, though small, is very complete and is illustrated with a few well chosen and executed drawings. It is to be hoped that the necessity for the wide dissemination of this knowledge is past, but certainly no better means could be chosen for that purpose than is presented in this book.

Intravenous Injection in Wound Shock. Being the Oliver-Sharpey Lectures Delivered Before the Royal College of Physicians in May, 1918. By W. M. Bayliss, M.A., D.Sc., F.R.S., Professor of General Physiology in University College, London; Chairman of the "Special Committee for the Investigation of Surgical Shock and Allied Conditions," Appointed by the Medical Research Committee. Price, $3.00. New York: Longmans, Green & Co., 1918.

The book contains the Oliver-Sharpey lectures given by Professor Bayliss, but amplified. The questions of the production of edema and of so-called acidosis are dealt with in detail and the lectures have been brought up to date. The work is a valuable addition to the somewhat scanty and vague literature on shell shock by an eminent physiologist and should serve to clear up some of the obscure features of the condition.

Hospital Accounting and Statistics. Fourth Edition. Compiled and Arranged by William V. S. Thome, Treasurer and Member of the Board of Managers of the Presbyterian Hospital in the City of New York, Chairman of the Executive Committee and Member of the Board of Governors of the Woman's Hospital in the State of New York, Member of the Board of Directors of the Manhattan Maternity and Dispensary. New York: E. P. Dutton & Co., 1918.

This is a useful book for those responsible for the financial management and statistics of hospitals. It shows how to make up accounts and statistics of such institutions on a uniform basis, and by following this plan not only is money saved, but the accounts and statistics are reliable and valuable for purposes of comparison.

Notes on Pathological and Operative Obstetrics. By Lyle G. McNeile, M.D., Professor of Obstetrics, College of Physicians and Surgeons, Medical Department of the University of Southern California; Supervising Obstetrician, Los Angeles Health Department; Attending Obstetrician, Los Angeles County Hospital. Los Angeles: Published by the Division of Obstetrics, College of Physicians and Surgeons, Medical Department of the University of Southern California, 1919.

This is a handy little manual describing the most widely accepted views with regard to management of the patient during pregnancy and labor, and the early recognition and treatment of the various obstetric accidents. In fact, the book contains the essentials of pathological obstetrics and seems to be admirably adapted for the use of the advanced medical student or busy practitioner.

Squibb's Atlas of the Official Drugs. By William Mansfield, A.M., Phar.D., Dean and Professor of Pharmacognosy and Botany, Union University, Department of Pharmacy, Albany, N. Y.; Late Professor of Biology and Pharmacognosy, College of Pharmacy of the City of New York, Columbia University, and Botanist and Pharmacognosist to E. R. Squibb & Sons. Price, $2.00. New York: E. R. Squibb & Sons.

In the preface it is stated that Squibb's Atlas of the Official Drugs is a complete, up-to-date, and trustworthy handbook on pharmacognosy, and a perusal of the work leaves one with the confident belief that this statement is justified. The preparation of this atlas involved years of painstaking work and the result should be commensurate with the labor expended.

Use of Factory Statistics in the Investigation of Industrial Fatigue. A Manual for Field Research. By Philip Sargent Florence, M.A. (Cambridge), Ph.D. (Columbia), Garth Fellow; Scientific Assistant, United States Public Health Service. New York: Columbia University, Longmans, Green & Co., Agents, 1918.

During the war some interesting studies with regard to industrial fatigue were made in connection with munition workers and it was found that better work and more work could be done in comparatively short hours of labor than by exerting the physical and mental faculties to the point of almost exhaustion. That is, that after a certain stage the work performed is of little use, in fact, is injurious from all standpoints. The book before us demonstrates by statistics that fatigue is harmful to the worker and conducive to an inferior output and is a record of investigations made as to industrial fatigue in a large number of factories.

Om Abdominal Reflexerne et Klinisk Bidrag til Reflexeren. Paa Grundlag av Unders ϕ kelser av 472 Kasus. By G. H. Mourad-Krohn, M.R.C.P., Lond. Summary in English. Kristiania: Steenske Bogtrykkeri, 1918.

This work by Dr. G. H. Mourad-Krohn of Christiania is based on the examination of 472 cases, the majority of which presented neurological diseases of various kinds. The occurrence and significance of the abdominal reflex in various conditions is discussed. His observations chiefly concern the pathology of the reflex and are of an interesting and valuable character.

Society Reports.

AMERICAN ASSOCIATION FOR THORACIC SURGERY.

First Annual Meeting, Held in Chicago, Ill., Monday, June 10, 1918.

THE PRESIDENT, DR. SAMUEL J. MELTZER OF NEW YORK, IN THE CHAIR.

President's Address: Thoracic Surgery.—Dr. SAMUEL J. MELTZER of New York delivered this address. (See MEDICAL RECORD, Vol. 94, No. 1, July 6, 1918.)

Review of the Evolution of Thoracic Surgery in the Past Fourteen Years.—Dr. WILLY MEYER of New York presented this communication. (See page 761.)

Major G. DEHELLY of Havre, France, said he did not wish to discuss the experimental aspect of this subject, for he was not competent to discuss the different methods of research. But he would only say a word of the work of the French in war surgery. The war surgery of the chest and pleura had been revolutionized. At the beginning of the war the surgery of the chest and pleura was abstention and it was enough to say that there was a wound of the lung. The result of this abstention was really the same as in other wounds and they lost heavily from this cause, many of their patients dying of infection of the lung and pleura. The ordinary treatment of abscess of the lung and empyema was only incision. And this incision in the treatment of infection brought inside the chest by shell and pieces of clothing, and drainage of lung was insufficient to cure the infection. Progressively it was evident that the treatment of the wounds of the lung and of the infection of the pleura ought to be preventive and to follow as early as possible the introduction of the germ. Now the treatment was to open and remove the foreign body as quickly as possible and to operate in all cases of wound of the lung and pleura, not only to remove the foreign body, but to stop the hemorrhage, to dry the pleural cavity, and then to close gently the pleura. The most important point made clear forever was to close the pleura after mechanical cleansing of the lung and of the pleural cavity. The operation accomplished was consequently the wide opening of the chest, the removal of the foreign body, the removal of the walls of the wound of the lung, as was done in the case of wounds involving the muscles or subcutaneous fat; the closure of the lung, the closure of the pleura without drainage. The result was progressively better and the speaker thought that shortly these methods would be generally applied. The treatment of a foreign body in the lung followed after a long time by inclusion, was also not specifically settled. At the beginning it was abstention. Afterwards removal of the piece of shell was effected by wide opening, suturing the wall of the chest, entering the lung, and removing the foreign body by excision. But the results were not perfectly good, and these unfortunate results were not only the immediate ones. After suture of the chest many times there appeared hernia of the lung and Major Dehelly had seen recently such a case in a man who was in charge of the examination of disabled patients; he had also seen a large number of these herniæ after extraction of a foreign body. A new treatment was that of Petit de la Villion, which consisted in removing the foreign body by means of a specially constructed forceps, the blades of which did not separate widely. This operator had done a great many of these operations with success and the speaker thought his technique was good. He did not know exactly what was to be the best, but he thought it was an improvement to be able to remove these foreign bodies without a wide opening and without the danger of subsequent hernia.

Dr. JOSEPH RANSOHOFF of Cincinnati said if we went a little further back and investigated literature we would find a report of a case of aneurysm of the aorta treated by the speaker by the insertion of a great many feet of silver wire. He read that paper on "Wiring Aneurysm" before the Surgical Section of the American Medical Association at its meeting in St. Louis. The aneurysm was wired and the patient really seemed to improve. But, as so often happens, the aneurysm advanced in another direction and this man a month or six weeks later was found dead with rupture into the pleura. After presenting this paper and the specimen Dr. Ransohoff went to Pikes Peak, and on the way met a very interesting old gentleman, to whom he was introduced. He said he had heard this paper and with difficulty refrained from opening the discussion with a motion "That the essayist be hanged by the wire he had used."

Treatment of Empyema by the Carrel-Dakin Method at the War Demonstration Hospital.—Major GEORGE A. STEWART, M.C., U. S. A., read this paper by invitation. (See MEDICAL RECORD, Vol. 94, No. 6, August 10, 1918.)

Remarks Concerning the Employment of the Dakin Solution in Cases of Empyema.—Dr. CHARLES L. SCUDDER of Boston, being unable to be present, sent a brief communication. At the Massachusetts General Hospital in Boston he said they had instituted the Carrel-Dakin treatment of wounds in a systematic fashion. Through the kindness of Dr. Stewart and others at the Rockefeller War Hospital in New York, individuals from this clinic had been permitted to visit the War Hospital and secure sufficient data with regard to the technique of the Carrel-Dakin treatment to make it possible to reproduce the methods employed there. This work had only just begun so that the number of cases that could be reported was limited. They had treated within the past month about ten cases of empyema. Because of the condition in which they found these cases, the treatment had varied somewhat. The attempt had been made to remove the accumulated fluid, to sterilize the cavity, and to secure healing of the drainage wound early. These few cases arranged themselves so far as treatment was concerned in the following four groups: (1) Drainage by suction through a punctured wound with intermittent injections of Dakin solution. (2) Rib resection, drainage, and intermittent injections of Dakin solution. (3) Rib resection at the lowest point of the cavity, a puncture at the highest point of the cavity, and introduction of Dakin solution into all tubes. (4) Drainage through puncture, insertion of tubes through punctured wound and at the highest point through punctured wound, and Dakin solution. Dr. Scudder believed that the ideal method of attempting sterilization of the cavity of an empyema was as follows: Early dependent drainage by means of resection of a rib; continuous suction of all discharges through this dependent drainage wound; a counter opening at the top of the cavity sufficiently large to receive two Carrel tubes; intermittent two-hourly instillation of Dakin solution through these two tubes; flushing of the lower part of the cavity through the drainage tube with Dakin solution, and continuous suction from below. They had been able to close two such cases, both postpneumonic, after a few days of proven sterility. These closures had been possible far earlier than could have been accomplished without the use of the Dakin solution. The speaker thought it was better to introduce the Carrel tubes from above rather than to attempt to stiffen the tubes by means of silver wire and then insert the tubes from below.

Major G. DEHELLY of Havre, France, said the treatment of the infection in the pleura was done from the beginning of this attempt to sterilize the wound. They had at this time many cases of wound of the lung and the pleura, with suppuration, and they tried to secure sterilization and they obtained about the same result, but their cases were not so well studied and their treatment was at this time not perfectly settled, and they, therefore, did not publish this first attempt. Dr. Tuffier, who had followed their work in Compiegne, published a personal work of importance in the application of their technique to the sterilization of the pleura and chest, and since that time many other French surgeons had published cases of infection in the chest and pleura cured by this method. The speaker thought that the surgical technique was of great importance. It was necessary to have drainage at the lower point of the cavity, and to distribute the fluid in every part of the wound. It was for that reason that we put in these tubes some silver wire to maintain the tube in position close to the top of the chest, and to pass the fluid every hour if necessary into the

chest. The antiseptic should be brought into contact with every part of the cavity in order to dissolve the secretion and to remove the medium of culture for the bacteria. The suggestion of Dr. Scudder to make the irrigation at the upper part of the chest was possible, but the speaker never attempted it because they had obtained very good results by their simple technique, using the opening in the lower part of the chest to introduce the tube, keeping it straight by means of silver wire. He had found it possible to obtain the sterilization more quickly by attempting to pass the fluid up to the upper part of the chest. The sterilization of streptococcic empyema was especially important because the streptococcus had now the reputation of preventing the closure of every wound, and the objection to the closure made by the surgeons in Paris was always the presence of the streptococcus in the wounds. But the speaker though this rule was not absolute. He had had the opportunity to treat many streptococcus secondary complications of typhus in Rumania, and had had a large number of cases of streptococcus infection, manifested by extensive lymphangitis, phlegmons in the abdomen, parotiditis, enlarged glands in the neck, mastoiditis, and he was always able to sterilize the wound by Carrel-Dakin treatment and to obtain secondary closure. This result, especially in an empyema, was very important because it was possible to sterilize and close the chest quickly and we now knew from our experience in war surgery that it was necessary to close all wounds, and especially wounds of the thorax, in order to permit expansion of the lung and to obliterate any cavity in the chest in which secretion might accumulate and in which it was possible for a new abscess to form. They had in one of the patients who died the opportunity to make an autopsy after the closure of the empyema. This case was very interesting because it was admitted in very bad condition. They treated the empyema by opening according to the technique described by Dr. Stewart, and during the sterilization the patient showed evidences of pericarditis. The pericardium was largely filled by secretions and the heart was in a bad condition. As soon as an approximate sterilization was effected the speaker closed the empyema by adhesive plaster without suture, except simply to close the skin wound. Three days later the patient died of pericarditis. The autopsy showed the pericardium containing two liters of fluid. The chest was closed and there was no cavity at all between the two layers of the pleura. The pleura was slightly thickened. After closure we have air in the chest, which is absorbed very quickly. We know that it is necessary to inject an inert gas in order to maintain a cavity in a normal pleura. When air is present, however, it is quickly absorbed and the lung is allowed to expand very rapidly; this, Major Dehelly said, was very important in the cure of empyema. The question of time saving in treatment by this method was also very important, because we diminished the possibility of thickening the pleura, the possibility of having scar tissue in the pleura, and the possibility of the production of a scoliosis which so often followed empyema.

Dr. KENNETH A. J. MACKENZIE of Portland, Ore., wished to express his appreciation of being a member of this august body—august because of the occupation of its presidential chair by a physiologist who had the combined qualities of a great physiologist and surgeon. In looking back over a term of practice that covered more than a quarter of a century, he could recall, without being able to give the statistics, a very gratifying termination of most of the cases of empyema that had come to him after having been subjected to different varieties of operation for relief. He could also look back with a sense of satisfaction to the measures that had been associated with the treatment of empyema in general. To speak first of the operative treatment: The operations he had performed had been chiefly of the Estlander and the Schede methods. Many of these had gone to recovery without any impairment of the physique, notwithstanding the extent and severity of the operations. He had also noted in a few instances the occurrence of double empyema. He was at one time in charge of a very large construction service in the region of the Snake River, cut off from all communication with large cities. The first epidemic of influenza that spread over the country brought to that camp, of nearly five thousand workmen, many cases of pneumonia complicated by empyema. In the number of cases that came up there were five or six cases of double empyema. In two or three of these cases Dr. Mackenzie operated on the doubly involved thorax by making simultaneous thoracotomies. Two at least recovered without any untoward results, and went on to complete recovery and returned to their normal occupations. He had not previously heard or read of similar experiences with empyema. So impressed had he always been with the mutilation and shock of the usual operation for empyema that a year or two later, at the meeting of the International Congress of Surgeons at Brussels, he presented, rather boldly he thought at the time, a paper on a method of dealing with empyema in order to avoid the shock of acute pneumothorax. He had had no cases at the time but one, which was unfortunate in its termination, and one or two experimental cases in dogs and guinea-pigs. He suggested that one might be able, for instance, to operate on the thorax at two points, withdraw the pus at one and introduce a suitable solution at another simultaneously, so that the pus would be displaced by the solution. The solution he selected was sterilized petrolatum. He had often thought that this method might be tried with advantage and without hazard. It occurred to him that one might thus fill the thorax with petrolatum and study the clinical conditions afterward, and if the temperature curve suggested that the process was still active on competent evidence, the thorax could be reattacked, the pus withdrawn, and a corresponding amount of petrolatum introduced, keeping up the maneuvre until finally the clinical evidence showed that the pus was no longer present, whereupon the petrolatum could be gradually withdrawn and the lung allowed to expand. A word or two more in regard to the cases presented by Dr. Emil Beck, which possessed so much interest and value in all their bearings. Several years ago he was operating on a case of empyema, one which had defied all treatment up to that time, and had released the lung to some slight extent, and was in the act of studying the dense membrane that invested the lung when, on nicking it with his knife, he found a line of cleavage between the lung and its adventitious covering, which he proceeded to separate, when to his great surprise the lung suddenly flared out of this incision and filled the pleural space completely. He was not familiar with Delorme's work at the time. He had, however, opportunities afterward of studying the value of his observation, and it occurred to him that it might be a good plan to use this method of treatment in some of the cases spoken of by Dr. Beck. Instead of mutilating the chest, why not divest the lung of the fetters which bound it and let it come forward to its own place? It occurred to him that Delorme's work was more honored in the breach than in the observance today. Some time ago he witnessed a surgeon attacking a thorax which contained pus, making free incision, using retractors, and releasing the pus. He himself in a case a few days before he left home, in a strictly encysted empyema, followed this method and the case had progressed favorably. It occurred to him that it was the province of this body to discuss whether one were justified in taking such radical steps, and yet it was now the rule in abdominal surgery to attack these cases in the most radical manner. What was right in the abdomen might be wrong in the thorax. It would be the province of this new society, which had been launched under such favorable auspices, to thresh out these great questions.

Dr. MACKENZIE then asked for the privilege of the floor for Major Dudley Fulton of the Base Hospital, Camp Lewis, Washington, who had a message to deliver from Camp Lewis germane to this discussion, having had extensive military experience in this branch of surgery.

Major DUDLEY FULTON, Chief of Medical Service, Base Hospital, Camp Lewis, Washington, said the basis of his remarks would be the recent observation and study of 240 cases of pneumococcus and streptococcus pneumonia and fifty-seven cases of empyema at the Base Hospital. Bacteriologically, about 50 per cent. of

the empyema cases were of the streptococcus type, 21 per cent. of the pneumococcus, and 20 per cent. of the combined pneumococcus and streptococcus. The pneumonia mortality was 13 per cent. Out of fifty-seven cases of empyema there had been thirteen deaths, with a mortality of 22.8 per cent.

In December and January empyema occurred as a *sequel* to pneumonia, as had been ordinarily encountered in civil practice. Resection of a rib and simple drainage gave the usual satisfactory surgical results. But in February, and since, the empyema developed not as a sequel to, but as a *complication* of pneumonia, which presented a clinical course, pathology, and fatality never before observed in acute respiratory infections. It was early found that the treatment of empyema associated with active pneumonia, by resection and drainage, according to the old, well-established surgical procedures, was entirely inadequate. It did not seem to modify the course of the disease in the least; either early death, prolonged, unsatisfactory convalescence, delayed recovery, or serious complications resulted.

The next phase of treatment was the delay of radical operation during active pneumonia and removal of the thin, purulent fluid from the pleural cavity by frequent aspiration. As a rule, the pleural exudate had become, during this delay, thick and purulent. As a result there was a drop in early mortality, but in the end it proved an unsatisfactory procedure since it favored fibrin formation and the formation of multiple pockets of pus, making ultimate and complete recovery uncertain. Conference with the surgical staff at this time led to the decision of establishing the continuous suction treatment. A very ingenious water-pump suction was established throughout the empyema ward, making possible continuous, simultaneous suction on all patients in the ward. With the establishment of this treatment the mortality ceased. It had been used continuously for two months past and from the mortality standpoint had proven very satisfactory, but disappointing as to ultimate results, in that cures had not resulted; the need of secondary operations was frequent and convalescence was an indefinitely prolonged affair.

The surgical service was just now beginning the use of the Carrel-Dakin solution. The method, as described by Major Murphy, was both instructive and timely, as it apparently offered a most valuable means of getting the pleural cavity sterile and successfully terminating these difficult cases. We were, however, much impressed with the value of the suction treatment in empyema associated with an active pneumonia. Our explanation of its particular value was that it maintained the normal, negative, intrathoracic pressure, which was theoretically preferable, at least, to a surgical procedure which allowed the collapse of the lung during an active pneumonia. It furthermore allowed adequate drainage early in the disease, a most important consideration. The experiences gained in the base hospital at Camp Lewis, together with that found in the literature and learned in this very interesting session this afternoon, prompted the speaker to venture the opinion that in the treatment of streptococcus empyema a safe procedure would be the use of continuous suction for a week or ten days during the active pneumonia period, to be followed by the use of Carrel-Dakin solution, according to the technique described by Major Murphy.

Dr. Samuel J. Meltzer of New York City said he would like to put two questions to Major Stewart: First, how many of the forty-four cases were caused by the *Streptococcus hemolyticus* and how were the favorable results distributed between the empyemata caused by the pneumococcus and by the streptococcus? Second, he would ask Major Stewart whether raising of the posterior end of the bed would act favorably upon a more satisfactory distribution of the Carrel-Dakin solution within the pleural cavity?

Major Stewart, in closing, said that, as to the expansion of the lung, there was a collapse of the lung at the time of operation. Following closure of the pleura, the cavity was practically obliterated in from twenty-four to forty-eight hours by expansion of the lung. This was well shown by a series of *x*-ray plates taken following closure. Expansion took place very rapidly following the use of Dakin solution, which had a solvent action on the fibrin and thus prevented adhesions. It might not be absolutely necessary to dissolve out this fibrin, but if it was gotten rid of quicker than nature could take care of it, the lung would be allowed to assume its normal condition in a much shorter period of time. They had had thirty-one cases of streptococcus infection. As to the position of the bed, they had kept the patient in whatever position was most comfortable, usually in a semi-Fowler position, which most patients seemed to prefer. As to the question of suction drainage, they had tried this on one case but were unsuccessful in bringing about sterilization. They persisted in using suction until forced to give it up on account of the condition of the patient.

What Shall Be Done with the Open Chronic Suppuration of the Chest Cavity?—Dr. Emil G. Beck of Chicago read this paper. (See page 770.)

Skin-Sliding Operation for Lung Abscess.—Dr. Emil G. Beck of Chicago said that during the past seven years he had employed a surgical procedure in these cases which was less dangerous and he believed more effective. The patient is placed in a semirecumbent posture and anesthetized. Before incising the skin a rubber catheter is introduced into the existing sinus and kept there as a guide during the first part of the operation. The skin incision differs in almost every case. It depends entirely upon the location of the abscess or empyema. Dr. Beck has devised and employed three different types of skin incisions, the Y-shape, the X-shape, and the trapdoor incision. It will be noted, he said, that each of these incisions forms one or more flaps of skin of various lengths, which are intended for implantation into the lung abscess or empyema after it has been exposed. The skin is not dissected from the underlying fat or muscle until we are ready to shift it into the abscess cavity.

From three to five ribs overlying the abscess cavity are now widely exposed, and as many are resected as seems necessary to expose the cavity to its full extent. In cases of empyema even more than five ribs may have to be resected. One should remove as much rib length as seems feasible, four to seven inches of each if possible. In cases of empyema, where the cavity usually extends into the apex, we should endeavor to resect the third rib if possible. This will facilitate the implantation of the skin flap into the dome of the pleura, and prevent the prolonged granulation of this recess which occurs when the skin flap does not cover it completely.

The ribs removed, a small incision of the thickened pleura is made along the catheter, the finger is introduced, and the cavity explored. The incision of the pleura is extended upward to the highest point, with care to cut into the lung. The cavity is exposed to ocular inspection by removing as much of the parietal pleura as possible. This will usually make the opening into the abscess cavity large enough to introduce the entire hand.

In most cases of chronic empyema the lung will be found to be retracted upward and inward. At times the apex will contain functionally normal lung. In the cases of lung abscess, however, the matter is different. The globular or multilocular cavity, with thick septa, exists, into which frequently open one or more bronchi. In one of the speaker's cases, shown at a meeting of the Western Surgical Association in 1914, seven bronchi opened into one lung abscess.

The cavity, being fully exposed, is swabbed with dry gauze and the usually smooth surface of the abscess wall sufficiently scarified, either by rubbing it roughly with gauze or even resorting to a mild curettage. This is done for the purpose of producing a favorable condition for the adhesion of the skin flap. The cavity being dry, the tips of the skin flaps are drawn into the very recesses by means of forceps. Gauze is packed tightly against them, to keep them in contact with the roughened surfaces of the abscess cavity. No suture whatever is used. The denuded surfaces from which the skin flaps were taken are then covered with sterile gauze and no attempt is made to reduce their size. At this stage, Dr. Beck said, the operation was completed, while in the Estlander a great deal of work was still necessary. The procedure should not last more than

100 minutes in the very extensive cases, and could be done in sixty minutes in the less extensive ones.

Dr. Beck then demonstrated five cases, three of lung abscess and two of empyema, which had been operated upon by the skin-sliding method just described. He dwelt on points of interest, especially on the necessity of lining the old abscess cavity by dry skin and the application of adhesive plaster for the regeneration of the skin, the application of which he demonstrated in one of the cases. He said that while he did not contend that other methods should be relegated to the scrap heap, he was working on this line and others were working on another line, and then it would be possible to compare notes and see which method would produce the best results. So far he had operated on fifteen cases and had had three deaths. Two were from general anesthesia, and he would hesitate to employ general anesthesia in the future. (One of these died from aspiration of the pus, causing suffocation.) The third patient died with brain abscess ten days after the operation. Of the remaining cases, two were operated upon only last week, one of them a month ago, and another had not yet healed. The remainder are well, except one who committed suicide two years after the operation.

Dr. Joseph Ransohoff of Cincinnati said that the empyemata which came under observation in the cantonments were entirely different from those observed in civil practice. Most of the empyemata healed promptly. They did not take five or six months to get well, and usually closed after a simple drainage operation in the course of three or four weeks. This applied to empyema in children. We must bear in mind that these empyemata were absolutely pneumococcic infections. They began with frank pneumonia; then temperature ran down, then a rise, which told us to look for an empyema. Now the empyemata which were seen in the cantonments and in some of the military hospitals were entirely different. They did not begin as pneumonias. They were almost from the beginning frankly empyemata. In the empyema we saw formerly there was no fluid in the chest cavity at the beginning; it came later. Whereas in the cantonments, in forty-eight or seventy-two hours we found a fluid distinctly septic in character. It looked as though the cases that we saw now began as empyemata, much as a septic arthritis begins in a joint, be the cause what it might. One of the difficulties encountered in the treatment of empyema was the development of pneumothorax. It was a bad thing. The patient was weakened and the family were alarmed by that whistling sound. That could be obviated by making a small opening and getting a small air space. The speaker did not use this long tube drainage into a bottle, but described in the *Journal of the American Medical Association* of April 15, 1916, in a very brief article, a method that he had found exceedingly satisfactory, a method that he had found valuable in preventing pneumothorax. He took an ordinary drainage tube, covered at one end with a soft collapsible tube. That tube was inserted through an exceedingly small opening into the pleural cavity. The opening was smaller than the tube, and the tube was forced into the pleural cavity and anchored there by means of a catgut suture. The tube was inserted and all the fluid came out, so that no pneumothorax could occur while the fluid was running, and the wound was sewed up airtight. The consequence was that when the chest expanded there was no possibility of entrance into the chest cavity itself. The apparatus of Kenyon's he had not seen at work, but could readily understand in children an apparatus like that would necessitate the child's being in one position most of the time, and it would not be possible to carry that child about, as with the ordinary drainage tube covered at one end by a collapsible rubber tube. If desired to irrigate, it was a simple matter to do so through the collapsible tube without allowing the entrance of air at all. A great deal has been said of not only getting rid of fluid, but of the necessity of dissolving fibrin on the lung. Was there necessity for dissolving the fibrin? Was there any difference in the fibrin on the infected pleura and the fibrous deposits we saw in cases of peritonitis limited to the region of the abdomen, when we left Nature to take care of itself? The speaker did not know whether there was any infectious nature, but if so, was it necessary to dissolve that out in any way or would it not take care of itself? Now with regard to the leaving of some fluid in there and allowing some of these cases to close up with pus in there still, which was, however, distinctly sterile, Dr. Ransohoff had in mind, he said, a number of cases of empyema that had gone six months or a year with pus in the chest which seemingly was sterile, but what did they find in all these cases with supposedly sterile pus? It was always a *locus minoris resistentiæ*. It was always a place in which there was a tendency to reinfection, and in some cases in which a cavity contained pus that was supposedly sterile the speaker had seen a flare up five or six years later. He did not think it very wise to leave a cavity in the chest if the cavity could by any possible means be closed. He had not seen any war surgery, but there was a very large colored population in Cincinnati; many of these men used the knife, and shotgun and stab wounds in civil life were not rare. In every one of these cases the tendency to infection was enormous. A man had a broken rib, his lung was torn. From the inside that was not going to cause an empyema. It made an enormous difference whether the air which had got into the chest cavity had been filtered through the lung or from outside. In one there was sterilization, in the other none, and these cases had a tendency to suppurate in civil life. In these cases Dr. Ransohoff always drained in the way described. He had a case not long ago in which the man had one of those crushes that crush the lung, and emphysema was extensive from the neck to the scrotum and was extending into the mediastinum. The man was blue and gasping for breath. He seemed to be *in extremis*. The thing to do was to open the chest cavity and put in one of the tubes [which the speaker exhibited], and it was simply marvelous to see how that patient recovered, and recovered without any infection of his pleura at all. He had not seen many large wounds that could not be closed. He had one which came under observation of his son, Major Ransohoff, and he had the happy idea of taking a large flap from the sheath of the rectus and tucked that into the wound, and got a complete closure. He simply stated that as something that might be of some service. In regard to chronic empyemata, he had not encountered any that he had not been finally able to close. It might take a number of operations, but they eventually closed if one kept at them. The speaker could not believe with Dr. Beck that from any scar tissue we could get new skin. One could not get the elements that go to form new skin from scar tissue. What one could do was to draw the edges in closer and nearer and making seemingly new skin. As to Delorme's operation, he was sure that those who did the Estlander or Schede operation stopped their procedure when they had removed the bony framework and cartilaginous framework of the chest wall. They did not do that essential thing of loosening the lung along its attachments—they did not do that one essential thing. He thought it was not Delorme but Fowler who did this, taking off the whole thickened pleura. It might be that many of those present never had heard of what the speaker had described as discission of the lung—discission of the pleura. It was known that the lung itself, in even the longest standing cases of empyema, was still capable of expanding; that the alveoli were there pretty much the same as they were in the lung of a child who never had breathed, and all that was necessary was to give these alveoli an opportunity of expanding. He proceeded in a case of this kind to take off the thickened pleura from the surface of a lung, which he knew was a pretty bloody operation. As soon as that incision was made the width of a knife blade of course it gaped widely. In other words, he had cut through scar tissue and that retracted. Where he made a lineal incision he saw a little blue line of lung tissue, and said to himself, if one incision would get wide like that, why would not two? The third did the same thing and the fourth did the same. If the perpendicular would go wide and show the lung substance, why would not the horizontal? He acted on this thought and had made a gridiron appearance just deep enough to divide the scar tissue, and each one of these larger islands contracted until they

were no larger than peas, and underneath the little thickened pleura left the lung expanded. (*Annals of Surgery*, April, 1906.) He would ask his hearers please to bear in mind this method of discission as an aid in helping along these cases of empyema that were so exceedingly trying.

Major DEHELLY of Havre said that his chief, Nelaton, had done exactly the same operation as that described by Dr. Ransohoff. They had tried decortication and had had some difficulty, but after having removed a number of ribs they had a perfectly good result. He did not think this observation had ever been published, but he had assisted at it when he was intern to Nelaton ten years ago. He thought it a very good operation to insure expansion of the lung. About the treatment of empyema by aspiration and washing out the chest by the bottle apparatus, they had tried once to do that and failed to obtain sterilization, and were then obliged after three weeks to reopen the chest and resort to the Carrel-Dakin treatment.

Dr. B. MERRILL RICKETTS of Cincinnati said he would like to answer Dr. Ransohoff's question as to whether there was any more necessity for getting rid of fibrinous deposits in the pleura than in abdominal work. It was with reference to the pleura, but the pleura was nothing but an extension of the peritoneum, and therefore he did not see any more reason why we should wipe or clean off one than the other.

Dr. RANSOHOFF said he would like to know when the lung did not sufficiently expand what the experience had been as to the cavity between the unexpanded lung and the chest wall—whether this cavity was filled up by fluid, by lung, or by air.

Dr. B. A. BOBB of Mitchell, S. D., said he could not claim the honor of being a member of this august body and neither was he from New York, Chicago or Portland, but from a little town of about 8000 population out in South Dakota. However, he wanted to thank Dr. Peck for the instruction he had given in his paper read at this meeting. The speaker had operated on forty-nine cases of empyema out in the little town of Mitchell, S. D., and up to this date 95 per cent. of the cases had recovered. Necessity is said to be the mother of invention, and he was forced, after operating by resecting a piece of rib and inserting a tube, to attach something to that tube to receive the drainage and keep the pressure negative in the pleural cavity, so he simply pulled off his rubber glove cut the tip of one of the fingers off and placed this glove finger over the tube and tied it on with catgut, the other end being tightly clamped with artery forceps. This forceps was released as the glove filled with pus and thus the cavity was drained very nicely.

Dr. EMIL G. BECK of Chicago said, in closing, in regard to true skin being formed over the granulating surface and in reply to Dr. Ransohoff's question, he would ask that he examine the slides and he would see that the skin grew from the edges. The microscopic specimens showed that regeneration took place the same as from skin grafts. The growth took place only from edges of true skin, and not from connective tissue. In the lung abscess of the girl who had been seen at the meeting, one noted that the entire cavity was pretty nearly covered with skin. Dr. Ransohoff was correct in stating the impossibility of forming epithelial cells from connective tissue. Epithelium would not grow from connective tissue, but skin would regenerate from skin flaps, just like other tissues, bone, nerves, etc. If he would carry out experiments on animals, as the speaker had done, he would not doubt it. In regard to drainage, the speaker had carried out the plan of drainage by the air tight tube. It depended altogether on what type of infection one had to deal with. Mild infections responded readily to simple drainage. In the case of a severe infection of the pleura, it required some modifying substance. He did not claim that it must be subnitrate of bismuth. Any substance which produced sterilization and softening of the pleura would gradually favor the reexpansion of the lung. In regard to fibrin formation in the very acute cases, he believed that if the hypochlorite solution had a tendency to dissolve the fibrin, it was an advantage, because it was likely to liberate locked-off abscesses within the pleura and thus permit the sterilization of all recesses. Post-mortems had shown that in some cases there were multiple abscesses within the pleural cavity produced by adhesions of the fibrinous exudate, and these could not be localized or drained before death. If, therefore, we were able to dissolve these adhesions and liberate the pus, the hypochlorite would be of great advantage.

Dr. WILLY MEYER of New York said he was sure that all felt very greatly indebted to Dr. Beck for having given this splendid presentation of his experience. Every one knew what it meant to deal with these cases. We all had had patients of this type under our care. We had laid the old empyema cavity open widely, completely resecting the roof formed by the chest wall, and then allowed the skin to grow in. In a few obstinate cases we had had to put a skin graft into the depth of the wound. Dr. Beck advocated the principle, not to remove the overlying portion of the chest wall, but, by means of a proper plastic technique, to allow the skin to grow in. The plan represented a new principle for the treatment of chest cavities.

Post-Operative Thoracic Drainage (Exclusive of Empyema).—Dr. NATHAN W. GREEN of New York opened this discussion. He said the number of civil duties contingent on war duties that had been placed upon him had kept him from writing any formal paper, but he had thought of a few points and had jotted them down in connection with this topic. He would try to make it as short as possible because some of his hearers had been there nearly all day and the afternoon was short. The topic for discussion was "Post-Operative Thoracic Drainage" (exclusive of empyema). Whatever he might be able to say on this subject he trusted would challenge free discussion and so we might be aided in arriving at helpful conclusions. We could be guided in our attitude toward thoracic drainage by three beacon lights: (1) logical reasoning, (2) experimental results, (3) clinical experience.

It was logical to believe the pleura required drainage if we could put our finger on contamination. It had been proved experimentally that the pleura in animals might become infected and produce a purulent exudate if it were widely exposed for the space of two hours, without further irritation. It had also been proved experimentally that it might be widely opened for a shorter time and infectious material imposed upon it and yet it would require no drainage (*Annals of Surgery*, October, 1911, p. 551). Clinical experience had shown us that the chest might be widely opened and the viscera manipulated and the wall then closed and no infection would supervene. Clinical experience in thoracic surgery was mounting up very rapidly at the present time upon the fighting front. War wounds of the chest produced operative conditions and amid unfavorable environments. We must look to some of our confreres in Europe for some very important observations upon the postoperative and posttraumatic drainage of the pleural cavity. The wonderful experience and advances reported by the French surgeons and in this meeting by Major Dehelly were adding daily to our knowledge of this subject.

Col. H. M. W. Gray, writing in the *British Medical Journal* for November 3, 1917, said: "It is very desirable to close the chest completely in every early case. I believe that by so doing the mortality will be lessened." He further stated that during one month 198 cases were operated on at certain casualty clearing stations with drainage of the pleural cavity; 99, or 50 per cent., of these died; 57 cases were closed completely and 17 died (29.8 per cent). It appeared to him, therefore, that the operation with complete closure was 20 per cent. better than the operation with drainage.

It was as Major Dehelly had remarked this morning. Many of these cases when widely opened and left in the hands of the average interne might become widely infected. One might go into a ward and turn down the sheets and the dressing would be off and the sucking wound drawing in infection. "It may be necessary to reopen the chest on account of the development of intrapleural sepsis or to remove a foreign body, but by the time this is necessary the patient has been tided over his dangerous period, and when the pleural cavity is drained there is not any more respiratory distress than after an ordinary empyema operation," said Col. Gray.

Captain J. C. H. Roberts and J. P. Craig of the R. A. M. C., in speaking of the surgical treatment of severe war wounds of the chest remarked: "No cases

were drained unless (1) the chest wall could not be closed, owing to the condition of the patient; or (2) infection of the lung or of the pleura, as distinguished from its contents, was definitely established." They further stated: "We soon overcame our scruples about completely closing up cases with a streptococcal infection, but we must admit to a more gradual conversion to the idea of closing cases with anærobic infections. This, however, we have proved to be quite a safe procedure when the precautions we have enumerated are carried out," *i.e* clean surfaces left internally. Their operative work was done preferably under local anesthesia. Of the open or sucking wounds with free air entry, of which they had 29, 5 recovered with pleura closed out of 12 operated on and the wound closed; 7 died, making a mortality of 58.3 per cent. Of 17 in which the pleura was drained 5 recovered and 12 died—a mortality of 70.5 per cent. The commonest cause of death was bronchopneumonia of the uninjured lung.

Dr. Frank J. Hathaway, writing in the *British Medical Journal* for November 3, 1917, advocated closing the pleura. All these observers agreed to close the pleura first, and that the closed pleura cases in war operations on the chest did better than those with primary drainage. Our fellow member, Dr. W. M. Boothby, writing in the Boston *Medical and Surgical Journal* of his experience on the Harvard University Service at the American Ambulance, Paris, gleaned from 21 wounds of the chest, advocated, in summarizing his observations, the avoidance of negative pressure brought about by an aspirating bottle in hemorrhage.

After three days the danger of infection exceeded that of hemorrhage. An elevation of temperature indicated the necessity of an exploratory aspiration. When the pleura had become infected, free drainage by a long thoracic opening was indicated. Now, if we were going to close up tightly all pleuræ after an intrathoracic operation, it seemed to the speaker that we must either have some certain means of knowing when disaster in the form of infection was approaching and make sure of its advent by exploratory puncture again and again, or we must do as we did in other regions, provide an easy means of escape should pus form, or, better, draw off either by a tube or by some other means the serous exudate which came first and was the precursor or concomitant of disaster. Dr. Green was fully satisfied that many cases did not do well *because they were constantly reinfected.* This must nearly always happen with the ordinary open means of short tube drainage. Some form of closed drainage with a long tube which would provide a moderate column of hydrostatic pull and prevent the suction back of contamination from the unclean outside surroundings seemed clearly indicated.

It seemed to him it was a safe procedure; it was an open pleura but it was a pleura which was ready to have the stopper drawn out of it. The drainage was potential, and if any serous or purulent exudate occurred it was ready to run down into a reservoir below and we did not have to subject the patient to repeated punctures and discomfort. These lung cases, especially in the young and in children, disliked to have needles thrust into them repeatedly to find out whether or not there was pus present. If one could place the closed drainage in the pleura it seemed to him that it was the more ideal way. The Kenyon method of introducing some such tube had been before now advocated by Dr. Meyer and seemed to fulfill these necessary requirements. In urgent cases this, coupled with some form of differential pressure which did not disturb the patient's comfort, might prove most efficacious.

Dr. Willy Meyer of New York continued the discussion. (See page 773.)

Dr. Conrad Georg, Jr., of Ann Arbor, Michigan, said he would not take very much time to make a few brief remarks on some experimental work which he had carried out on dogs, which might have some bearing on this question of drainage for intrathoracic operations. As a result of a series of experimental lung lobectomies performed upon dogs, he found that in those cases where the external wounds were closed without drainage there were more recoveries than when drainage was used. Dogs were especially susceptible to pleural infection and many of them died of empyema where drainage was used in intrathoracic operations. The technique which was employed in these operations was as follows: Care was taken to protect the pleura and lung from unnecessary traumatism during the operation, through hemostasis of the lung structure, ligation of all the bronchi, and careful approximation of the edges of the wound in the lung with stitches of black silk passed carefully through the substance of the lung. In addition to this a strip of fascia lata was sutured over the wound in the lung. The pleura and intercostal muscles were sutured with linen thread, the last suture being tied during expiration. The edges of the skin were approximated with an additional suture of linen thread. Similar surgical principles had been applied in the treatment of gunshot wounds of the lung in the war zone. It had been found best to perform these operations as soon as shock disappeared and within twelve hours after the accident. All foreign bodies were removed, the infected tissues dissected out as far as possible, large wounds of the lung sutured, and the external wound closed without drainage. About half the cases recovered with primary union of the wounds. If infection took place, the edges of the wound got moist within forty-eight hours, the wound swelled, pus formed, and the stitches had then to be removed and drainage inserted. Hathaway, in his description of the operative treatment of penetrating gunshot wounds of the chest in the British Army Medical Service, stated that the foreign bodies were removed from the lung, the hemorrhage was controlled, and large wounds of the lung were sutured. The pleural cavity was washed out with Dakin's solution or flavine, and the pleura completely closed. He claimed that the natural power of the pleura to dispose of infection was very strong. In the British Army Medical Service no cases were drained unless there was infection of the lung and pleura as distinguished from its contents. It has been shown that there were successful results from suture of the chest wall even in the presence of infection with anærobic bacilli or streptococci. Captain Carl Eggers in gunshot injuries of the lungs practised excision of all small lacerated wounds of the chest wall and suture of the openings. Where there were large defects in the chest wall which could not be sutured, the lobe of the lung was sutured to the thoracic window by means of silk without drainage. A piece of oiled silk or moist dressing was placed over the exposed lung surface and wound. He found that drains always led to secondary infection and that without them, primary union sometimes resulted.

Dr. Nathan W. Green, in closing, said that he had just a word to add and that was in regard to the drainage of the chest. I think Dr. Meyer had crystallized our duty in the following sentence: "All we use in surgery must be so perfected that it cannot do harm." He thought that statement was worthy of passing along and being kept alive. Another thing he wanted to speak of was in regard to what Dr. Ransohoff had said in discussing the treatment of the lung tissue. Dr. Green's former colleague at the City Hospital, Dr. Dawbarn, used a similar method and he performed it with the aid of a long knife, which he had made particularly for this purpose, on the back of which was a protector to keep it from cutting too deeply in the lung tissue. He reached up through the opening between the ribs and cut down in strips on the outside of the lung with the idea of dividing thickened pleura into ribbons and allowing the lung tissue to expand.

Roentgenograms of Empyema.—Dr. B. Merrill Rickets presented a series of *x*-ray pictures from cases of empyema, together with brief histories of the cases.

Pharyngeal Insufflation.—Dr. S. J. Meltzer showed some lantern slides illustrating the pharyngeal insufflation method which he had mentioned in his presidential address. On the first slide one saw an etherized and curarized dog with the thorax wide open. The pharyngeal tube was *in situ* and the insufflation was carried on by means of a foot-bellows. The second slide showed the tube removed, the animal paralyzed, the lungs completely collapsed, and the heart small and blurred, though it was still beating energetically. In the third slide the animal was in same position except for the heart, which now looked large and well defined; the heart was not beating and the right ventricle was greatly dilated. The operator was seen ready to insert the tube. The fourth slide (fifteen seconds after the third) showed the pharyngeal tube inserted, the appa-

ratus working and the lung widely distended. In the fifth slide (one hour later) the thorax was seen to be completely closed during a distension of the lung, the dog was standing up and appeared to be in a normal condition.

A Vote of Thanks to Dr. Meltzer.—Dr. WILLY MEYER of New York said he was only too happy to make this motion. All were delighted, when founding this association, that Dr. Meltzer consented to become its first president. If the speaker had been a member of the nominating committee, he said, he would have pleaded not to permit any officer of the association to leave his post during this terrible war. But the president did not agree with him, and did not put him on the nominating committee. He felt sure he was voicing the sentiments of every one present when he said that the association was pround and gratified to have it spread on its minutes, that Dr. Samuel J. Meltzer, the renowned physiologist and internist, the man who had done so much for the evolution of thoracic surgery, had been its first president. Dr. Meyer than moved a rising vote of thanks, which was seconded and unanimously carried.

THE PRESIDENT then said: "I believe that I am justified in stating that the first meeting of the American Association for Thoracic Surgery has been a great success; we have had a splendid meeting. The success of the association will grow with the growth of the understanding of its objects. I am confident that a time will come when thoracic surgery will be equal in importance to surgery of the abdomen. But, gentlemen, in order to attain this desirable aim you all must put your shoulder to the wheel. I thank you and wish you all success—either in the recuperation during your summer vacation or in the intensive war work in which you may be engaged."

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

AMBULANCE DE "L'OCEAN," published under direction of Dr. A. DEPAGE. 376 pages, illustrated. Price 14 shillings. Published by Masson et Cie., Paris, France.

THE WHOLE TRUTH ABOUT ALCOHOL. By GEORGE ELLIOT FLINT. 277 pages. Price $1.50. Published by The Macmillan Company, New York.

VEGETATIVE NEUROLOGY. By Dr. HEINRICH HIGIER OF Warsaw. 144 pages. Price $2.00. Published by the Nervous and Mental Disease Publishing Co., New York and Washington.

ANNUAL REPORT OF THE DEPARTMENT OF HEALTH OF CITY OF NEW YORK FOR YEAR 1917. 105 pages.

LA PROTHÈSE FONCTIONNELLE DES BLESSÉS DE GUERRE. By Dr. DUCROQUET. 233 pages, illustrated. Price 5 fr. Published by Masson et Cie., Paris, France.

COLLOIDS IN BIOLOGY AND MEDICINE. By Prof. H. BECHHOLD. 435 pages. Illustrated. Price, $5.00. Published by D. Van Nostrand Company, New York.

SURGICAL ASPECTS OF TYPHOID AND PARATYPHOID FEVERS. By A. E. WEBB-JOHNSON. 175 pages. Illustrated. Published by Oxford University Press, New York.

ANATOMY OF THE PERIPHERAL NERVES. By A. MELVILLE PATERSON. 149 pages. Illustrated. Published by Oxford University Press, New York.

THE EARLY TREATMENT OF WAR WOUNDS. By H. M. W. GRAY. 276 pages. Illustrated. Published by Oxford University Press, New York.

A STEREOSCOPIC ATLAS OF PLASTIC SURGERY OF THE FACE, HEAD AND NECK. By JOSEPH C. BECK, M.D., F.A.C.S. Price, $7.00. Published by the C. V. Mosby Company, St. Louis, Mo.

VITAMINES. 19 pages. Published by Frederick Stearns & Co., Detroit, Mich.

AIDS TO SURGERY. By JOSEPH CUNNING and CECIL A. JOLL. 416 pages. Price, $2.00. Published by William Wood & Co., New York.

Miscellany.

Grippe Cartoons in 1848.—It is not generally known that in some of the old pandemics of influenza in Europe the conditions which prevailed were amply visualized by the artists of the time. In the *Journal de médecine de Bordeaux* for March 10 nine cartoons from the private collection of a physician are reproduced. The sources in which these originally appeared are not stated and it is not even certain that the sketches were ever published. The first shows a pharmacy crowded with patrons of all kinds with the proprietor begging them to wait their turns. The legend is "View of a Pharmacy in January, 1848." The second cartoon shows a debtor declining to settle the bill of a caller with the excuse that he has the grippe. An officer asks his lieutenant the whereabouts of his command and receives the answer that all hands have gone to bed. An invalid bundled in an arm chair and surrounded by empty bottles is being informed by the medical men that he will be better after a few more flasks of syrup have been taken. At a play actors and audience are all sneezing. A fare is objecting to the cabby that he is driving too slowly and is informed that the horse has the grippe. A lady has her table set for forty guests, not one of whom has arrived and a page is bringing in a tray heaped with notes of excuse. The Cholera, approaching France, turns and flees at sight of the sign "Beware of the Grippe."

An Interesting Medical Diary.—Dr. VAN ZUIDE of 's Gravenhage, Holland, recently obtained access to a manuscript of unusual interest, the contents of which he describes in the *Nederlandsch Tijdschrift voor Geneeskunde* for January 18. In this book we find a record of all the confinements in the practice of a Jewish physician from 1797 to 1835. There are also data about the writer's family. The medical man's father was a man of consequence, born in 1748, by name Elias Stein. He was distinguished chiefly for his attempts to popularize the game of chess, and was instructor to the royalty of his time. He also published a book on the game in French, date 1789. His son, the doctor, Samuel Elias Stein was born in 1778, entered the University of Leyden in 1794, and graduated therefrom in medicine in 1799, with dropsy as the subject of his graduation thesis. He not only became eminent as a practitioner, but after the emancipation of the Hebrews in Holland in 1795 distinguished himself in various ways as a public man and was made a Knight of the Order of the Nederlandsch Leeuw. The names of the women confined appear to show that from the very first he practised among the Christians. When he confined a Jewish woman he made the entry in Hebrew. The total number of women confined by him was 1,842. His death took place in 1851 at the age of seventy-three. Records of confinements of his own wife are recorded from 1812 to 1821. During this period she gave birth to eight children, five daughters but one. The son, Emanuel Samuel Stein, was born in 1813, and the author adds without details that he also became a popular and successful practitioner who lived until 1895. He resided in The Hague, and his grateful patients have erected a monument to his memory. He left no male issue, and with him the male line became extinct.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 95, No. 20.
Whole No. 2532.

NEW YORK, MAY 17, 1919.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

MEMORY

(THE MNEMOLOGIC PHENOMENA)

IN RELATION TO INTELLIGENCE, PEDAGOGICS, AND PSYCHOPATHY.*

BY J. VICTOR HABERMAN, A.B., M.D., M.S.D.,

NEW YORK.

RECENTLY CAPTAIN, MEDICAL CORPS, U. S. A.

THE memory function is really not a function as such, but a *process* or series of phenomena, by which sense-perceptions are consciously registered and somehow imprinted on the mind. These impressions are latently retained in the form of depositions or dispositions,† being again revivable to consciousness—recallable to mind—after varying intervals of time. Three definite phenomena in this process, therefore, *impressibility* (*i.e.* the infixing phenomenon, the acquiring of depositions), *retention* and *recall* (or reproduction, *i.e.* the actualization of latent depositions to consciousness).

Impressibility.—Sense-perceptions, however, may be registered in several distinct ways. They may be accepted as such (a sound, or arrangement of sounds, or a visual image, or arrangement of images), as is the case in observational noting; or they may be accepted as symbols (as is the case with language) designating meaning—in which case the symbols are but fleetingly heeded and just barely sufficient to apprehend the idea associated. Indeed, in the latter instance, the symbols themselves are ignored—no dispositions formed—the ideas alone, and in coherent context, being recorded.

Still a third form of infixing may be differentiated, that, namely, in which the general content of the matter solely is taken up and retained. Here neither the words heard or read, nor the individual ideas, nor the particular arrangement of the presentation, are of moment to us—only the thread of thought winding through the whole. In this form of mental prehension, we do not expect to remember and recall the *text* of what is heard or read "word for word," but only the *meaning*. It is as if we abstracted the pith of the thing and stored it in mind, and when on later occasion recalling, drawing off a kind of essence of this, or when expression of it is necessary, feeding it out into our own words and amplifying with incidental, not always absolutely pertinent, details. Pedagogically, this form is referred to as *rational learning*, and the accumulated data forms our *logical memory*. This is the method of learning, according to Meumann,* employed by us in dealing with by far the greatest part of the material presented through the medium of books, magazines, conversations, lectures, scientific study, etc.

In committing to memory in the first form of infixing, the sense-perceptions as such are mentally repeated; in the second form, the ideas, idea for idea, are rehearsed; in the third, it is assumed that if once understood, the gist of the matter will be retained without repetitions, though an occasional review of it will help to strengthen the retention.

Retention.—Memory is furthermore characterized by several definite types of *retention*. In the one (*a*), we but briefly retain the matter impressed, and for the purpose of *immediate recall*. Here we only intend that it should be briefly held. In such instances, the recall or reproduction occurs before the perception has entirely faded from consciousness. (Thus, for instance, we hold a 'phone number just looked up only long enough to give it to the operator; or listen to what is said in passing conversation just long enough to understand or answer, etc.) It is really not a reproduction, Meumann states, but rather a reinforcement of the fading primary impression.† In a second (*b*), the retention is more prolonged, but nevertheless temporary—for *mediate recall*—and is not meant to be permanently held. In the third (*c*), the retention is intended to be lasting (*i.e.* our knowledge).

In mediate memory, the recall is deferred until (that is, beyond) the perceptional excitation has entirely come to an end. Thus the "memory" has

*This is the third report on The Mind and Its Examination. The first Report[2] appeared in the MEDICAL RECORD, Dec. 1, 1917; the second,[3] in the same journal, May 18, 1918.

†One speaks of *Depositions* or residua, if the matter is taken up from the physiological aspect (see [1]), or of *Dispositions* when the psychological is focused on (see [1] and [4]). Both terms, however, apply to the same thing, the memorial imprint or latent potential, which, however it be explained, we know is again actualizable to consciousness. (Cf. the *engramme* of R. Semon, also [5]).

*Our pedagogical exposition here and in other portions of this study follows Meumann's teaching, especially as given in his work on "Ökonomie und Tecknik d. Gedächtnisses," Leipzig, 1908. Our references are to Baird's excellent translation.[4]

†This is similar to James, who writes, "An object which is recollected in the proper sense of that term is one which has been absent from consciousness altogether, and now revives anew. It is brought back, recalled, fished up, so to speak, from a reservoir in which, with countless other objects, it lay buried and lost from view." (This applies to our mediate and past memory.) "But an object of primary memory"—our immediate memory—"is not thus brought back; it never was lost; its date was never cut off in consciousness from that of the immediate present moment. In fact, it comes to us as belonging to the rearward portion of the present space of time, and not to the genuine past." (See James,[5] pp. 646-7.)

been entirely out of consciousness for a time before it is again revived. But the dispositions formed in mediate memory are not meant to become *permanent*. Here it is purposed that the memory hold for just a little while. Indeed, one resolves, or *wills*, if one wishes to put it so, whether memory is to be immediate, mediate or permanent, and through this determination, the one or other disposition—as desired—takes place. Occasionally strong tonal feeling, however, will indelibilize a memory that is not meant to be held, and which, separated from the *affect*, would have only been immediate, or, at most, mediate.

These three types of reaction are quite dissimilar, and must be looked upon as separate functions of memory. Capacity in one or the other is a matter of individual endowment; and one finds *this* function strong in one person, *that* in another; or again, exceptional capacity in the one alongside of decided weakness in the other may exist in the same individual.

Association.—In the case of sense-perceptions being apprehended as symbols, that is, as ideas, they are at once *associated in mind*, linked up with other deposits of former impressions and ideas. In fact, ideas cannot be infixed without such association,* and in this sense memory may at the same time be said *to be* association.† Thus, ideas are comprehended, understood, and either passingly employed (immediate retention) for momentary orientation, current conversation, as aides to better or more thorough discernment, or as steps or premises leading to conclusions and advanced consummations of thought; or they are accepted for concrete infixing, as it were (permanent retention), and become added increment to the mass of ideas already gathered and stably organized, and which we refer to as *knowledge*.

This *association activity*‡ is a mechanism which shunts in two directions. In the one, it engages in the infixing phenomenon, determining—guiding, or more exactly, necessitated, thruogh interest, concern, motive (*i.e.* background constellation—general knowledge—and momentary constellation—associations just then in consciousness)—what shall be focused on and what glossed over and ignored. In short, it determines *attention*—and attention not only designates just the thing that shall be remembered, but inaugurates the memory-process itself, for attention must hold long enough if memory-depositions are to form. But this whole association activity, connecting, matching up, differentiating, analyzing, etc., is the mechanism through which we comprehend (and infix) the new incoming ideas. In the other direction it leads from the ideas momentarily in consciousness, backwards, over association paths into our latent stores of depositions (our knowledge), thus reviving old traces, "bringing memories to mind." In this way we "remember."

Recall.—This finally brings us to the phenomenon of *recall* (or reproduction), and we must consider the *readiness* of recall (the ability to get to the proper latent deposition when this is desired) and the *exactness* of what is recalled. In connection with the first, let me allude to a conception of Ziehen's[7] which has not been sufficiently recognized. The whole of our memories (associations) he contends may be divided into two portions, the one constantly rather active in our ideation, the other less familiar to ourselves. The former is in everyday circulation like the "current money" in a bank, easily handled, easily got to, *always ready*. The remainder of our depositions lies like the bank's reserves in deeper vaults, only to be broached on special occasions—that is, only *reproduceable* through favorable or propitious constellation. Both forms of knowledge must be considered in judging the intellectual endowment, though, other things being equal, we usually assume such individual to be more intelligent in whom easily flowing, pliant associations predominate. We refer to *esprit*, or "versatility," in such individuals. (But the "wordiness" of garrulous persons no doubt also belongs here.)

In examining normal individuals, this matter ought to be thought of in conjunction with tests of knowledge. We may, however, here say in a general way that *readiness* of recall depends upon the *frequency* with which association paths have been traversed, and likewise, the *number* of paths leading to the depositions to be awakened from the ideas momentarily in consciousness.* But tonal feeling also plays an important part, possibly *the* most important part, for the child,[8] this feeling-tone, or interest, making the memories stronger.[9] Abnormally we may come upon difficulty in finding proper associations as the forerunner of defect (Ziehen[7], p. 38.), as in epileptic deterioration. Where more outspoken, be disturbed or impossible because the memory depositions have paled out, or have been destroyed (inflammation, hemorrhage, etc.). In still other conditions, the association activity itself is normal, and can take place between old dispositions—but, *the infixing having become pathological*, no new ideas can be added, no new knowledge accumulated, hence, no association of very recent or new ideas take place.

*This has led to the use of senseless syllables or digits in certain memory tests, so as to exclude association influences. This also brings up a point invalidating many tests of logical memory, where links of the text are required (as in the news-account test). The appeal to different individuals varies greatly—and memory is strongly affected through this appeal. But most important is the fact that when such association *cannot* occur (as after apoplectic aphasia, in congenital focal weakness or aphasia [aplasia]), mental imprinting of ideas cannot occur.

†Cf. Isserlin[6], p. 144, also Ebbinghaus[10], p. 633. In this connection, but looked at from the viewpoint of recall, James[5] (p. 651) writes, "What memory goes with is . . . a very complex representation, that of the fact to be recalled *plus* its associates, the whole forming one 'object,' known in one integral pulse of consciousness and demanding probably a vastly more intricate brain-process than that on which any simple sensorial image depends." Cf. however following note.

‡*Association* of ideas must be thought of as an *activity*, not as depositions. Memory depositions are physiological and latent; they become active—are drawn into the association activity—only on becoming conscious. They are *then* psychological. In reality, therefore, memory and association are not one and the same thing, and this becomes an important point for diagnosis in pathology. From ideas momentarily in consciousness, the excitation is projected through nerve fibres (association tracts) to latent depositions elsewhere in the cortex—which depositions then become conscious (are drawn into the association activity). In pathological conditions, we may have cases in which the depositions are normal, but the *association* disturbed (thus, functionally, in hysteria, shock, inhibition—or organically through diaschisis, etc.); yet again the association may

*For a general discussion see Offner[3], p. 139 et seq. and especially Baird[4], pp. 14-33.

the disturbance (poverty) in the current-associations manifests itself clinically in thinking of a most monotonous character. Where such difficulty in reproduction of current-associations is noticed, one must diagnose between structural deterioration, pathological inhibition, perseveration and incoherence. For this purpose a brief association test will avail itself.*

The *exactness* of recall entails a somewhat different point of view. In immediate recall, an individual is able to reproduce with exactness only a very limited amount. This amount is spoken of as the "span of memory."† It is an inborn aptitude, quite small in early childhood, growing slowly with the years.‡ (Thus it is dependent on age, rather than on intelligence.) Directly one taxes the recall beyond the span normal for a given year, errors occur—even if but one extra letter, syllable or digit is demanded. Hence, we can expect exactness of recall only within the span—*and where recall is immediate* (the attention not having left the memorial matter at all).

In the matter of immediate reproduction of sentences, a few facts not generally taken account of in our testing (not at all considered in the usual Binet sentence repeating tests) must be pointed out. Directly these sentences get too long, *errors regularly occur.* These errors have been found to be of two types, senseless and sensible. (Scattering, here, also becomes a factor in evaluating these tests.) A most thorough study of this sentence test (which shall be discussed in detail when we take up the individual tests) was undertaken by Gassmann and Schmidt,[10] who found the length of sentences repeated (number of syllables) gave merely the attention span. The type of errors made, however, proved a very important matter in itself, for here it was discovered that sensible errors, as compared to senseless errors, correlated very high with intelligence.§

Let the perception *reverberation* completely fade from consciousness, that is, let the reproduction be deferred beyond "immediate recall," and mistakes as to word-for-word exactness invariably are made (when the test matter involves something heard or read). In other words, *forgetting* very rapidly sets in when recall is deferred for even the briefest time.* When the (heard or read) material contains meaning and merely the *gist* of this is to be retained, it is, however, tolerably recallable. In the case of experiences and observations, exactness of recall is normally decidedly impaired, especially in children. In fact, so usually and decidedly is this recall impaired that no two individuals will tally in the same recount, while in children any approach to accuracy is nigh impossible. Suggestibility when added, and it usually is in the young, and particularly when strong tonal feeling enters in (and this applies to adults, too), at times leads to extreme distortions of the truth.† (This comes up in connection with the tests of "report" or "reliability of memory.")

But where remembrance has become faulty in recalling something past to mind, the thing is not reproduced as a picture punctured with innumerable forgettings, for somehow the mind in the reproduction fills in the gaps with memorial interpolations, does it unconsciously and without malintention, and so subjectively patches up and tints things over.‡ "Such falsifications of memory," writes Meumann, "are products of the fusion of habitual associations." In a second form, usually where our perceptions have been of a fragmentary sort, "we always endeavor by means of the function of judgment to eke out a picture of the complete details of the experience and to combine the various components to form such a complete context as shall seem most probable." (Baird,[4] p. 8.)

This, then, gives us a bird's-eye view of the memory process, the *memory phenomena*, and makes it quite evident that a "general memory" or "memory," as usually postulated, is an untenable concept, and that to understand and differentially diagnose nor-

*Ziehen employs the following fifteen words: Woods, red, house, sickness, small, city, guilt, father, jealousy, sweet, poison, fish, wedding, to-run, death.

†That is, the greatest number of elements one can reproduce after *but one* presentation is the "memory-span." This varies, however, with the kind of elements used; it is the smallest for senseless words, then follow unconnected meaningful words, then digits, and finally connected meaningful words (see Gregor,[22] p. 89). Ebbinghaus gives as averages in the adult, 6-7 senseless syllables, 8-9 words of one syllable, 10-12 digits. But by average accomplishment he seems to mean "as many times correct as incorrect" (see Ebbinghaus[19], p. 650). Yet even here the capacity is not always a general one, but rather better or exceptional for one kind of memory (as for numbers), while it is poor for another kind. This is often exquisitely shown in mental calculation marvels, who are anything but brilliant in other fields. Finally it must be remembered that this "span" is only truthfully shown up by tests if the attention is normal (not influenced by psychopathy, reflex irritations or disease processes).

‡According to Bourdon, up to the fourteenth year; after that, very slightly or not at all. According to Ebbinghaus, the best advance is between the thirteenth and fifteenth years, after which (after full physical development) the conditions remain constant.

§Our method of applying this test is to note two things: I. The number of syllables that can be correctly given on hearing a sentence once. II. The number of errors (and how many sensible, how many senseless) made when a sentence one-half again as long as the memory-span is given. (See our test sheet, Test 2, d.)

*Forgetting begins the moment the attention lets up and veers elsewhere.

†A remarkable instance is seen in the testimony given by nine witnesses from the Appam, no two of whom agreed in their account. The *Times* had an interesting editorial on this under the title of "Varying Testimony of Eighteen Eyes," a paragraph of which deserves citation here: "Here are nine honest, intelligent men trying to tell what they saw; and no two agree. The 'inaccurate' newspapers record what thousands of persons tell, see, hear, do. The everlasting and unlimited variability of evidence, the discordance of sincere witnesses to the same fact, the practical impossibility of getting anything 'exactly straight,' are known to lawyers and must be known to laymen, and even to the superior souls that demand from newspapers an accuracy impossible in this world of appearances and errors. Let us say it frankly: Nothing can be known by the senses, nothing reported by them or by anybody with absolute accuracy. Variance often proves the honesty of the varying witnesses. There is hardly such a thing as 'a fact.' There is only fallible observation of a show or appearance, which is not the same to any two men. There is 'the invisible and inutile truth,' in theory, but how shall two mortal men agree upon it? And since it is impossible to get more than an approximation of contemporary, seen facts, past history must be a kaleidoscope of guesses, a library of fictions, many million diameters more inaccurate than the newspapers and the rest of us."

‡In this process, tonal feeling, again, plays a most important role.

malities and abnormalities of mind, these *phenomena* of memory must be individually understood and separately examined. To give them serially, they are:

1. Attention (which inaugurates the infixing process).

2. The infixing of: (*a*) sense-perceptions as such, (*b*) sense-perceptions as symbols, *i. e.* ideas; (*b*) again, is infixed either (α) word-for-word, or (β) as logical content or meaning.

3. The association attending the infixing (understanding, comprehension).

4. Retention: (*a*) for immediate recall (immediate memory); (*b*) for mediate recall (mediate memory); (*c*) for permanence (*i. e.* knowledge).

5. Recall: (*a*) readiness of same; (*b*) approximate exactness of same.

But is it necessary, one will ask, to test the *entire* process? Can we not determine an appraisal of the whole by a briefer examination? Or again, what is the significance of each in the mental endowment? Is capacity or failure in the one respectively more "intelligence-diagnostic" or "defect-diagnostic" than capacity or failure in another? And lastly, are any of these phenomena negligible for our purpose?

The answer to these questions is most important, not only for the intelligence problem itself, but for Pedagogy and Psychopathology, and indeed, to be solved, must be examined from the premise of these special domains.

Pedagogical Pertinents.—Pedagogically, one differentiates too distinctly separate types of children, one characterized by being *rapid learners*, the other *slow learners*. Every teacher is familiar with this fact in the class room. The first type of child just hears or reads a thing once or twice, and mentally has it; the other must go over and over the same thing before it sticks. In the former the infixing function is good; in the latter it is poor, *i. e.* he learns with difficulty.*

These two types also show characteristic variations in their *retention*. The rapid learner easily forgets—his memory depositions are, so to speak, not color fast, and fade.† The slow learner, though he originally must keep hard at it, finds that, once infixed, the matter is well retained. This, though not constant, is so frequently the case that the rule has been formulated in pedagogics that "he who learns rapidly also forgets rapidly." (Meumann, Höffding, etc.) But still other vital differences are noted between these types, namely, that the former *relearns* with greater ease—a considerable advantage here obtaining over the other who again relearns, where this becomes necessary, with the same drudgery and difficulty. The former also has a rapid *accommodation of attention*, and consequently an ease of adaptability; often, too, a better span of memory, besides. The latter, though hampered in speed and labored in adjustment, is, on the other hand, tenacious in his work, and, because of it, more intense, penetrating and accurate. The former, then, is bright and versatile, the latter circumscribed but thorough and dependable.

Thus we see that both these types are endowed with positive traits and shortcomings which fit each for quite different callings. One cannot offhand say one is generally superior to the other—but merely that they are different.

A third type of individual is sometimes found in whom *impressibility* and *retention* are equally good—the rapid learner who likewise has good retention. Such are the more ideal memories. These various type-characteristics are native to the individual; but it should be remembered that pedagogically (and for remedial pedagogics and psychotherapy besides) each is improvable through practice, and that a deficit in any direction can be made up with proper training.

Yet in still another connection is rapidity and slowness of learning come upon, *i. e.* good and poor impressibility—namely in the various so-called *types of ideation*, visual, acoustic and motor. Here the *visual* type of learner infixes more slowly than the *auditory* or *auditory-motor*, but is by far the more reliable.*

This does not mean, however, that visual ideation correlates higher with intelligence than other types of ideation. It appears (but there is no convincing experimental data on the point as yet) that *mixed types* show greater general endowment than the pure types (Watkin, Peiffer, Meumann), and that greater onesidedness in ideational type shows likewise a qualitative onesidedness of endowment. Thus the predominatingly auditory type is seen in the musician, the predominatingly visual in the artist. It may therefore be concluded that various types of ideation determine mental endowment qualitatively but not quantitatively, that poorer endowment may frequently be diagnosed the nearer an individual approaches such predominatingly pure type, but that the reverse cannot be maintained, namely, that such predominatingly onesidedness of type is the cause of poorer grades of endowment."

For purposes of learning, *at school*, the auditory type seems to have the advantage, for children get the larger amount of their instruction through hearing and dictation. When the ideational type is acoustic-motor, and likewise in a measure visual, the greatest advantage accrues.[12] The child, therefore, that is both a rapid learner and good retainer, and of mixed ideational type, is the most fortunately constellated for learning and the acquisition of knowledge.

The facts just stated follow the teaching of Meumann and his school, and have probably had the widest acceptance. There are those, however, who might take exception to the above, holding the subject of "ideation types" to be a somewhat moot issue, at least as to the occurrence of prior types, or as Thorndike[28] (p. 410) questions the very existence of "types" distinct enough to deserve the name. Doubtless mixed types do predominate—doubtless most individuals are "mixtures." This,

*The poor, difficult learner is in reality here the *slow-learner*. He can learn as well as the rapid learner (the one with good impressibility), but only by greater effort, by more numerous repetitions. Both are *normal* individuals. There are individuals, on the other hand, with *defective* infixing ability, as we shall see. They cannot infix at all. These are *abnormals*.

†The memory traces do not, however, entirely fade out—for memory traces are still discoverable with the "saving-in-relearning" test (to be noted further on).

*It is the predominance of visual ideation, together with labored or difficult accommodation of attention, which Meumann believes the fundamental cause underlying the characteristics determining the "slow" as against the "rapid" learner (l. c. 4, p. 183).

however, does not obviate the incidence of strong tendencies, even paramounting qualities (visualization, audition, etc.) in these mixture make-ups. They do exist—and they must be taken note of in mental examination—surely when memory is involved. Indeed, the variations observed between the results of acoustic and visual memory in Rossolimo's "profiles"[14] intimate that possibly we have not paid enough attention to this phase of the matter, especially in testing intelligence.

Briefly, I believe, one may say that the memory modality, generally, is predominating "visual." Only in the few is audition equally strong. We do, however, find decided auditory types. Meumann himself was such. Inaudi and Fertol, two famous "calculation marvels" were also of this type (see Möbius' study, "*Uber die Anlage zur Mathematik*," Leipzig, 1900. Most such "marvels" are decided visualizers, however. A very interesting pathological case of charcosy was published by Ballet. Here an individual of extremely strong visual type became aphasic, but after the aphasia cleared up found himself decidedly "auditory"—though audition before his illness was very weak. See Störring, "Psychopathology," p. 103, etc.). Possibly because of this predominating visualization, greater difficulty of tests of hearing over those of seeing have been noted by Ranschburg.

In the more modern schools the tendency exists to have the child *see* as much as possible in instruction (also to touch and feel). Thus in our schools "visualization" is probably the better asset over "audition." (For Meumann's reply to the criticism against "ideation types," see[11] p. 546 *et seq.*)

The phenomena of infixing and retaining—immediate and deferred retention—may also be examined in regard to the value of these abilities to the child in training, the advantage of one or other in the school room. (Cf. Offner,[3] p. 139, and Baird,[4] p. 140.) Here we see that the former comes into play in current conversation between teacher and child, and in interrogations, the child having to hold all questions put to it until the response has been thought out and given. Furthermore, immediate retention is involved in the getting of numbers, words, and sentences through dictation, and in the repeating of such when recounting something just read, in all mental calculations, and finally in copying, drawing, and extemporaneous translation. The phenomenon is involved in both word-for-word prescription as well as where but the general context or meaning is to be grasped. How very important, therefore, this form of retention in the mental development of the young is, is obvious.

But all this is to no profit if it cannot be retained, and though an initial purpose, scarcely comes into account as a goal for the child (Offner). Indeed, however well the child may reproduce what it hears or reads at the moment, little of this may remain even fifteen or twenty seconds later*—while it is evident enough that what is reproducible subsequent to the attention's excursion elsewhere, has left definite traces behind, and that if recall is possible several days after, the matter is fairly well imbedded in our minds and becomes useful data at our disposal. Deferred memory, then, is co-equally important with the immediate, for without immediate infixing it cannot come to pass, while immediate infixing without deferred retention is of no avail.

As to especial correlation of the one or other to *intelligence*, there is little to be found in the literature. In fact, only Whipple[13] has a definite though unsatisfying reference, saying (p. 560): "In connection with the correlation with intelligence of tests of delayed and of immediate recall, there is some evidence that correlation with the former is closer"; and again (p. 518): "Tests of capacity to recall, or to recognize after an interval of greater or less duration, would doubtless more nearly measure memory in the more exact sense of that term, but unfortunately little attention has been paid to this phase of mental testing." Indirect reference, and in the same vein, is also made by Ranschburg (see further on).

From the foregoing pedagogical consideration one at least infers the necessity of keeping the various learning types in mind (also the ideational types, though this may be less important) and of employing both infixing and retention tests—tests for immediate and deferred recall—in examining the intelligence.* If infixing tests alone are given, the passing of such might inject error into our results, for the retention may be decidedly affected and here overlooked.† Thus, if any preference is to be shown at all, this should fall to the deferred-memory tests. But the slow learner also deserves his place in the sun, his type of intelligence being no less worthy than that of the rapid learner. He shows to poorer advantage if immediate recall tests *on hearing or seeing the test matter but once* are alone employed. (This fact comes up rather definitely in connection with psychopathy.) Must we not, therefore, have tests for this type? Surely his I. Q. would prove higher in that event. Just whether mediate memory does or does not particularly correlate with intelligence cannot yet with certainty be said, but its importance in determining the diagnosis of normality or defectivity must be acknowledged.

Factors in Psychopathy.—Our examinations, of course, cannot confine themselves to normal children (as was Binet's intention), and hence both normals and abnormals must be understood so as to differentiate the two. We must borrow, as we have seen, both from psychology and from pedagogics; but we must also borrow from psychopathy, and remember it is a field of its own, and one that has considerable data to offer us and an experience that dates back ever so much farther than the pathopsychological movement of the moment. That this field has not been drawn upon to a far greater extent—was, in fact, avoided by Binet and his followers—is strange enough. But still stranger is the fact that though Binet proposed his test method for normals, and meant it to be applied to normals

*"This shows us," writes Meumann (Baird[4], p. 171), "that the rapid learner possesses in the success of his first correct recitation no guarantee of permanent retention, a fact which may constitute a serious danger for children."

*In the Binet series, as well as in Yerkes' method, tests for mediate memory are conspicuous by their absence. They are also absent in De Sanctis. Both Ziehen[15] and Rossolimo[14] (part 3, p. 251), however, consider the point very decidedly in their test series, and it is of quite special moment in Ranschburg's pair-words test and Bernstein's test of recall.

‡See under pathology, further on.

only, and in gauging intelligence and nothing else, the hysteria of the movement in America broke all bounds and at once accepted the Binet scale, not as an age-average-gradation of the normal child, but as an accurate diagnostic measuring rod for every type of abnormal whatsoever, for adult defectives, all ages of epileptics, delinquents, immoral, and even every form of psychopathic constitution besides, and this in spite of the fact that it pivots on a half dozen irregular questions, without thought of affectivity or means of spotting affective deviation from the norm.*

In the clinic, just as in pedagogics, memory, or rather its abnormalities, has been found the most important issue. Only here *forgetting* has been focused on, rather than remembrance, and one has noted divers forms, such, for instance, as in senility, paresis, the Korsakoff syndrome, the various post-apoplectic aphasias, hysterical and post-epileptic twilight-amnesias, the amnesias after head-traumas (concussion), shock, psychic traumas, fright, alcoholic, nicotine, gas and other poisonings, and occasionally after narcosis.

The mnemologic variations of these conditions have been studied chiefly in adults, and but very little in children (from the obvious reason that more adult cases of this sort are seen in the clinic). However, beside a considerable chapter on childhood-hysteria, dissociative disturbances have been pointed out in "absentminded" children, and schoolroom mistakes in such who appeared later to come down with epilepsy. More interesting, and giving a special diagnostic method of procedure, are Ranschburg's studies[16] with reaction-time in the pair-words memory test (see further on). Here he endeavored to discover differences in immediate and deferred recall between the poorly endowed but normal, and the abnormal (pathologically deficient) child. And, in fact, differences in reaction-time (of recalling the associated word) were found, and such as might prove fairly available in differential diagnosis. But considerable must still be done before we have reliable methods of separating meager intelligence endowment (normal deficiency) from stupidity,† and both from the forms of mild defect (pathological deficiency). Where mild defect occurs in a psychopathic constitution it is most difficult to decipher the condition. Normal and abnormal psychic fatigue must still be studied, and much still be done to diagnose congenital aphasic forms. In fact, these latter—like mental infantilism pointed out by De Sanctis—would surely be more frequently found if the conditions were borne in mind.

*A full discussion of this will be found in the second article of this series,[2] together with indications for the separation of intelligence abnormalities from affective deviations and psychopathic trends.

†Normal deficiency can be improved; real stupidity is an inherited qualitative condition, for which little can be done—though possibly the internal secretions may occasionally help here. A very good beginning along lines of examination in differentiating mild abnormalities was made by Rossolimo[14] (p. 296), who made a profile of 18 backward children, 53 little advancing (wenig fortschreitende) 3 with dispersed attention, or absentminded (zerstreute), 9 lazy children, and 11 profligates (lasterhafte). Out of the study of these individuals R. was able to distinguish typical types of profiles (and thus of individuals), and so speaks of "psychological types" that can be quite definitely diagnosed with the profile method.

The first thing we determine with mental tests in psychopathy is whether the difficulty manifested lies in the infixing or association process. There are cases in which the one is intact, the other invalidated, and vice versa. Thus the congenitally feebleminded may have a fair impressibility for immediate recall, occasionally even an exceptional ability—though their power of association is meager or nil. At times they are even able to infix for mediate recall, but it is impossible for them to acquire permanent memories. The acquired dementias, as in praecox or paresis, on the other hand, may still show very fair association powers—inter-associations of former earlier obtained dispositions—the severest infixing defect obtaining at the same time.[17]

To verify the general normality of the association process—that is, the understanding—I use a series of tests, the results of which may be recorded on the right upper portion of our intelligence sheet. One has the patient duplicate certain performances asked of him without, however, first showing the same, namely, to "make a fist," to "beckon with the finger," "whistle," etc. In adults, one may have the patient "strike a match," "light a cigarette," etc.* Or, best of all, one employs a routine series lending observation for cursory orientation as to the presence or absence of the various forms of aphasia and apraxia; thus:

1. Does the patient understand what is said to him? ("Make a fist," etc.)
2. Has he spontaneous speech, and is it sensible?
3. Have him repeat what you say.
4. Have him read to himself and repeat what was read.
5. Have him read aloud.
6. Have him copy something you write, draw.
7. Write from dictation.
8. Write something spontaneously.
9. Apraxia tests.

In examining the infixing ability, two types of tests are used, and one distinguishes between the infixing (and recalling) of a given number of syllables or digits *which are presented but once* (which determines the memory-span and gives an *index of the attention*), and the learning test,† in which a series of senseless syllables longer than the "memory-span" are presented. In the latter test the problem is to determine *how many presentations* are necessary before a given series of syllables (or digits) is correctly reproduced (and but once).

In the normal individual it matters not how long the series of members to be learned happens to be. We know that approximately *any* series, however long, can be learned if *repeated often enough.*

Ebbinghaus[19] (p. 650 *et seq.*) found that he could remember at an average 6 to 7 syllables on one reading, 12 syllables on 14 to 16 readings, 16 only after

*In such tests one may occasionally note the first evidence of stereotypy, perseveration, or other abnormal forms of action.

†This is the well known, possibly best known, memory test of Ebbinghaus, who was the first to undertake extended experimental studies of memory (see his "Über das Gedächtniss," 1905). This special test is spoken of as the Erlernungsmethode, *i. e.*, "learning method" or "method of complete memorization," and has been frequently employed in Psychiatry. See also his Grundzüge der Psychologie[19].

30 readings, 36 after 55 readings. Adults of 18 to 20 could recall 1½ times as many syllables or words as children of 8 to 10. Sensible connected series (as in sentences or verse) he could retain 9 to 10 times better than senseless series. In children, Binet and Henri[20] found that words in sensible connection (sentences) could be reproduced 25 per cent. better than words without connections. In giving a series of 7 *unconnected words*, they found 5 were reproduced correctly; but in sentences of 38 *connected words*, in which there were 17 groups of ideas, 15 such groups were recallable. In a sentence of 74 words, with 24 groups of ideas, 18 groups were recallable.

In the psychopathic, however, the conditions are different. Such individuals, whether child or adult, show a very rapid fatigue, and this at once reduces mental energy, attention and memory-span. Give such individual a series of syllables to learn, a series longer than their normal memory-span, and they can learn the same by repetitions, just as the normal; but whereas the normal person will reproduce any number of such syllables by increasing the repetitions, the abnormal (psychopathic) soon comes to a point beyond which he cannot advance, though he reviews the thing innumerable times. Attention has repeatedly been called to this fatigue phenomenon in both child and adult. In testing abnormals, the fact must be well borne in mind, and a procedure adopted which will mitigate this fatigue as much as possible.

The neurasthenic—he really should not come under the rubric of psychopath,* at least not in milder forms—also presents a condition to be thought of in this connection. He very frequently shows rapid mental fatigue, with or without accompanying irritability. In fact, the condition might better have been named *psychasthenia* (a term now applied to another neurosis), for it entails a cerebral functional fatigue, a rapidly waning central energy. He has difficulty in concentrating, his attention no longer "sticks." One of his most frequent complaints because of this is his failing memory. The fatigue may at times be of a special circumscribed type, such as *asthenopia*, in which vision very rapidly peters out on even the merest strain, or the condition may indeed only, or especially, be manifest in the sphere of memory, *i. e. mnemasthenia.*

True mnemasthenia, however, with more or less actual memory impairment, may occur after infections—as influenza, scarlet, typhoid, etc.—in severe anemia, in chronic insomnia, chronic cephalalgia, apraxia nasalis (especially from adenoids), chronic ear disease, chronic alcoholism, continued inordinate exertion, excitement, dissipation, etc., in which cases a chronic daily "unrecuperatedness" obtains. The same has been found after intense cramming for examinations.[21]

Again, there are such neurasthenic children bordering the psychasthenic* in whom the difficulty of concentrating is due to the fact that their attention is constantly being drawn in almost ticlike or impulsion fashion elsewhere. They are *impelled* to look here or there, to notice things about them. This occurs while they study at home, or during recitations in school, or even in conversation. They often go "wool-gathering" besides, because of a similar impellance, following now this thread, now that. Yet strange to say, they have a considerable power in repeatedly pulling up and coming back, and so in the end get their lessons done or accomplish their work, but at a great expense of energy, and often with the greatest discomfort, amounting at times to anguish. Because of this tenaciousness in "coming back," nervous children of the neurasthenic type are usually among the better rather than the poorer members of a class.

As the *attention* is so important in all tests, and one cannot truthfully appraise the native memory-span, unless the attention is intact, this factor, like that of fatigue, must also always be preliminarily considered. As just mentioned, it becomes affected through fatigue, and has therefore little vitality in the psychopathic. It is often also invalidated in the neurasthenic and psychasthenic.* But it is also transiently or chronically affected (distracted) in a whole series of conditions that have nothing to do with character changes, namely, where pain obtains, or hunger, itching, worms, nervous figitiness, aural, nasal or naso-pharyngeal irritation, ethmoid disease and nasal obstruction. Should, therefore, the test for memory-span (the usual digits-test) fall out poorly, it is imperative, before judging the child's mental ability by it, to ascertain if any of these causes for abnormal attention obtain. Finally, it should not be forgotten that the attention-span depends upon age, being meagre in the young and growing from year to year. One must therefore not tax a six-year-old with a problem involving an attention-span only normally manageable by a 9- or 10-year child.

It is because of the great difficulty at times of determining to what degree the attention is invalidated in psychopathy that the learning test has usually been preferred; and a special observation in this connection brings up two factors of importance for us. Gregor[22] noticed that there were mental patients who were able to reproduce very little *on the first hearing* (or exposure, where the tachistoscope was used), who, however, could *learn* relatively rapidly. Reversely, also, there were patients who could repeat *most of* the test series after the first exposure, but who, nevertheless, were unable to get *the whole* of the series, in spite of repetitions.† Gregor believed the first phenomenon here to depend on automatic impressibility of memory (*i.e.* our infixing ability as such), the second to the association of the individual members or links of the series. At any rate, this brings up beside the *infixing* function, a *learning* phenomenon.‡

Can we apply these findings in examining normal

*He does when he is constitutionally neurasthenic and shows character abnormalities. He is then a "neurasthenic psychopathic constitution." Most such individuals are "born neurasthenics"—are hereditarily or congenitally so. But acute or subacute nervous exhaustion after disease, strain or great effort, may show the same picture—and later clear up. Some, though, do not clear up.

*Here this term is used in Janet's sense. For a differentiation of these conditions and definitions of the terms, see the author's study on Heredity (chap. 2), MEDICAL RECORD, Feb. 24, 1917.

†Ebbinghaus[19] (p. 652) found the same thing occurring among normal individuals.

‡On using the pair-words test (see further on) Gregor found that when employing 4 pairs of one-syllable words, *with one presentation*, after three minutes, 24 per cent. of correct associates were obtained; on giving the series *twice* (instead of once), *62.5 per cent. of correct associates were obtained!*

and abnormal children? And are there correlations between the learning ability and intelligence? Let's say a child does poorly in a digits-span test, on hearing the figures pronounced once (poor attention or poor infixing?), but who does well on hearing them pronounced twice or thrice, how does such child stand in regard to intelligence endowment? Here, other things being equal, the learning test—of a series beyond the normal memory-span—may give the clew, and one may judge that individual's memory better, who can repeat the series correctly with fewest repetitions. But a series that can be standardized must yet be developed.

Still another fact was noted by Gregor. In studying the Korsakoff syndrome, he found that the memory-span of such patients was usually very brief, and that the learning of a series of syllables, as ordinarily undertaken, was here poorly accomplished, if at all possible. On the other hand, if the series, instead of being learned per "whole method" (the most rapid and propitious method in normals), was learned per "part method," such a series could not only be learned, but the re-learning time was shorter and the final retention greater. Thus in using the part method in learning and permitting repetitions, Gregor not only demonstrated that his patients with even most invalidated memories could infix series of syllables, and prose pieces and poetry, but could retain these for months.

The great importance of this discovery in its bearing on the training of defectives and in remedial pedagogics is evident. Defectives must not be taught by the "whole-method," but with small portions repeated to them over and over again. In this way much progress can be made.

And one cannot say at the moment that there are not children of meager endowment or deficient (but not defective) or special forms of abnormality, in which the memory shows this peculiar bent, narrowed memory-span showing itself by defective infixing for immediate memory, but in which tolerably fair infixing ability exists, even for mediate and permanent memory, if properly approached, this latter fact becoming evident on testing with the *learning method*, and using a part presentation—each series smaller than the average normal span—with repetitions.

But neither the infixing nor learning tests, whether well or poorly accomplished, give evidence as to the durability of the impression made—whether, in fact, the depositions formed will last much beyond the moment. To determine this, we have two test methods, the one Ziehen's *reproduction test* (l.c. 7, p. 17), the other Ebbinghaus' "saving method."

In the former a problem is offered, either an example or two in arithmetic, as Ziehen usually gives it, or a make-believe going to the store for several commodities, as I employ it in my series, after which the attention is directed to a second problem, *i.e.* the repeating of digits; following a brief lapse, the first problem must be recounted.

This is an excellent and important test, and Ziehen points out how some patients who have even good infixing ability for immediate recall, a moment after distraction have lost all that was retained. In defective children, the same is sometimes noticed. The test, in fact, often shows up mild defects in very positive fashion.* It is the best and most adaptable test for *mediate retention* that we have. It is urgent, however, that we standardize certain problems to serve for the first example.†

The Ebbinghaus "saving method," or "saving-in-relearning" (*Ersparnisverfahren*) consists of his learning test, with reapplications; *i.e.* the material learned is relearned after definite intervals—an hour, a day, a week, etc. One then ascertains how *less often* one must read the syllables on the second learning than one had to at the first learning. The fewer number of repetitions needed is the index of the retention. For instance, if at the original learning it took 20 rereadings before the line of syllables could be repeated once correctly, and after 24 hours it took 10 rereadings to again be able to repeat the line correctly, then there was a saving of 10 repetitions. Such an individual may not think he remembers a syllable of the line—and yet this test proves his latent memory of it; that is, latent traces, which can be brushed up with far less work than was originally necessary for imprinting. "Indeed," writes Ebbinghaus, "nothing is readily lost completely from mind, even if very soon one can no longer reproduce the parts." Ebbinghaus was even able to demonstrate the presence of memorial traces 31 x 24 hours after learning a series of syllables once, and he likewise notes finding traces of a poem more than 20 years after it had been learned just once.[23]

We need not here touch upon the curve, or approximate curve,‡ of normal forgetting which was mapped out by Ebbinghaus (and later altered, but on the whole substantiated, by Meumann and by Radossawljewitsch[24]) more than to say that forgetting is at first very considerable, later progressing more slowly. Even an hour after one has ceased the learning, according to Ebbinghaus, over half the work must be done again, in order to reproduce the matter correctly. After nine hours, Ebbinghaus

*In my examinations of overseas cases of post-shock, and especially post-concussion, war neuroses, I found that where memory disturbance occurred, it was usually mediate memory that was affected. In a most interesting case of post-concussion amnesia, the same was true, normal immediate memory, strongly affected mediate memory.

†In the tests for the 6-7-8th years, I use for this purpose the three commodities: Loaf of bread at 5 cents, half pound of butter at 15 cents, and some cheese for 8 cents. The Binet test of carrying out three commissions may also be used instead of the above.

‡To be accurate, we ought really not speak of this curve as "*the* curve of forgetting," for the curve mapped out here was based on the learning of nonsense-syllables only (and sensible lines, in the case of Radossawljewitsch's experiment). Using other material, somewhat different results were obtained. Thus proficiency in *addition* gained through practice was not lost as rapidly through discontinuance of practice and did not show so abrupt a fall in the forgetting curve (Kirby), while skill obtained through tossing balls or manipulating a typewriter was retained in far greater measure (Swift). So one must assume that the curve of forgetting depends upon the nature of the matter committed to mind. Commenting on this fact, Thorndike[25] (p. 254) writes: "It is possible that the secondary or so-called higher connections in the nervous system which correspond to the association of 'ideas' are fundamentally less retentive of modification produced in them by learning than are the more primary and direct neural bonds which correspond to the association of sensory situation and motor response. Knowledge may be by the nature of man's neurones less retainable than skill. Roughly, as a matter of general observation, it seems to be."

found that the loss was almost two-thirds of the work done at the outset. From then on, the forgetting went slowly. The decrease, according to Ebbinghaus, is in logarithmic progression. Thus the number of repetitions required on the following days (for 24 syllables learned with 21.5 repetitions) was 10, 5, 3 and 1. Meumann's findings, however, for the same experiment showed that forgetting was by no means as great after 24 hours. His figures are 21.6, 4, 1, and 0.7. Anent which Meumann comments, "*From this it follows that the first repetition is the prime factor in retention, and that subsequent repetitions serve only to intensify its effect. . . . In the class room, material should always be thoroughly re-learned as soon as possible after its initial acquisition, because this procedure will be found to aid retention in a most effective manner.*" Baird[4], p. 334.) The Ebbinghaus experiments, besides, bring up two most interesting facts for pedagogy: First, that material learned in parts is forgotten more readily than material learned as a single whole (so that not only for rapidity of learning, but for retention, the "whole-method" of learning is by far the best); and secondly: *If a material is memorized up to the ability of reproducing it correctly once, and then the re-readings continued, this method of learning is far less efficacious than if this rereading had been done on successive days.* Thus a series was learned in 17 repetitions, yet the repetitions continued up to 68. Another series was learned just up to the correct reproduction, also with 17 rereadings; but this series, instead of being now again reread, was first relearned on the following day (with 12), and the day after (with 8 repetitions), each time until just correctly reproduced. On the fifth day it was accomplished with 4 repetitions. Here it was found that the 68 rereadings, one after the other, were not as propitious for the later recall as 38 repetitions spread over 3 successive days. Or, in other words, 20 additional rereadings carried out on 2 succeeding days, was more economical for learning than 51 repetitions carried out directly after the first learning."[19] (p. 658.)

Instead of employing the "saving-method" in the form here described, one can combine the "learning" and "saving" method in a *test-procedure* which proves more agreeable to the test person (and far less fatiguing) than these just mentioned—tests that, by the way, are scarcely happy tasks for children—and which lends itself to wider application. This is the *pair-words test* already alluded to. The method was suggested by Ziehen,[15] possibly still earlier by Ranschburg,* as well as in a somewhat different form, with senseless syllables (the well-known Treffermethode), by Müller and Pilzecker.† I discuss and recommend it at this point especially because it is so rarely used for intelligence rating, and is scarcely mentioned in this form in our literature, and might really serve as a good test for mediate recall and finer diagnostic purposes.

The method consists of presenting, acoustically or with the tachistoscope, a series of associated words in pairs*—thus, grass—green; wall—high, etc. Directly after one presentation of the entire series (also an hour after, 24 hours after, etc.), the first word of the various pairs is given and the test-person supplies the proper associate. One notes if the associate is false or correct, or if no associate is found; one also notes (Ranschburg's method) the time taken in supplying the associate. One may likewise *learn* a series of pairs up to the point of reproducing them (immediately) correctly once (*i.e. learning method*); and one may also compute the index of retention by relearning the series on subsequent days, etc. (*i.e. saving method*). One may spot the normal "slow" and "rapid" learner with the test, try out immediate and mediate memory—that is, both infixing and retention—as well as recall. All in all, a test of considerable range.†

Ziehen used pairs composed of substantive and adjective, ten pairs. These were: Garden—large, tree—small, house—green, leaf—yellow, flower—red, table—round, room—high, bed—long, chair—low, picture—pretty:

Ranschburg gives 15 pairs in 3 groups, the first being of related substantives: House—door, steam—kettle, etc.; then 5 pairs related as coördinates, subordinates, per causality, etc.: Hand—finger, fish—water, God—creation, etc.; finally 5 pairs with clang association: Bit—bitter, etc. He also computes the average time taken for the reproduction.

Ranschburg gives his test in several ways. The best method, for the learning process, he finds to be the acoustic-motor-acoustic, in which one pronounces the pairs and the test-person likewise repeats them. Thus one is sure the words were correctly heard. The tempo is about 2 seconds a pair. One elucidates with an example or two before giving the test pairs.

One may also use 9 pairs, or several series of 9. In children or psychopathic individuals, shorter series are given to avoid fatigue. Thus it is wise to begin with 3 pairs; then try six; then nine.

In testing *infixing for immediate retention*, one gives the series once, and has it immediately repeated. (Normals will give from 75 to 100 per cent. of correct associates.)

In testing *deferred recall*, one again asks for the associates one hour and 24 hours later. In Ranschburg's tryout (24 hours deferred), normals gave a curve as follows: About 17 per cent. reproduced from 50 to 75 per cent. of correct associates, the remainder up to 80 per cent. reproduced between 75- and 100 per cent. correct associates; or all in all 80 per cent. of those tested gave between 50- and 100 per cent. of correct associates.

Where there is difficulty in infixing, one will have to give the series twice for immediate recall, and not if it is reproducible; if not, then three times, etc. This should be remembered in testing defectives and psychoses.

Ranschburg[16] (p. 109) also used this method in giving a *complete memory examination*. He employed 7 groups of tests. The first group was to test word memory (and consisted of 15 word pairs: 5 pairs of simple substantives, 5 pars of coordinates

*Ranschburg's earliest report is in Monat. f. Psych. u. Neurol. Bd. IX, 1901. But for full discussion, see[16], p. 38 et seq., also p. 105.

†The *principle* of the test seems to have been employed still earlier by Calkins (cited by Ladd and Woodworth, Psychology, p. 573).

*Hence Thorndike has most appropriately named the test that of "paired-associates."

†What is still wanting, however, is a detailed method of procedure.

or subordinates, or such associated per cause and effect, and 5 pairs of clang associates). The second group tested memory for persons: ten portraits were shown, each 3 seconds; an album containing 50 portraits was then produced and the test person picked out the pictures already seen. The third group was to test color-memory. Five colored squares (brown, yellow, green, blue, red) were displayed, these subsequently to be recognized out of 15 colors composed of 3 nuances each of the 5 shown. The fourth group tested orientation-memory (for which tests a special card mapped out with 750 squares was used. 150 of these squares were in black and irregularly scattered over the board. Five such squares were pointed out to the person examined, who was asked to remember their location —and point them out again later). The fifth consisted of 5 pairs of senselessly associated words. The sixth was to test memory for names, and here five portraits were used and each associated with (given) a name, (both Christian and family name). After a short period the portraits were shown and the name associated with each demanded. Finally, number-memory was tested with 5 word pairs, *i.e.* a street and number, or name and day of month (*i. e.* No. 59 Madison Avenue, April—the 19th).

The results of these tests on twelve normal school children of 12 years of age, and twelve educated and twelve uneducated adults, taking the groups consecutively and reckoning in percentages of correct answers, were as follows:

	I	II	III	IV	V	VI	VII
Children of 12 years..	60	70	80	40	20	30	60
Educated adults.....	67	95	80	30	40	70	80
Uneducated adults....	57	80	60	40	20	30	40

Ranschburg also attempted the task of finding differences, if possible, boundaries, in the memorial ability of the average normal and the very poorly endowed yet normal children,* and between these and the retarded in the sense of being pathologically deficient (pathologisch Schwachbefähigten)[16] (p. 46 *et seq.*). In this examination he used his pair-words method, but determined the *reaction time*, the time taken to reproduce the associate, besides noting the correct hits. This reaction time, for both immediate and 24 hours deferred memory, was computed on 110 normal children between the ages of 6 and 19, and on 37 deficient children of a Hilfsschule (sub-class school) in Budapest. The results were as follows:

As to correct hits: Immediate recall of simple logical associates was by no means poor in the pathologically deficient, even though in a good proportion of such it fell behind the average of normals and the normally deficient. Thus the average obtained by Ranschburg was about 20 per cent. smaller than in normals.* On the other hand, scattering was much greater.

Results in reproduction hits of 75—100 per cent. speak neither for a good endowment nor against a pathologically meagre endowment.

Reproductions under 50 per cent. from the school age up, argue against a good endowment.

Reproductions under 25 per cent., in the ages from 6 to 11, *but already such below 60 per cent. in ages between 12 and 19 years, argue with great probability for pathological defect.*

Very interesting was the finding that when the reproduction was again tested after 24 hours, 30 per cent. of the normally deficient showed an improvement of the reproduction. This never occurred in the pathologically deficient.

Deferred memory tests (reproduction, on merely hearing the stimulous word, being again demanded after 24 hours), contrary to the negligibleness of immediate memory tests, argued in percentages over 75 per cent., with a probability of 6.5:1 against pathologically meagre endowment. Between the ages of 12 to 19, 85 per cent. of 40 cases in normals showed reproductions above 75 per cent. The ratio here between the normals and the pathologically deficient is 8:1.

Results under 50 per cent. at ages between 6-11 speak probably from 14:1 against normality, and with probability of 8.5:1 for pathological deficiency. Between 12-19 values under 60 per cent. did not occur at all in 40 normals.

Reaction words which do not in any way associate with the stimulous words intimate, without question, of deficiency, but not exactly for pathological deficiency—although the frequency of such misassociations does not occur in the normally deficient. The reverse, however, is not true—the absolute correctness of the associations does not necessarily speak for normality.

As to reaction time: In normals, very slow reproduction time argued against an averagingly good endowment. The reverse, however, was not true; rapid reproduction did not point to especially good endowment.

The reaction time for *immediate recall* (acoustic-motor-acoustic method) in normals between 6 and 11, averaged 2 seconds (fluctuating between 1.2-3.1 seconds, never longer than 2.3 in the best endowed, nor than 3.1 in the poorest endowed). Among 40 normals at the age of 12-19 the average time was 1.4 seconds (the extremes being 1.2-1.8 seconds). The maximum time for adults, intelligent and unintelligent (only loosely estimated, however, and using the opticmotor method) was 2.4 seconds.

Thus, between the ages of 6-12 one may assume the average of 3.2 seconds in reaction time for immediate recall as the lower boundary line of normality, and the average of 1.8, at most 2 seconds between the ages of 12-19.

Longer average reaction time points with greatest probability to the pathological, while reaction time averages smaller than 1.5 (between the ages of 7-16) argues with greatest probability against pathological defect.

For 24 hours' *deferred recall* the average time in

*Such as are still permitted to attend the normal schools, but who are found generally poor. They are deficient children, but not defective. R.'s pathologically deficient are the mildest form of *defective* children, his classification being: Normal, deficient or poorly endowed normals, pathologically deficient (in reality, mildly defective), and, finally, defective. It is very difficult at times, R. points out, to get any aides either from the physical examination or the anamnesis to diagnose these deficiency cases, and only the pedagogical rating is here used at present to determine the diagnosis. (It must be admitted our word "retarded" covers a multitude of pathologies and means nothing definite.) This pair-words test with estimation of reaction time gives an additional indication.

*The abnormals were between the ages of 7-16, the normals between 6-19.

normal individuals of 6 to 12 years was 2.6 for the best endowed and 3.3 for the normal deficient (Beschränktesten). At the ages of 12-19, 3.4 seconds was the poorest score for the 40 normals tested.

Averages, therefore, greater than 3.5 *seconds argue in ages from* 6 *to* 19 *with great probability against intellectual normality, and for pathological inhibition or defect.* The average of 2 seconds noted for normals (see above) does not reason against the pathological nature of the deficiency; averages, however, shorter than 1.8 seconds, from the ages of 7 to 16, argue with great probability against such deficiency being pathological; averages of 1.6 and lower are indications for the normally well endowed.

In looking over the foregoing we must then add to what has already been noted the necessity of applying a *learning* test in our memory examination and applying it *per whole-method, as well as per part-method;* likewise *per one presentation, as well as per two or more presentations* (this being especially indicated in testing abnormals, or where abnormality is suspected). We may also compute the memory index by the *re-learning method.* All this can be conveniently accomplished with the paired-associates test, which lends itself to a time-reaction application, this latter appearing to give data that is of differential-diagnostic value. What must still be formulated is a series of pairs, graduated suitably in numbers and difficulty to apply to young and older children and to adults. The reaction-time norms estimated by Ranschburg must also still be substantiated on larger groups of individuals.

We have seen how our "learning," our acquiring and storing up of knowledge, depends on memory. And our mental development depends upon this learning and storing up of facts (*i. e.* the gathering of depositions).* Hence, the preponderant pedagogical import of memory. Even comprehension and combination would be impossible without revivable depositions. At the moment one cannot just say to what degree the individual memory phenomena and intelligence are commensurate, but we do know that there are decided correlations, and that these phenomena, if we include the attention, are the intelligence fundamentals.† Likewise, when the mind becomes diseased, or is found congenitally enfeebled, forgetting, or the inability to gather memories, are cardinal manifestations, and appear almost in typical variation in the different forms of abnormality. Thus no examination of mind, whether to determine the characteristics of normal mentality, or in differential diagnosis of the abnormal as found in deficient or defective intelligence or in psychopathy, can afford to neglect probing this memory function —can afford to neglect examining and testing it thoroughly and in terms of its individual phenomena.

The tests to be employed in this examination, and which are used in our Intelligence Examination[2]— though the precise order on our "intelligence blanks"* is not as given here—are as follows:

TESTS OF INFIXING ABILITY AND IMMEDIATE RECALL (IMMEDIATE MEMORY).

1. The immediate repeating of digits (memory-span for digits).
2. The immediate repeating of associates (paired associates).
3. The immediate repeating of sentences (memory-span for syllables).
4. The immediate repeating of a brief story (span for context or ideas).
5. The immediate carrying out of commissions.

TESTS OF (SLIGHTLY) DEFERRED RECALL (MEDIATE MEMORY).

6. Ziehen's test (recounting of purchases).
7. Retelling of above story (at end of visit).
8. Drawing of a diamond, etc., 15 seconds after exposure.

TESTS OF DEFERRED RECALL.

9. Repeating test 2 (giving only the stimulus word) 24 hours later, *and computing average reaction time.*
10. Retelling of story 24 hours later (and noting exactness, *i. e.* reliability of recall [also imagination, etc.]).
11. Redescribing picture No. 1, shown on first visit (among tests of comprehension and combination).†

(Where special emphasis is to be placed on reliability vs. unreliability of report, the *exposure test* and *suggestibility test* are also given in this group.)

TESTS FOR PERMANENT INFIXING.

These tests are taken up under *Knowledge.* (See intelligence blanks.)

LEARNING TESTS.

12. (*a*) Either a sentence one and a half times (also twice) as long as the memory span; or (*b*) 15 paired associates, are learned, for one correct recitation, the number of necessary readings noted; 24 hours after, the same is again learned, and the saving in readings noted.

REFERENCES.

1. Th. Ziehen: Das Gedächtnis, Berlin, 1908.
2. J. V. Haberman: Probing the Mind, The Intelligence and Its Examination, MEDICAL RECORD, May 18, 1918.
3. Max Offner; Das Gedächtnis, Berlin, 1911. (Chaps. I and III.).
4. J. W. Baird: The Psychology of Learning, Appleton, 1913. Translated from the third edition of Meumann's "The Economy and Technique of Learning."
5. W. James: Principles of Psychology, 1910, Vol. I.
6. M. Isserlin: Psychologische Einleitung, Aschaffenburg's Handbuch d. Psychiatrie, Leipzig, 1913.
7. Th. Ziehen: Die Prinzipien und Methoden d. Intelligenzprüfung, Berlin, 1911, p. 37.
8. Th. Ziehen: Die Ideenassoziation des Kindes, Berlin, 1918, p. 63. Ziehen was astonished to find how children instead of associating something nearer by way of contiguity, associated something far more remote

*Though *capacity* in certain directions, as of the attention, of expression, etc., depends upon *age.*

†See, for instance, the very excellent summary on this point by Offner[3] (p. 235 *et seq.*). But it should be remembered that the real index of intelligence, as we rate one individual more *intelligent* than another, depends chiefly upon combinational ability. Cf. 2.

*Our intelligence test sheet for the ages of 6-7-8 is obtainable from the Fetzer Press, 160 Duane St., N. Y. The 9-10-11-12 year sheet will be ready presently.

†This picture, as well as the other pictures used in connection with our test-sheet, is obtainable from J. T. Beals, 71 West 23d St.

in time and place, but which was associated because of its strong feeling-tone.

9. J. V. Haberman: Probing the Mind. First Report: Feeling, Association and the Psychoreflex, MEDICAL RECORD, Dec. 1, 1917.

10. E. Gassmann u. E. Schmidt: Das Nachsprechen von Sätzen in seiner Beziehung zur Begabung. Wissenschaftliche Beiträge zur Pädagogik und Psychologie, 3. Heft, Leipzig, 1913.

11. E. Meumann: Experimentelle Pädagogik, Vol. II, p. 677.

12. *Id.: Ibid*, Vol. III, p. 119.

13. G. M. Whipple: Manual of Mental and Physical Tests, Baltimore, 1915.

14. G. Rossolimo: Die Psychologischen Profile, Klinik f. Psychische, u. nervöse Krankheiten, Halle, 1911, Vol. IV, Parts 3 and 4.

15. Th. Ziehen: Psychiatrie, Leipzig, 1908, p. 230.

16. Paul Ranschburg: Das Kranke Gedächtnis, Leipzig, 1911, p. 44 *et seq.*

17. K. Goldstein: Merkfähigkeit, Gedächtnis und Assoziation. *Zeit. f. Psychol.*, Vol. XLI. This is discussed by Ranschburg,[16] pp. 41-42. Cf. also Boldt.[18]

18. Boldt: Studien über Merkdefekte. *Monat. f. Psychiat. u. Neurol.*, Vol. XVII, 1905.

19. H. Ebbinghaus: Grundzüge der Psychologie, 3rd edit., 1911, p. 647.

20. Binet et Henri: La Mémoire des mots, Année psychol. I, 1894.

21. P. Ranschburg: Die Gedächtnisschwäche (Mnemasthenie) und ihre Behandlung. *Deut. med. Woch.*, Nos. 51 and 52, 1912.

22. A. Gregor: Leitfaden der Experimentellen Psychopathologie, Berlin, 1910, p. 87.

23. H. Ebbinghaus: Abriss der Psychologie, Leipzig, 1910, p. 91.

24. P. Radossawljewitsch: Das Behalten und Vergessen bei Kindern u. Erwachsenen, etc., *Pädag. Monat.* I, Leipzig, 1907. R. found a loss of 11 per cent. after 20 minutes, 20 per cent. after 60 minutes, 53 per cent. after 8 hours.

25. E. L. Thorndike: Educational Psychology, Briefer Course, 1917.

60 WEST 85TH STREET.

PRACTICAL POINTS IN THE TREATMENT OF FEVER.

BY BEVERLEY ROBINSON, M.D.,

NEW YORK.

ONLY two days ago, word came over the telephone from a former patient of mine that the physician called in to attend him had pronounced the medicine he had taken was not strong enough to rid him of the fever from which he was suffering. At the time influenza was suspected, but not affirmed positively. The medicine the patient had taken was the salicylate of ammonium, to be taken in moderate doses frequently. For this medicine the attending physician promptly substituted a mixture of aspirin and pyramidon in quite frequent doses.

As soon as I learned what the doctor had prescribed I had a sense of sorrow, and this feeling arose simply because I do not believe in either of these remedies, and at times know they will do harm rather than be useful. Of course, we know how popular aspirin has been in later years among practitioners to lessen temperature and to diminish pains. Too frequently it is given when the diagnosis of the disease is very doubtful.

While at times it certainly seems to be useful in lessening pains and fever, there are occasions when the patient, instead of being benefited, is made decidedly worse. It is not uncommon to have chilly feelings, sweating, faintness, and even a skin eruption, quickly follow its taking. Personally, I have no experience with the newer pyramidon, which has very recently found favor with some physicians, as an analgesic and antipyretic. It is a modification of antipyrin chemically, but is said to have more prolonged, though somewhat similar effects. But why use frequently two such drugs of complicated chemical formula, and both, to our regret, the products derived from phenol? Formerly, when the Germans were in high but really undeserved great repute with us, everything that came from their laboratories received numberless encomiums. It was simply the far-sighted, sensible, and experienced physicians who combated their wide use, because they saw and recognized their evil effects almost daily. Now, I would not banish the use of some of these drugs—notably phenacetin and antipyrin—but I would limit their use very much, and only give them in very moderate doses and when there were clear-cut indications for them. Undoubtedly, when fever is high, and when with the fever there are much pain, discomfort, restlessness, a moderate dose of phenacetin, occasionally given, will lessen these symptoms markedly, and not do harm, so far as we can judge, in many instances. I fail, however, to observe that it does better work, or as innocently, as sweet spirit of nitre and spirit of mindererus, singly or combined.

Practically one reason why the newer drugs are prescribed and the older ones thrown aside is because the patient or friends not seldom read the physician's prescription, and if they find it at all antiquated in their judgment they do not believe in its utility because it is too commonplace, and something to be prescribed as an old woman's remedy, rather than that of a wide-awake and progressive physician. But let us consider for a moment what evils result from coal-tar medication, with some of their known effects, when we must acknowledge that fever is a symptom and not a disease. This symptom may arise from a variety of causes. Also it may be pronounced, serious, or very slight. If the cause be known, or probable, and the fever be light, or moderate, it is surely wisdom not to attempt to break it up ill-advisedly.

If it be very high and threatening, then, although we may not know at once the cause of it, we are justified in trying to lower it by any suitable remedy which will accomplish the object and not be too prejudicial to the patient. To what extent fever is evidence that nature is battling in our cause is not yet known positively, but we do know now, or at least we believe, that useful and numerous phagocytes are present with a high leucocyte count and also a high temperature, while on the other hand, with a low leucocyte count and a low temperature the situation of the patient may be very serious, not to say imminent. Thus it is, as we know, in lobar pneumonia, and in less degree a few other acute diseases.

During many years, but now fortunately far less, cold tubbing was insisted upon, especially in typhoid frever, when the temperature ranged high and when the coal-tar products, even in large doses, produced little or no effect in lowering the temperature for any length of time. Properly given, they were thought to be very valuable and to stimulate and invigorate the patient. To-day, thanks to a wiser appreciation of their drawbacks, they are not so

much in vogue, and to nervous patients, especially women, and during the night, are rarely given, even in well appointed hospitals. It was already found how onerous and troublesome they were, and in private practice, except among the wealthy, they could not be regularly and properly given, owing to the necessity of having three or four competent nurses, and, of course, a movable bathtub and much skill and care in their administration.

At present, we have again recurred to frequent sponges with cold water, to which we add a proportion of alcohol or vinegar. It promotes the comfort and well being of the patient and diminishes the temperature in a rational degree, quite as well as the more radical or drastic doing of the cold tub. Locally, cold applications are used in fever to lessen pain when present, but also to lessen fever.

I fail to consider this good practice, and am and have been more inclined for several years to make use of warmth rather than cold to the chest or to the abdomen. It makes a far stronger appeal to me, in that it promotes circulation in or near the inflamed parts, and does not check or throttle it when it is most required to abort or decrease inflammatory conditions. A warm turpentine stupe, or even a flaxseed poultice, has been immeasurably better, in my belief, than cold-water compresses or an ice bag. The latter in pneumonia hasten a fatal termination, and in appendicitis often make certain an operation which would have been avoided if warm applications had been persistently used.

42 West Thirty-seventh Street.

PERISINUS AND EPIDURAL MASTOID ABSCESS SUBSEQUENT TO INFLUENZA.

REPORT OF FIVE CASES.

By HUGH B. BLACKWELL, M.D.,

NEW YORK.

SENIOR ASSISTANT AURAL SURGEON, N. Y. EYE AND EAR INFIRMARY.

The following cases of mastoid infection subsequent to influenza occurred recently. They present some unusual features and suggest a phase of the present epidemic heretofore comparatively unnoticed. In common all of these patients were young adults, and each exhibited evidences of a postaural subperiosteal inflammation. In addition the operation disclosed in each patient the presence of a large perisinus or epidural mastoid abscess.

In four instances the operations were performed upon the service of Dr. Robert Lewis at the New York Eye and Ear Infirmary.

Case I.—Male. Six weeks prior to operation, while convalescing from influenza, an earache suddenly developed and continued for twenty-four hours when the drum ruptured spontaneously. The ear then discharged profusely until admission to the hospital. Three days prior to admission the tissues behind the ear began to swell. Aural examination just before operation showed marked postaural edema and redness, with slight mastoid tenderness and profuse fluctuating discharge, associated with sagging of the posterior superior wall of the external auditory canal. Temperature 100 deg. F. An *x*-ray plate by Dr. Dixon revealed a dark area in front of the sinus, suggestive of a perisinus abscess.

Operation: The mastoid bone was found to be broken down and filled with granulations and pus, smears of which showed streptococci. On removing the mastoid cortex a large perisinus abscess was disclosed extending along the anterior and external face of the vertical sinus for a distance of three-quarters of an inch. The patient's recovery was uneventful.

Case II.—Female. Three months before operation the patient had suffered from influenza and pneumonia. At that time there was some subjective disturbance in the affected ear. Owing to the fact that it soon ceased, no aural examination was made. Several weeks later an abscess developed in the lung of the left side, which was successfully drained by rib resection in the mid-auxiliary line. The patient insisted that following her initial disturbance she had suffered no aural pain nor had she noticed any discharge until myringotomy was performed on admission to hospital. On the day prior to admission she first observed swelling behind the ear. Aural examination before operation showed slight postaural swelling and edema, hardly if any tenderness, and a scanty discharge, smears of which showed staphylococci. Temperature 100.4 deg. F.

Operation:—The mastoid was found to be completely disintegrated, filled with granulation tissue and pus, smears of which disclosed the presence of *Streptococcus capsulatus*. A well developed perisinus abscess was revealed, beginning at the knee and extending downward for a distance of about one inch. The vein was partially collapsed and very dark in appearance. The operation was concluded and the patient made an uneventful recovery.

Case III.—Male. Five weeks before operation, while convalescing from influenza, an earache developed which was allowed to continue for four days before a myringotomy was performed. The ear discharged more or less freely for the following two weeks when a second myringotomy was done. About this time the patient developed symptoms of a mild attack of scarlet fever. His temperature was taken at regular intervals for five weeks prior to operation and at no time did it rise above 101 deg. F. A swelling behind the ear was noted several days before admission. Aural examination showed a marked postaural infiltration with redness and edema of the soft parts. A profuse, fluctuating, purulent aural discharge was noted but little or no mastoid tenderness. There was marked sagging of the posterior superior wall of the external auditory canal.

Operation: A large perforation was found in the mastoid cortex over the antrum region. The bone itself was completely broken down and disintegrated. After exenterating the subcortical cells, a large epidural abscess was discovered on the under surface of the dura covering the temporosphenoidal lobe. The epidural inflammation was localized and confined to the floor of the middle fossa. Neither the sinus nor posterior fossa was involved. The patient's recovery was uneventful.

Case IV.—Male. There was a history of influenza and pneumonia two months previously. While convalescing from this attack an earache developed and continued intermittently for two weeks, when the drum ruptured spontaneously. A swelling had been noticed behind the ear for the past two or three days. Aural examination just prior to operation showed swelling and edema of the soft parts behind the ear with slight mastoid tenderness and scanty discharge from the canal. Temperature 99.4 deg. F.

Operation: Revealed a broken down mastoid filled with pus and granulations. On removing the subcortical cells a well developed perisinus abscess, located at the lower extremity of the vertical sinus, about three-quarters of an inch long was found. The sinus was very dark in appearance, covered with granulations and partially collapsed. The operation was concluded and the patient's subsequent recovery was uneventful.

Case V.—Male. Five months previously, while he was convalescing from influenza and pneumonia, the patient's left ear suddenly and without warning began to discharge. There was no previous earache; the discharge continued until he came to the hospital. Three days prior to admission the tissues behind the left ear began to swell. Aural examination at this time showed edema and redness of the tissues over the left mastoid, slight tenderness, profuse fluctuating discharge from the canal, and marked collapse of the posterior canal wall. Temperature 98.6° F.

Operation: On removing the mastoid cortex and subcortical cells a large perisinus abscess was located lying over the vertical sinus and about three-quarters of an inch in length. Smears from the mastoid pus showed the presence of streptococci. The operation was concluded and the patient's recovery was uneventful.

Conclusions.—1. It is surprising to note the comparatively small number of serious cases of mastoid suppuration that have heretofore complicated influenza, when we consider the wide prevalence of the epidemic, its virulent character, and the proximate relation between the chief site of infection and the mastoid cells.

2. In cases II and V the latent manner of their development suggests the possibility of the presence of an unsuspected perisinus or epidural mastoid abscess in other postinfluenzal patients with aural disease.

3. The importance of otological examination is clearly indicated by the histories of these patients, not only when an earache is present, but in all cases of subjective aural disturbances following influenza.

4. Finally, the writer wishes to emphasize the importance, when operating upon these patients, of leaving undisturbed protective granulations overlying the sinus or brain. All macroscopical evidences of diseased bony mastoid structure should be removed. In addition to the usual technique of the simple mastoid operation, he believes in gentle curettement of the epitympanum without, of course, disturbing or dislocating the ossicular chain. He has practised this procedure for a number of years, when performing the simple mastoid operation, with very satisfactory results.

148 West Fifty-eighth Street.

A CASE OF VIOLENT REACTION FOLLOWING ANTIGONOCOCCUS VACCINE.

By LUCIUS FELIX HERZ, Ph.B., M.D.,

NEW YORK.

FIRST LIEUTENANT U. S. O. R. CORPS,

ASSISTANT SURGEON, NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL, ASSISTANT UROLOGIST WEST SIDE CLINIC.

M. K., a large, well-built policeman, came to my office in December, 1916, with an apparently mild attack of gonorrheal urethritis, of one day's duration. He gave a history of two previous attacks, the last one having been posterior.

Examination revealed a slight purulent discharge which microscopically showed a few pus cells, and a very few gonococci. The two-glass test showed both glasses to be clear, the first containing a few shreds.

Treatment consisted of daily irrigations of potassium permanganate, anteriorly, with a Janet syringe, starting with a strength of 1-5000, and gradually working up to a strength of 1-500. (At that time, the writer was using this form of irrigation as a routine, but later has abandoned it in favor of 1-300 protargol.) The patient was told, also, to use hand injections of ¼ per cent. protargol at home, but refused to do this as he was a married man and had acquired an extramarital venereal disease.

As the patient still had a discharge showing gonococci at the end of five weeks, and the prostatic findings were practically negative, it was considered that he either had an excessively virulent strain of gonococci, or a markedly lowered resistance, and it was therefore deemed advisable to try vaccines with the hope of stimulating antibody formation.

An initial dose of 50,000,000 mixed gonococcus vaccine was given. No reaction followed this. Two days later an injection of 100,000,000 of the same vaccine was given. The patient reappeared in three days, he having lived too far away to have consulted me sooner. He showed a marked cellulitis of the arm in which the injection had been given—redness, swelling, heat, and tenderness all being present. He also stated that he had had violent systemic symptoms, as characterized by headache, dizziness, and high temperature, compelling him to give up work and go to bed for a day. The arm cleared up under wet dressings of boric acid, and never reached the stage of suppuration. Vaccine treatment was abandoned.

The gonorrheal infection cleared up promptly upon using irrigations of 1-300 protargol in the office, and by using hand injections of ¼ per cent. protargol at home.

I corresponded with the manufacturers of this biological product concerning this case, and they were much surprised at my report. They stated that they had marketed several thousand packages of this same strain of vaccine without any untoward reports. They also stated that many physicians had employed 500,000,000 instead of 50,000,000 as their initial dose.

My only explanation of the violent reaction produced in this case is that the patient was unduly sensitive to this type of vaccine. Either his resistance was much below par, with absence of antibodies, or, what is more probable, his system was unduly sensitive to the endotoxins of this particular type of vaccine. This is all the more probable, as antigonococcus vaccines are practically autolysins, the bacteria disintegrating very rapidly in solution, and leaving their endotoxins in their place. A reaction is hence more likely to occur than if vaccines of the more stable pyogenic organisms be given.

251 West Forty-fifth Street.

Medicolegal Notes.

Insurance Policies—Questions as to Health.—A question in an application for life insurance "Have you consulted or been under the care of a physician any time within the past ten years?" was answered "No." In an action on the policy it was held that sunburn resulting in peeling of the skin was not an illness. Illness, it was said, "means something more than a temporary indisposition, slight and trivial in its nature, and which does not really affect the soundness of the system, substantially impair the health, materially weaken the vigor of the constitution, or seriously derange the vital functions." Some authorities hold, however, that a general statement as to consultation with a physician is breached though the consultation is for a trivial ailment or injury, leaving no permanent results and not affecting in any way the risk.—The Homesteaders v. Stapp, Texas Civil Appeals, 205 S. W. 743.

Fees for Services—Statute of Limitations.—In an action by a physician for professional services in which the defense was payment and the statute of limitations, the plaintiff testified on cross-examination that he made his last visit on May 22, 1911, more than six years prior to the beginning of the action, the summons in which was dated October 10, 1917. It was conceded that the defendant was entitled to a credit of $190 on payments made to the plaintiff, and the latter relied on one or more of these payments as removing the bar of the statute. To establish the necessary facts in that regard the burden was on the plaintiff, and there must be items on both sides other than cash payments to make New York Code Civ. Proc. § 386, relating to accrual of cause of action on current accounts, applicable; but the proofs did not show that any payment was made within six years of the beginning of the action. Judgment for the plaintiff was therefore reversed.—Crump v. Sefton, 172 N. Y. Supp. 338.

Medical and Surgical Lessons of the War.

REHABILITATION IN CANADA.

By Lt.-Col. J. L. BIGGAR, C.A.M.C.,

OTTAWA, CANADA.

ASSISTANT MEDICAL ADVISER, BOARD OF PENSION COMMISSIONERS FOR CANADA.

The war found the allied nations ill-prepared for the rehabilitation of large numbers of citizens disabled by their service in the field. Few, if any, organizations existed for attention to the social needs of men suffering from physical disabilities. It was but beginning to dawn on those most interested in social-service that the provision of after care of an economic nature for those who had been maimed was essential to the well-being of society.

The principle upon which the necessity for this care is based and the justification for all the expenditure it involves is the fact, at last receiving the acceptance its truth long ago warranted, that the productive independent citizen is a genuine asset and the unproductive dependent is a definite expense to the community.

The extent of the responsibility of the State in this direction has now been generally recognized. This responsibility is greater than that of the private employer who is thought to have fulfilled his duty by the payment of a monetary compensation to those disabled in his service. The State in whose employ war disabilities occur must for its own sake however undertake in addition to restore to the utmost possible extent the economic independence of those citizens whose disabilities prevent their return to those employments in which their individual social tasks had been prevously fulfilled.

When this was first undertaken, there was revealed the paucity of the available information regarding the numerous phases of the problem. What employment can be found men with only one arm? Who can be found to instruct such men in those occupations still open to them? How best can this instruction be provided? These were a few of the questions demanding immediate and practical answers.

It was immediately realized, however, that before such questions could be applied to an individual case certain other measures must have been carried to a successful conclusion. These measures were of three allied kinds. First, the disabling condition must have been brought to its irreducible minimum by the exercise of the best medical and surgical skill; secondly, the restoration of the functions of injured parts must have been carried out to the utmost; and, thirdly, artificial appliances of the best possible types must have been provided for those who would be thereby rendered more capable of independence. These were the matters which in Canada presented themselves first for attention. It would be best to begin by describing the steps by which this attention was provided.

Medical Care of the Disabled.—When disabled soldiers began in 1915 to return to Canada, the old pre-war military hospital accommodation was found to be insufficient. It was also found unsatisfactory to treat them in the same hospital wards as men admitted for temporary ailments during their period of training before going overseas. There was established therefore, a Military Hospitals Commission under the control of which all returned disabled men were taken. This commission obtained possession of hospitals and other suitable buildings throughout Canada and erected others where satisfactory accommodation could not be obtained. These were staffed with doctors, nurses, and orderlies, and the hospitalization of the returned soldier was begun upon a broad and comprehensive scale.

It is easy to be wise after the event and to criticise to-day the extent of the medical examination of men who volunteered in the earlier days of the war. In those days the medical officer who refused to accept, despite his protestations, the would-be recruit on the ground of physical unfitness was condemned by the rejected to everlasting flame in no uncertain tone. The rush to the colors in 1914 and 1915, was so great that the formation of units was authorized as rapidly as possible. Approximately two-thirds of the Canadians who have seen service were enlisted in the first two years of the war.

In this rush it was inevitable that men were accepted who should never have been allowed into the army. Their eagerness to serve carried them far but could not enable them to overcome the definite handicap of constitutional weakness. Before long they had to be returned to Canada for discharge. Among them might be found examples of many forms of the ills to which flesh is heir. These cases, with the addition of men wounded or gassed in the first battles in which the Canadian soldiers were engaged, formed the first patients with whom the Military Hospitals Commission had to deal.

The insane were segregated in special hospitals; the tubercular were admitted to sanatoria, some of which were enlarged for their accommodation; and the orthopedic cases were concentrated for the most part in a special orthopedic center situated in Toronto. These hospitals were staffed with the best medical talent available in Canada and untiring eagerness and ingenuity were displayed in the application and elaboration of medical and surgical science to the exigencies of the situation.

In this way was begun the application of the measures above outlined. The cases of war-neuroses caused at the first some confusion. The differentiation, now daily becoming more and more emphasized, between the organic and the functional nervous diseases was then little understood. It demanded the most careful study. The sanatorium treatment of phthisis—the efficiency of which is thoroughly recognized—for the willing civilian needed some psychologic adjustment, which has been provided by the introduction of vocation training, for the soldier whose main desire usually was to get back to civilian life in which he was confident that all would be well with him. Orthopedic surgery which in pre-war days had been chiefly applied to children and the sufferers from congenital malformations needed an immense enlargement of scope to deal satisfactorily with the large numbers of patients requiring treatment. In spite of all difficulties the equipment and personnel of peaceful days were adjusted to the new necessities, and

a foundation was laid, the excellence of which subsequent progress has proved.

Lately the Military Hospitals Commission has been absorbed by a new Government department, known as the Department of Soldiers' Civil Reestablishment. The work has suffered no intermission; the staff has not been in any material respect modified. The arrangements made for the patients have been continued. Additional activities have, however, become of increasing importance and it has been seen that by uniting these under a single control, the greatest degree of effectiveness would be secured.

The closest cooperation exists between this civilian department and the military organization. Soldiers who should recover from their ailments or injuries in a reasonably short time remain on the military strength and are treated as soldier patients. Those who are likely to require a prolonged period of treatment are discharged from the army and are taken on the strength of the civilian Government department by which their treatment is continued so long as it is required. The vocational training staff of the department is represented in all military hospitals and in these the preliminary steps in training, more fully described below, are taken.

The reason for this division of the task of physical restoration is to be found in the fact, observed a long time ago, that the undue prolongation of existence under a purely military regime, with its insistence upon discipline and its reduction of self-reliance and independence of spirit, increases the difficulties of the readjustment of the individual to civilian conditions of life. The effect of discharge from the army and of treatment in a civilian institution by a civilian doctor engenders an atmosphere and encourages an attitude of mind the reverse of those inevitable under military conditions. Self-reliance and self-dependence are cultivated; appreciation of the necessity for individual effort is increased; and the effects of that self-abnegation essential in a military formation are reversed.

Another feature which deserves emphasis is the arrangement made for the treatment of men who suffer a recurrence of the disease or injury on account of which they have been released from the service. Every ex-soldier in this category is taken for treatment on the strength of the Department and is provided with free hospital accommodation and the best medical and surgical skill. In addition he is given an allowance approximately equal to the pay which he received in the army. This privilege is not limited in time. No matter how long a period may have elapsed since the man was discharged, he is entitled to the benefits of this arrangement.

Undoubtedly the door has been opened for a certain amount of abuse because it is not possible always in the case of urgent illness for the local departmental medical officer to determine whether or not the illness is a recurrence of one originating on service. The advantages of the arrangement, however, so far outweigh this slight disadvantage as to make the measure one of immense benefit to the returned man.

Function Training.—The very numbers of the disabled men have impressed upon the medical world a therapeutic feature which had earlier been somewhat neglected. Heretofore the physiological cure of injuries and diseases had satisfied the ordinary professional demands. A fresh impetus was required to emphasize the necessity of carrying treatment a step further and of providing in each individual case the greatest possible restoration of function. The French who had been the first to realize the necessity for organized effort towards the rehabilitation of the disabled soldier and had established training centers for cripples soon after the outbreak of the war, also led the van in regard to this department of scientific restoration.

Professor Amar with his adaptations of the Swedish muscle-training apparatus set the pace for the investigation of scientific possibilities in this direction. Professor Tait McKenzie in America and Lt.-Col. Wilson and Professor Bott, among others in Canada, have developed this form of treatment to a very high degree of usefulness and efficiency.

Most of the original mechanical appliances were operated by motive power resulting therefore in the passive movement only of the injured part. Later it was found that active movements were more beneficial and the machines were altered to provide for this. Finally it was observed that when the patient could see by an indicator the amount of his daily progress a further advantage was gained. So the machines were equipped with various indicating devices by means of which the extent of the movement was shown.

These machines have reached a high state of efficiency at Hart House, the orthopedic center in Toronto, where a set has been elaborated by which every group of muscles can be exercised. These have been furnished with a brake apparatus designed by Professor Bott by which the degree of resistance may be gradually raised, and with an indicator which shows the extent of the movement. The progress of each case can thus be recorded daily and a marked stimulus to effort is thereby supplied.

There have been added to these mechanical appliances many forms of games, most of them of a competitive nature. Among these badminton, billiards and indoor bowling take a high place in the training of those who have lost the full use of their arms, while a form of football played with a tethered ball and another game requiring accurate equilibrium for success have been found most useful for those whose loss of function has been in the lower extremities.

Indeed it may be said that massage, physiotherapy, electrotherapy and the many kinds of function training together with therapeutic trade teaching are, as the result of the concentration of medical skill upon the treatment of the innumerable men injured in the war, at last obtaining the recognition which their importance as scientific therapeutic measures warrants in diseases or injuries resulting in loss of function.

This form of treatment has not only proved of immense benefit, but also has incidentally corroborated certain ideas of the psychologist's, formerly conceded only a theoretic value. It has been proved to the satisfaction of many observers that those forms of training are often the most effective in which the neuromuscular effort is rendered more

or less sub-conscious by the interest taken by the patient in its results. Thus the playing of a stroke at billiards when the cue-butt is manipulated by an artificial attachment to an arm stump has been, speaking generally, found a more educative procedure than those forms of active and passive movements in which the patient's attention is concentrated upon the stump itself. And similarly the tethered football game with its necessarily rapid movements and balancing teaches the leg stump to function better than voluntary exercises opposed by some mechanical contrivance.

These last, however, have their place in the training of those muscles which owing to loss of opponents or adjuvants must acquire abilities not previously demanded of them. As an example of such a condition may be mentioned the common abduction and external rotation of the thigh stump, resulting largely from the loss of the normal action of the adductors. The remaining musculature has been found greatly improved by an active mechanotherapy which ensures its correct position at rest and in action.

Many investigations regarding features of a nature similar to the one mentioned have been made by the physiotherapeutists on the Staff of Hart House. Some of the conclusions reached have been already published. Others are receiving further confirmation and will be available later. The result of the work may, however, be broadly stated to be conclusive of the immense advantage, in many instances the necessity, of complete functional retraining in the majority of cases which have suffered a loss of function.

Artificial Limbs.—The manufacture of artificial appliances for the limbless was from the beginning undertaken as a State measure in Canada. In July, 1916, a factory was opened in Toronto. In spite of the most thorough search it was found impossible to discover a sufficient number of trained limb-makers to cope with the work. All the trained men on this continent other than enemy-aliens had been employed by England and France. The training of disabled men in the work was therefore undertaken as soon as they were available. This has resulted in a most satisfactory solution of the problem and has in addition provided suitable employment for a considerable number of disabled men in the central factory and the branch factories and fitting rooms of which seven have been established at various centers in Canada. The business of manufacturing and providing such appliances as have been proved most effective is being most satisfactorily accomplished. In view of the fact that the Government has assumed the responsibility of maintaining all artificial appliances in repair and renewing these when necessary it is clear that the demands for men trained in this work will not immediately cease.

Experiments have been made with the Italian idea of kinematic protheses for the upper extremity. It has been found on the whole that, however wonderful these appear in the performance of extraordinarily fine movements, they are not appreciated by the men, who prefer a simpler type of working stump. That type which has been found most effective on the whole is an arm which ends in a simple chuck, into which essential implements may be fixed. For dress purposes a hand with flexed fingers and an adjustable thumb is provided. The difficulties of providing a suitable artificial leg are much less than exist in the case of the arm. The knee joint lock, easily released when the patient sits down, and the ankle joint which permits of flexion by means of a spring attachment form an integral part of those approved and supplied by the Government factory.

Besides artificial limbs other orthopædic accessories are made and distributed. Probably the appliance second in importance to the prosthesis is the orthopedic boot. For many disablements of the lower limbs the specially built boot is of extreme value. Indeed for those who have lost one leg it is generally found necessary to provide as well as an artificial leg a specially strongly constructed shoe for the sound foot.

An ingenious arrangement also has been devised for cases of wrist drop in which the contraction of the unopposed flexors is prevented and an artificial extensor apparatus is provided by a spring mechanism attached to a cuff on the arm and a fingerless glove on the hand.

In addition to these, elastic stockings and supporting belts are made to the measure of the individual patient. Spectacles, arch supports, trusses and whatever other appliances are required are provided and maintained free of charge.

In this connection it should be noted that it has been found very advantageous to provide a temporary limb of the "peg" type to which in armless cases the various implements may be attached, and on which the leg-less may begin to get about. These are employed in every case just as soon as the condition of the stump will permit of it. They help greatly in the re-education of the part; and when combined with vigorous massage and active mechanotherapy they reduce very materially the period of shrinkage. Thus not only is the stump ready for its permanent limb much earlier than used to be the case under the old method of leaving nature to its own unaided efforts in effecting the shrinkage, but also when the permanent limb is put on, the stump is found to be already in a condition to make good use of it.

Vocational Training.—One result of the upheaval of 1914, has been the clarification and crystallization of many nebulous ideas and aspirations among which the communal mind was dimly groping its way forward. Of these one of the utmost importance was the question regarding the extent of the responsibility and duty borne by the community as a whole to each of its individual members. When the question first presented itself it was agreed without discussion that no other course could be followed than the assumption by the State of the duty of restoring to economic independence the citizen disabled in its service. So far had human society unconsciously advanced in the last two or three generations that the idea was scouted of allowing the repetition of the invariable aftermath of previous wars in the way of crippled men eking out a useless existence on a more or less insufficient pension. It was universally recognized that measures must be taken to prevent the recurrence of this unhappy spectacle.

A study of these measures was inaugurated in

every country. Among the allied nations Belgium and France, who had had some experience in the re-education of men crippled by industrial accident, began the application of this knowledge to wounded soldiers. They indicated the direction in which success should lie. It was clear from the first that the problem could be solved only by equipping them with such trained faculties as would enable them to meet their uninjured fellows on a basis of full equality. When the training of such men was first contemplated it became apparent that satisfactory answers could not be made to many of the questions raised. A new department of social activity was being opened in the venture and original investigations were necessary for the satisfactory solution of its particular problems.

When the work was begun in Canada the only available literature upon the subject of the restoration of the crippled soldier was to be found in a short report by Dr. Bourillon, published for the French authorities. Unfortunately the conclusions therein drawn were considered to be on the whole inapplicable to Canadian conditions. F. H. Sexton, Director of Technical Education in Nova Scotia, also submitted a report upon the possibilities of an activity of this nature. The major part of the Canadian organization has been carried through by Mr. E. H. Scammel, F. C. I. S.

The solution of the Canadian problem has been sought by investigation along two lines, of which the first consisted in the examination of groups of returned disabled men as to their physical capacity for returning to their previous occupations, as to their mental attitude to a return if such was considered possible, and as to their remaining undamaged abilities the training of which would fit them for independent economic existence.

This investigation revealed first of all the fact that the majority of the disabled should be able to return to their previous employment as soon as their convalescence had been completed, and that therefore the percentage of those whose disability would necessitate retraining was comparativly small. It also demonstrated another most important fact. It was observed that all instruction which occupied the attention of the convalescent, engaged his interest, and diverted his mind from his disablement, had a very marked effect upon his well being, hastened his physiological cure, and therefore deserved a very important place as a therapeutic measure. Thus the problem of economic restoration studied from this angle provided the medical profession with a new, or if not new at least a little realized or less acted upon, curative agent, the immense value of which is only now beginning to be fully appreciated.

The second line along which the problem was investigated in Canada consisted in a study of many individual trades and employments. In all about 900 occupations have been analyzed. The possibilities of those trades which offer suitable employment for disabled men has been elaborated. The field of employment of those suffering from all of the ordinary disablements has been mapped out.

As soon as the plan of retraining was instituted, a further difficulty presented itself for solution. It was observed that injured soldiers were most reluctant to embark upon vocational courses from the fear that proficiency would result in a reduction of their pensions. There can of course be nothing which will act upon a crippled man as a more powerful deterent to effort towards economic independence than the idea that a doubtful or temporary success will cause the forfeiture of an advantage which continued idleness will inevitably ensure. In this regard the Workmen's Compensation Laws have something to learn from the economic experience gained in the war. In many of these laws a return to gainful occupation is followed by the loss or reduction of compensation. The injured man prefers the good of which he is assured to the unknown and uncertain advantage that might be gained by effort. The natural tendency against exertion is thereby greatly enhanced. The legislators will undoubtedly learn this fact of elementary psychology and will amend the error common to nearly all Compensation Acts.

In round numbers Canada enlisted half a million men for the war. The population of Canada is about eight millions. Approximately therefore one out of every fifteen Canadian citizens joined the colors. Roughly speaking of those who enlisted 50,000 died of wounds or disease on service, and as many more have already been discharged with disabilities due to service. This is the material upon which the investigators of vocational training have had to work.

The percentage of those actually unable to return to their previous employment has been for several reasons as yet difficult to determine. First, the disabled and pensioned ex-soldier, fearing, in spite of all assurances to the contrary, that the fact that he is self-supporting will reduce his pension is apt to conceal his economic activity. Secondly, the state of the labour market has been such that numbers of disabled men have found employers all too anxious to engage them, however ill-equipped they might be for the positions offered. Thirdly, the possibilities and advantages of retraining are only now becoming widely known. Every day the opportunity for training is being seized by men many of whom, discharged some time ago, undertook employments in which they have finally found themselves unable to compete on even terms with their sound fellow workmen. It is now estimated that approximately 10 per cent. of the disabled will require a course in industrial training.

To qualify for a course the applicant must have a war-engendered disability which unfits him for his previous occupation. His application is made to the Vocation Training Board which sits constantly in each district. This board is composed of a doctor, a civilian, preferably a laborman or an employee, and the vocational officer. Each case is investigated with the utmost care and if approved the application is sent to the central authority for final authorization. The number of applications refused is approximately ten in every hundred received.

The principle upon which the choice of an occupation for the individual applicant is based depends almost entirely upon his previous employment or his obvious aptitude. Upon these it is necessary only to construct a good superstructure of special training, whereas if these were not carefully investigated and made use of it would, in the majority

of cases, be necessary to begin with the elements of the work. For example, the disabled stone mason is given a course in architectural draughtsmanship. His previous knowledge of building stands him in good stead. Were such a man to be taught automobile operating his earlier experience would be wasted.

The type of training given is of three kinds. First there is provided ward training, divided into bedside-therapy for those who are bedridden and ward-therapy for those who are allowed to be up but are confined to the wards. The occupations taught include embroidery, basketry, raffia-work, wood carving and weaving. Secondly, in every hospital accommodation is provided for occupational workshops and classrooms. The patients are instructed in the use of machines of several kinds and in typewriting, shorthand, mechanical drafting, motor mechanics, and other similar subjects. It is in this division of the work that the marked therapeutic benefit of employment is clearly observed. Also these classes stimulate many men to a continuance of their training on discharge from hospital. By these means too, the aptitudes of the individual men are demonstrated and the selection of the best form of occupation training for each is greatly simplified. Thirdly is the official course known as industrial training.

In round numbers there are at the moment of writing 2100 men taking training courses; 7700 have been approved for training and are awaiting complete convalescence to embark upon a set course and 2000 more are taking preliminary or temporary courses before their hospitalization has been completed. It is expected that somewhere in the neighborhood of 20,000 or 25,000 men will take advantage of the opportunities thus offered.

So far 2,569 men have completed definite courses of training in 177 different trades. These comprise such varied occupation as armature-winding, agriculture and wheel-truing, embalming, flower growing and trombone-playing, poultry raising, automobile operating and gas-fitting. The courses are given in the technical departments of several of the Canadian universities, in schools of technology, in schools specially constructed for the purpose, and to a growing extent in the workshops of many manufacturing concerns. In every case the utmost care is taken to ensure the fact that the disabled man will be so thoroughly trained as to be able in spite of his disability to compete on equal terms with his uninjured companions. During his course of training every man is paid a wage equal to his army pay.

An interesting analysis has been made of the figures respecting men whose training has been recently completed. Of these 65 per cent. are engaged in the occupation they have learnt and 18 per cent. are employed in other trades. Of the remainder 9 per cent were not traced, 2 per cent. were ill and 6 per cent. were unemployed. It is thought that most of these last were enjoying a holiday on the bonus, amounting to a month's pay, which is given to each man who successfully completes his course.

Incidentally it may be remarked that the training courses have had a two-fold benefit. Primarily, they have taught the disabled man a particular trade. Secondarily, however, they have taught him something of which he was inclined to be very doubtful, namely that he could actually do useful work after all. In conclusion it may be stated that the majority who have faithfully applied themselves to a course of training have acquired such an addition to their equipment that in spite of their disabilities they are better fitted for the struggle for economic existence than they were before the war.

Employment.—The necessity for provisions for the replacing of demobilized soldiers in productive work was realized very early in the war. In the autumn of 1915 a conference of provincial authorities was held to discuss and report upon a consistent scheme for the country as a whole. Such a conference was necessary because the governmental employment bureaus then existing were under provincial control.

When war broke out there was a certain amount of unemployment in Canada. A year later many employers were forced to engage women, male labor having already become very scarce. The shortage of labor confined the earlier activities of the provincial employment commissions largely to a general oversight of the welfare of returned men. Only of late has the need become urgent of intensive employment-bureau work.

The system which has been followed has involved the canvassing of employers and ascertaining the opportunities each would provide for the employment of disabled men. Labor bureaus have been opened in all the principal towns and cities and the returned soldiers are afforded the first chance for vacant positions. A follow-up scheme is also in operation by which satisfactory relations between the employer and the disabled employee are in the vast majority of instances being maintained.

Pensions.—In June, 1916, there was established the Board of Pensions Commissioners for Canada, to which was delegated full authority for the administration of newly formulated pensions regulations. These regulations provided at that time the most generous indemnities existing in any of the allied countries for disabled men, and for the dependents of those who had been killed or had died on service. There were included also three principles of vital and fundamental importance. The first of these prohibited the consideration of prewar occupation in the estimate of the pensionability of a man who had suffered a physical detriment on service. The second forbade the reduction of pension because of subsequent economic success. In a third it was provided that all disabilities, whatever their origin, occurring or aggravated on service should be pensionable, save those resulting from vicious or improper conduct.

This legislation was the most equitable, the most inclusive and from the point of view of the applicant the simplest in operation of any known system. Those responsible for it had appreciated the fact that the same standard by which men had been judged as to their physical fitness for service must be that against which their deficiency for civil activity should also be measured; that the only common ground upon which they had all stood at enlistment was the possession of normal healthy bodies and minds; and that the lowest common denominator in the matter of employability was the un-

trained labor market. These form the fundamental features of Canadian Pension Legislation. So far their application has proved that they are economically correct.

At the time when this legislation was first passed the amount payable for total disability was $480 per year. This was the sum held to be that necessary to keep in decent comfort a man unable to contribute to his own support. It has since been increased to $600 a year. When the smaller amount was authorized it was the largest sum paid from a public treasury as a pension for a war-engendered disability. The increased amount occupied the same relative position. France has recently approved of a measure to increase its pension rates on the basis of the cost of living. In that country there is now paid $480 per year as a total disability pension. This is the same sum as is paid in New Zealand. It is not impossible that the total disability amount may, for the same reasons as were advanced in France, be increased in Canada to be more in keeping with the actual cost of living. It must not be forgotten, however, that in addition to his own pension a married man received an extra allowance for his wife and for each of his children, and that these allowances are also payable in the case of unmarried men to such relations as parents, younger brothers and sisters and so on who are actually dependent upon him.

The estimated pension bill for this year is thirty million of dollars. It is anticipated that at its maximum it should not exceed fifty million dollars. It is hoped that the generosity of the provisions of this legislation, the equity of the principles upon which it is based, and the solid body of enlightened opinion supporting it, will prevent a repetition of the experience of the United States in regard to pensions after the Civil War.

Other Economic Measures.—In addition to the economic measures above outlined, several Governmental activities should be mentioned. These include the payment of a war-service gratuity calculated on the basis of length of service. The maximum sum so paid is equivalent to six months army pay. The intention of this measure is to provide each soldier with money enough to enable him to readjust himself in civilian life without imposing upon him the necessity of seizing the first job that offers itself in order to avoid hardship. It is believed that dislocation of the labor market is not so likely to occur because of the interval of freedom from urgent need secured by this measure.

The other measure of which the preliminaries have now been satisfactorily settled is a scheme of land settlement. It is planned to establish farming districts, each of which will include a communal center. The land is to be acquired on an easy payment scheme, the period of payment is to cover twenty or thirty years, and the soldier-settler may obtain an advance of $2,500 for the purpose of procuring materials for home-building and the essential implements. It is hoped that by a careful selection the applicants for land under this scheme, by thorough courses in agriculture, by continued instructions, and by careful supervision, that the result of previous attempts along similar lines to effect a genuine settlement on the land by discharged soldiers will be avoided.

The Future.—In the older countries there has been of late years an increasing tendency towards the assumption by the State of the duty of providing for those of their citizens, for whom such activities are most necessary, both medical attention and social insurance. These communal efforts have seen their greatest development in England and Germany, where for some years there has been provided sickness, accident, old age, and unemployment compensation. In the younger nations the social mind was not until the war educated to the realization of the advantage of these measures.

Canada is, comparatively speaking, a small and extensive country to have embarked upon a scheme for the continued State care of a considerable proportion of its citizens as comprehensive as that outlined above. A realization of the necessity for it was, however, brought home to the Canadians early in the war. The organization has become highly developed. Its facilities are already great and are being continually increased. The quality of the service it affords is constantly improving as knowledge grows. Its application to the people as a whole would seem to be almost inevitable. Indeed to allow of the dissipation of the organization upon the completion of its immediate task would be as regrettable a failure "to seize the skirts of happy chance," as one could well imagine.

With some modification the same measures of medical care and economic adjustment might well be made available under governmental direction to every citizen. The continuity and consistency of the arrangements would thus be secured for all time. The resulting advantages could to-day hardly be imagined. The possibilities offered in various occupations to those suffering from specific disabilities would rapidly come to be recognized as based upon a sound scientific foundation. The incidence and extent of many diseases and disablements would be determinable in a way not now possible. Their control could be effected to a degree not now realized. Such an extension of a scheme, which had its origin purely as a war-measure, could not but result in immense and incalculable benefits to society at large.

Scientific Gains.—There has not as yet been time for a minute and thorough analysis of the medical records of the war. Those advances in knowledge which seem, however, to have been the most outstanding are to be found in four subdivisions of medical science; and whatever future study may reveal certain facts are at the moment worthy of remark.

In internal medicine confirmation has been given in innumerable instances of the immense advantages to be gained by preventive measures. It is platitudinous to remark upon the extraordinary ratio, never before witnessed, between the mortality and morbidity from wounds and from diseases throughout the war. When one thinks of the vast numbers of men who have lived for five years in the closest communion confined to and without a change of the small area in which the war was fought, and of the immense difficulties of providing and maintaining the essentials of sanitation, it may easily be realized that the great lack in modern society, as a result of which many diseases tend to increase rather than to be diminished, is the

absence of that discipline by means of which the almost complete elimination of many infections was effected. Where discipline was good preventive inoculation was consistently given, food was properly cared for, water was satisfactorily purified, and men and quarters were kept thoroughly clean. Under such conditions infectious disease was reduced to a minimum. Where discipline was not so good, its relaxation was almost invariably marked by an increase in the number of those whose services were temporarily or permanently lost to the army from illness. Is it not possible to awaken public opinion to the advantages to be gained by these measures, and the necessity of a strict enforcement of the laws regarding sanitation?

The extent to which nervous disorders functional and organic obtain among peoples who assume that their national health is sound has been immensely greater than could have been anticipated. Approximately 10 per cent. of men returned unfit for service suffered from psychoneuropathies, among which hysteria or war-neurosis had a very marked preponderance. Figures have been published showing that when the examination of recruits is carried out by the most modern methods approximately 1½ per cent. of those examined must be rejected on account of pathological conditions of the nervous system, and that in spite of this rigorous selection the stress of service under present-day conditions of warfare reveals very many undetected cases. It is difficult to know what deductions should be made from these facts. Their publication has undoubtedly stimulated a discussion of the situation, and the future will decide the question of their importance.

It is outside the scope of such a paper as this to attempt even to outline the advances made in surgery. Reference may be made, however, to the new conceptions that have been arrived at in certain matters of technique and of the vulnerability of tissue. There has been a very material change in the methods employed in the surgery of the chest and of joints, and a tremendous amount of work has been done in connection with the repair of severed nerves and in the transplantation of tendons. The lessons thus learned will apply to civilian surgery more by reason of the fundamental facts they have established than by their immediate application in practice, because it is to be hoped that war-surgery may be forever a thing of the past unenlightened ages, and that the thousands of wounds of brains, nerves, muscles, and bones, resulting from enemy activity will be counted in tens where only the dangers of civil life must be faced.

In therapeutics the greatest advance has been made in function training. Physiotherapy, in which are included massage, electro and hydrotherapy, mechanotherapy and therapeutic games and trades, has made great strides in every country and instead of being relegated to the position of a useful but unessential adjuvant, has come now to be recognized as one of the most important elements in the surgeon's armamentarium. Perhaps from the broadest standpoint it may be said that in this department the greatest gain of all has been made and that in the future the medical profession will be held as responsible for the restoration of function as it is to-day for physiological repair.

Conclusions.—In several respects the last few years have witnessed a progress of scientific knowledge which in the less stimulating atmosphere of peaceful pursuits might have covered a period ten times as long. Several of the greatest and most civilized nations have now been recording figures of immense importance regarding the health of large numbers of selected citizens. These records have yet to be collected, to be studied, and to be analysed. From them it is not too much to expect that many facts of the utmost importance will be revealed.

The advance in therapy has been marked. The world over, measures have been elaborated for the care and restoration of the disabled soldier. There are immense possibilities in the extension of this scheme to the nation as a whole. The advantages that would undoubtedly ensue are incalculable.

In conclusion may one not say that, in spite of its horrors and its unavoidable sufferings and sorrows, in the last analysis the Great War will be found to have conferred upon the present generation of medical men an unrivalled opportunity?

FUNCTIONAL RE-EDUCATION OF THE BRITISH SOLDIER.*

By R. TAIT McKENZIE, M.D.,

MAJOR, MEDICAL CORPS, U. S. ARMY.

Mr. Chairman and Members of the New York Academy of Medicine:—I must crave your indulgence if I do not give you a very scientific paper, because the remarks I am about to make are based partly on personal experience and are partly historical. I will leave to Dr. Gilman Thompson the task of bringing the description of this work of rehabilitation of the disabled up to date.

In the early part of the war, shortly after the great armies were gathered together, and the task of giving them physical training in the training camps was undertaken on a large scale, it was found that a great many men were unfit to take this training through physical defects which were remediable. In one camp, at Portsmouth, an inspection of the unfit showed some men with slight defects which escaped the scrutiny of the medical officer, but in addition some were found who were entirely unfit for military duty, usually married men, for the British Government had made very liberal provisions for the families of enlisted men, with the result that many unfits were glad of the opportunity to enlist and succeeded in getting in, in spite of the examiner.

A little later, when the wounded began to come back, the large general hospitals became so overcrowded that the men could not be properly cared for. The overcrowding reached such an extent that the commanding officer of a hospital was not so much occupied with curing his patients as with getting the beds empty to accommodate the ever-increasing tide of wounded coming from the front. Under these conditions it becomes necessary to resort to all sorts of makeshift hospitals. Country homes with local doctors were pressed into service, with the lady of the house a chief cook

*Read, with lantern slide illustrations, at a meeting of the New York Academy of Medicine, March 6, 1919.

and her friends as improvised nurses, taking care of the patients as best they might. Conditions thus became deplorable, and the men sometimes got out of hand and would not submit to discipline or to the long course of treatment essential to their restoration. Many disabilities which originally were remediable became permanent, and it finally became evident that it was essential to get these men back under discipline in order to carry out the necessary treatment in camps for this purpose.

Sir Alfred Keogh, D.G.M.S., finally decided to organize camps for convalescents under a system whereby each camp would care for about four thousand men and would be commanded by an officer from the front who would keep the men under military discipline, but instead of the strict military training of a mobilization camp, suitable remedial exercises were given, and then treatment consisting of physiotherapy in all its forms. Where it was possible, the men were entirely restored and returned to the front, and where it was found that they would never be fit for full active service, they were placed in sedentary work on the lines of communication in various parts of the British Isles, or in civil life.

In all, there were sixteen such camps, each later having a capacity of five thousand men, though they were not at all times up to full strength.

At the period of the war, when the voluntary system of enlistment had reached its limit, five million men had volunteered, and the quality began to run low. The regulations for entering the service had to be reduced to meet the actual conditions. As a result of this lowering of standard for height and weight, they had the so-called "bantam" regiments, and it was not until conscription came in that the quality of the man power again rose.

Among the reconstruction centers was the one at Heaton Park, near Manchester, where the men were lodged in huts, arranged about a central administration building. The administration building was originally an art gallery, and the camp was originally designed for Manchester regiments. It was refitted to provide physiotherapy, electricity, and massage, hydrotherapy, and progressive physical exercises.

The disabled men were divided into four groups as follows:

Class A—Those who were fit for active service.

Class B—Those who were fit for service on the lines of communication.

Class C—Those fit for home work only, and

Class D—Those who were still under treatment and still unclassified.

Some of these men were over military age and all were badly wounded or incapacitated, so that they furnished a very difficult administrative problem.

There were attached to the camp, a corps of forty masseuses. We had also masseurs—men who had been blinded in active service and were later trained at St. Dunstans under Sir Arthur Pearson. The work these people did was above praise and it is due largely to their efficient services that the excellent results attained were made possible. It was necessary to improvise facilities for the application of hydrotherapy, and for this purpose we took an ordinary "mess hut" and built an engine house for heating the water. The hut was divided into rooms, fitted up with douches and baths. The neutral bath, at a temperature of about 93° was more used than any other. This was a large tub or tank provided with a seat to accommodate twelve men at one time. The water was kept constantly at a temperature of 93°. It was used chiefly for cases of shell shock with rapid pulse and heart action. It was found to be of the greatest benefit for such cases. After the men had been in the bath for twenty or thirty minutes they were taken out, wrapped in blankets, and rested in bed. A bath of this kind was given every other day, and on the alternate days the men were taken for a slow walk, using a walking stick and resting when they felt like it. This was found to be an excellent treatment for "nervous" cases, those suffering with tremors, hallucinations, and the various neuroses familiar to those engaged in war work. For local conditions of the limbs, the best results were obtained from the arm and leg baths, called by the French "au courant" and by the English "whirlpool baths," because the water was supplied from a number of nozzles, and so kept in constant motion and at a temperature of 112° up to 118°. The patient sat on a stool with the arm or leg, as the case might be, in the bath. For great areas of scar tissue, where the limb was blue, cold and sweaty, keeping it in this bath for twenty minutes was extremely beneficial. The limb would come out crimson in color, painless, and prepared for the manipulations of the masseur. Many men with painful stumps, due to extensive cicatrization, were greatly relieved and were enabled to get sufficient respite from their sufferings to sleep.

Combined with hydrotherapy, electricity was used in various forms, but the electro-therapy was not carried out in all its refinements, owing to the impossibility of installing all the apparatus that was required. Ionization, however, was used for scar tissue, this being obtained by a saline solution and iodide of potassium in the arm or leg bath.

Along with these methods, dry and radiant heat was employed as a preliminary to massage. This treatment with radiant heat was found to be most beneficial in the scars resulting from tearing wounds of the back, of which there were a great many, owing to the fact that the men lay down on their faces to escape shell fire, and were struck in the back by falling shrapnel.

The general method followed was first to prepare the joint or part either by wet or dry heat, preliminary to massage. As mentioned before, many of the masseurs were men blinded in the war. One of these men was blinded as the result of a bullet's going in at the left and out at the right side of the head, severing both optic nerves. He became a very skillful masseur and is now doing private work and making from $15 to $20 a week.

In the application of treatment, it was not only necessary to employ massage and passive movements, but it was essential that the patient should be stimulated to make the effort to use the joint

himself. In looking about for apparatus, we found that the Zander apparatus was the only one on the market, and these were very high priced and scarce, the supply available being entirely insufficient to meet the requirements of the reconstruction hospitals. To meet the emergency, apparatus was devised. An old sewing machine was pressed into service. This furnished an exercise by which a tendon Achilles was stretched, and motion on a stiff ankle increased. Another apparatus was devised for finger exercises that furnished exercise in both flexion and extension. This apparatus could be attached to a table and the men could be seated while they went through their exercises.

As the men gradually improved, they were put to work on pulley weights in classes of eight or ten. Every day, after a man has had his massage, he is put to work at some voluntary form of exercise, which is gradually increased in vigor. Later, these men are grouped in squads of twenty to fifty for drill. The men were all lined up in squads and those who were able to do all the movements did so, while any man whose disability prevented him from taking a certain exercise stood fast while the others did that movement. Such a man was noted by the inspector, who examined and questioned him and saw that he received any special treatment that his disability required. We found that this was a much better plan than putting men with special types of injuries in classes by themselves. In addition to simple movements, there were balance movements, which were found to be of special value in cases of neurosis, ataxia, etc. A beam was raised 18 inches or 2 feet from the ground. A man suffering from neurosis, when he first undertook to walk along it would often tremble, perspire, and generally go to pieces.

A large number of cases had been gassed, but had no organic heart or lung trouble; they were merely neurotic. These men were given rhythmic breathing exercises, but no attempt was made to have the entire class adopt a certain rhythm; each man used his own rhythm. The tendency of these exercises was to slow the rate of respiration.

Another test given the men before they were returned to active service was going through wire entanglements. This necessitated knee raising, balancing, and the estimation of distance. Small groups of men were taken for progressive walking exercises. They were under the charge of a sergeant and first took the light walk of 2 miles, and then a 4-mile route march in regular army formation.

Specific instances of different kinds of disabilities in men put back into active service were shown in the pictures.

After a man passed various tests he was assigned to Class A, if fit for active service, and these men were divided into squads, according to the regiment from which they came. As soon as the squad numbered fifty or sixty men it was conducted to a receiving depot and the men drafted back into the service. We were able to put about 40 per cent. of the men into Class A.

We found that ankyloses and Volkmann's contracture were often difficult to handle when the part had been kept in splints too long, but, nevertheless, some most remarkable results were obtained in these cases.

In many stumps, the nerve terminations had been caught in scar tissue, with the result that the men suffered a great deal of pain. Radiant heat frequently afforded the greatest relief. One patient finally made a recovery after 113 wounds, and I am showing him to you because he illustrates an interesting feature about massage that we did not recognize before the war, namely, that massage frequently starts up active inflammation about a foreign body or sequestrum and assists in speeding its removal.

An interesting case of malingering came under our notice at Heaton Park, which serves to illustrate the ingenuity of some of these men in avoiding active service. This man reported for massage every day with a swollen hand and arm, and received treatment, though no one was able to explain the reason for the condition. After he was treated for two weeks it was discovered that he tied a cord around his arm and then hung it over the side of the bed during the night, with the result that he presented this swelling every morning.

Early in the war there were many cases of distressing facial deformities which offered a very difficult problem for solution. The effect of these facial deformities was most depressing on the men. They also had great difficulty in obtaining employment because they were so repulsive and very often they felt that their presence was not welcome, even in their own families. Later on, after the introduction of the steel helmet, the number of these facial injuries became much fewer. The sad plight of these men has now been greatly alleviated by the facial masks, which were first devised by Captain Derwent Wood, A.R.A. These masks were made of a thin film of copper, painted in the natural colors of the human face and attached by means of glasses. I have had some experience in the making of these masks and we find that we can make a face look as good as the man's old one, and sometimes better. These masks have a great field of usefulness in civil life in cases of facial deformity, due to rodent ulcer, carcinoma, or to any other cause.

2014 Pine Street, Philadelphia.

FUNCTIONAL RE-EDUCATION OF THE FRENCH AND AMERICAN SOLDIER.*

By W. GILMAN THOMPSON, M.D.,
NEW YORK.

Dr. Thompson said that after the Civil War the country was filled with old soldiers who joined the G. A. R. and paraded on Decoration Day and Fourth of July and spent the rest of their time in idleness and dependency. The public took the attitude that in serving his country the old soldier had done his bit and that it was right that he should be supported in idleness and in this attitude the men themselves acquiesced. About all any of these men ever did in the way of steady employment was to act as night watchmen or street

*Abstract report of an informal talk, illustrated by lantern slides, at a meeting of the New York Academy of Medicine, March 6, 1919.

vendors. Today, Dr. Thompson said, we had adopted an entirely different attitude toward the war cripple. We were not going to have a repetition of these conditions after this world war, for the reason that most remarkable results had already been achieved in England, France, Italy, and Canada in the rehabilitation of the wounded, and these results were now being duplicated in this country. These crippled men were being stimulated to make an effort to become independent, self-supporting, and self-respecting members of the community.

At the beginning of the war France had only one institution entirely devoted to the rehabilitation of the maimed and crippled, now they had 124 such institutions, and similar ones had been established in England, Italy, and Belgium, with the very remarkable result that a very large percentage of the mutilés had been restored to lives of usefulness and self-support. From Britain some 40 per cent. were sent back to the front, and in France 80 per cent. had been shown to be capable of return to gainful occupations. In some instances these rehabilitated men were earning more than they originally did, this being due to the experience gained in the method of handling disabled men, which was somewhat as follows: The injured man came first for a physical examination, which was made with great thoroughness—with all sorts of accurate measurements as to his lost power and his remaining strength. After the physical examination was completed he was turned over to a "pedagogic adviser," who found what the man had been accustomed to do before the war, rated his ability, and recommended him for certain kinds of trade or occupation. Then another officer took the crippled man in charge and conducted him through the various departments of the work-shops where he might see other maimed men and could observe the great facility with which they were able to accomplish many kinds of work and could see the system of training.

The speaker said that he was associated with two important institutions engaged in this work, namely, the Clinic for Functional Reeducation, at 5 Livingston Place, and also the School for Gardeners at the New York Botanical Gardens. When a man was properly fitted with an artificial limb a great many occupations were open to him. One type of artificial arm contained a socket into which various tools could be fitted, and the man could acquire such skill that he could do almost all kinds of carpentry work. With an artificial arm he also could handle garden tools. In fact, there was scarcely any limitation to the trades open to the maimed. A most important feature of the work in connection with the rehabilitation of these crippled men was that of educating the public and employers of labor to recognize that they were as valuable to the employer as normal men, sometimes more valuable because of their intensive training and the fact that having once secured employment they were less likely to make changes.

As to the degree of skill that might be obtained in coordination with an artificial limb the audience might judge from the pictures showing a man playing a violin and another sharpening a scythe. It was also of interest that there was in this city a man who was an expert billiard player though both forearms had been amputated.

Dr. Thompson, in speaking of the work at the Clinic for Functional Reeducation, stated that a large sum of money had been put at his disposal for this work, and as the New York Infirmary for Women and Children had temporarily suspended work through lack of funds, the Clinic had rented a portion of its building and had installed various forms of apparatus for the application of electrotherapy, hydrotherapy, mechanotherapy, etc. This Clinic was in operation as soon as the crippled soldiers began to return, and was occupied also with the reconstruction of industrial cripples. During the past six months they had treated some 500 patients, not all soldiers, but a large percentage from the Marine Service, the War Risk Insurance Bureau, and the Federal Board for Vocational Training. Illustrations of the apparatus used at this Clinic for restoring lost function were shown which were of particular interest as they carried a dial on which could be registered the patient's exact strength so that he could see for himself each day just what progress he was making. This had been found of great value from the psychological standpoint as the patient could see his improvement and was thus greatly encouraged and stimulated to further effort by volunteer workers. The whole object of the treatment was to have the patient do the work himself for when he did this he forgot his aches and pains and this was a great aid in speeding his restoration. This apparatus was the invention of Major R. Tait McKenzie and Professor E. A. Bott.

The speaker showed pictures of a middle-aged man whom he found begging one day on the street. The man had lost his arm in a quarry explosion five years previously. He told the man about the Clinic and what could be done for him, and when he learned that it would cost him nothing he gladly consented to take advantage of the opportunity of fitting himself for employment. He finally was trained so that he could use artificial arms, but he was an Italian and could not speak much English. They had made every effort to get employment for him but had been so far unsuccessful. This illustrated the problem with which they had to contend, the education of the employer of industrial labor. There were in the hospitals of New York each year two hundred major amputations performed, the patients being discharged as "cured." They should not be accounted "cured" until they had learned to use an artificial limb and had become self-supporting.

One phase of the work in which Dr. Thompson said he was especially interested was that being done in training disabled men as expert gardeners at the New York Botanical Garden in Bronx Park. In France there were a large number of wounded soldiers trained in gardening, and the French seemed to take to it much more readily than our men did. However, there was a field for this kind of work in this country since heretofore we had gotten our foremen for large estates and our expert gardeners mainly from Scotland and Germany. It was one object of this school to train men especially for this work.

In closing, Dr. Thompson expressed the opinion that functional reeducation had come to stay in this country. There was a great deal to be done for the after-care of industrial cripples and what we had learned in the war emergency would be applied continuously in times of peace to the industrial cripple.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, May 17, 1919.

THE PANDEMIC OF INFLUENZA.

INFLUENZA has never been so widespread and created such havoc as it has during the recent pandemic of the disease. In India alone it is said to have caused the deaths of 5,000,000 persons, as many as the plague has destroyed in that country of pests during the past twenty years. According to *Public Health Reports*, April 18, 1919, over 40 per cent. of the inhabitants of South Africa were infected with influenza in the four months during which the epidemic raged. For the 6,115,212 population this means 2,616,805 cases of influenza, and of these 139,471 were fatal, a case mortality of over 5 per cent. The case mortality among those of European race was less than half of that among non-Europeans, the respective rates being 2.57 and 5.90 per cent. In South Africa it was found that persons in the third and fourth decades of life were particularly susceptible to attack by the disease, and the death rate was also greater in these age groups. A large number of instances were also noted where the disease resulted in miscarriages. Moreover, there was a high mortality among pregnant women.

In the Pacific islands the disease spread like wildfire and was particularly deadly. A correspondent of the *New York Times* from Fiji states that in what was German Samoa there are now more than a thousand children who were orphaned by influenza, and Colonel Robert Logan, the New Zealand Administrator of German Samoa, reports that there were 8,000 deaths from the disease, two-thirds of these being men. The Apia correspondent of the Sydney *Daily Telegraph* is authority for the statement that at one time in that place 80 or 90 per cent. of the people were lying helpless. Many died from starvation who might probably have recovered, for even when rice, milk, and other food products were sent out and delivered, the survivors were too weak to prepare and apportion the food. On one day the burials in Apia numbered 71, and probably out of this small town and environs nearly 700 were buried. Most of the great chiefs of Samoa are dead, as well as the majority of the mission teachers and 56 per cent. of the government officials. A good many women also fell victims to the devastating scourge and some children, although the latter were largely immune.

Early in the year influenza, despite the rigorous quarantine regulations, appeared in Australia, although it was only in Melbourne that the disease gained a foothold. Up to the first of March the number of cases totaled about 8,000 and the number of deaths about 500. In New Zealand, where during a few weeks late in 1918 influenza caused almost 6,000 deaths, a pneumonic influenza epidemic commission began taking evidence late in February. The Australian military authorities at Rabane, the capital of former German New Guinea, fearing that if the disease became established on the mainland it would exterminate the natives, inoculated against influenza 6,000 to 7,000 aborigines in Rabane and vicinity.

According to a recent report from Port Arthur, Ontario, the grippe has caused the death of at least 200 out of the Indian population of 1,600 in that district. During the epidemic entire families were taken ill and, unable to get help from any source, starved to death.

It is plainly evident that no former outbreak of influenza was so world wide as the most recent one and probably none so destructive to life. This, however, can be easily understood, first because means of communication are so easy, and second, because when any infectious disease falls on virgin soil and when sanitary and all preventive measures are lacking, it always spreads rapidly and is of a very deadly nature.

LATENT MICROBISM.

IN 1886 Verneuil proposed the theory of latent microbism at the Academy of Medicine of Paris in the following words: "I call latent microbic parasitism a pathological state characterized by the existence of pathogenic germs in various parts of the organism, external or internal surfaces, cavities with or without communication with the outside, vascular system, connective tissue interstices, etc., remaining inactive during months or years and giving rise to no symptom until the day when some cause arises which lowers or even destroys the health." In other words, it may be said that latent microbism is an infection limited to a small area and giving rise to no apparent sign, a microbic colony in a state of inactivity, but which may awaken and become active when some disturbing cause, traumatic or otherwise, arises and manifests its presence by phenomena of local, general, or metastatic infection. Therefore, two factors must be in play in latent microbism; firstly, the presence of a bacterial agent in the organism before the advent of the disease, and secondly, conditions favoring the awakening into activity of these pathogenic agents.

An apparently perfectly healthy person may be a carrier of various microbes, and on account of its relations with the outside, the human organism is permanently invaded by infectious agents which, when once introduced, will act differently according

to circumstances. There are some whose presence immediately results in serious disturbances, gravely compromising the health and not infrequently leading to the death of the individual. Such, for example, are the microorganisms of anthrax, rabies, syphilis, etc. The others, although capable of yet worse destruction, nevertheless remain in the state of inoffensive parasites because they do not find conditions favorable for their evolution. They lead a latent life, their multiplication is slight, while they elaborate toxic matters, the quantity and quality of which are incapable of provoking morbid manifestations, and although nothing betrays their presence they should never be disregarded nor looked upon as negligible quantities. When they acquire sufficient virulence or when the organism loses those qualities which guarantee security from disease, contagion is not necessary; the disease breaks out spontaneously, as was said in the days when our modern notions of disease were as yet undeveloped.

It has now been demonstrated that several infectious agents are normally met with in the cavities of the body, as well as on the mucous and cutaneous surfaces. Along the digestive tract, the various species of microbic flora have their representatives awaiting the propitious time for infecting the organism. Military surgeons have recorded observations which appear absolutely demonstrative. For example, soldiers have been quartered in a village where typhoid fever was unknown, and suddenly, following fatigue, a case has developed in a soldier, then a second, and so on, until a small epidemic occurred.

Reumlinger and Schneider maintain that the typhoid bacillus is to be found in the intestinal contents of normal persons, while Rodet and Roux are of the opinion that the typhoid bacillus is only a variety of the *Bacterium coli*. If the resistance of the organism diminishes, the diseases arises spontaneously in appearance, but in reality it is the result of an exalted virulence of the intestinal parasite. Other well defined infections may likewise appear spontaneously. Such is the case in diphtheria when no chance of contagion can be discovered. This also applies to the staphylococcus, a common host of the cutaneous surface, in cases of the spontaneous development of abscess, furuncle, and carbuncle. The streptococcus lying latent in the buccal cavity gives rise to divers forms of angina and erysipelas. The pneumococcus living in the mouth invades the lung and pneumonia is the outcome, and then this virulently exalted germ may infect others; the disease born of autoinfection may then extend by heteroinfection or contagion.

But besides these aerobic bacteria, there is a series of others, quite as interesting and dangerous, which infest the excretory ducts of glands. Lippmann and Gilbert took cultures of the bile at different parts of the biliary tract and came to the conclusion that in the normal state almost the entire extrahepatic portion of the ducts is the seat of an abundant anaerobic microbic flora. The normal biliary microbism extends from the intestine up to the division of the hepatic ducts, involving the choledochus, gall bladder, and hepatic ducts, but the intrahepatic ramifications are sterile. The same applies to the pancreas.

Given this multitude of facts it is readily conceived what immense danger constantly threatens the human body. This latent microbism offers an always present morbid imminence, although it does not necessarily create disease. The harboring of morbid germs may last for an unlimited time, and it is this that constitutes the peril.

THE PREVENTION OF VENEREAL DISEASES.

WHILE, of course, it is agreed that every effort should be made to combat the spread of venereal diseases, the views as to the means to be taken to accomplish this object are various. On the authority of many practical medical men, among them Sir James Barrett, Surgeon in Chief of the Australian forces (*British Medical Journal*, Feb. 1, 1919), prophylactic treatment is of most avail. Barrett virtually stopped the spread of venereal diseases among the Australian troops in Egypt, a hotbed of such diseases, by enforcing venereal prophylaxis. With regard to the most efficient drugs for prophylaxis, according to Dr. C. F. Marshall (*Medical Press*, April 16, 1919), it is probable that a solution of permanganate of potassium, 1 in 1,000, is the best known weapon we possess against the gonococcus. Against the pallid spirochete, calomel ointment, 33 per cent., as originally recommended by Metchnikoff, is most generally used, but calomel is insoluble, and Marshall believes that an ointment containing a soluble salt of mercury, such as the perchloride, is to be preferred.

In Great Britain the educational campaign which has been carried on by the National Council for Combating Venereal Disease has been more or less of a failure, and recently this body compromised, to a great extent, by recommending "early preventive treatment," which signifies resort to "ablution rooms" situated in camps and public places where men may obtain irrigation and inunction with calomel ointment, under the direction of a trained orderly, in case of exposure to possible venereal infection. Marshall, however, believes in prophylaxis by the use of outfits, the method which Barrett found of most effect in Egypt. In Great Britain moral reasons are adduced against the legalizing of this practice, but the main argument brought forward is that they lead to greater promiscuous intercourse, and not being infallible would in the long run increase rather than decrease venereal infection. But, as Marshall says, this argument is based on the supposition that fear of infection is one of the chief deterrents against sexual irregularity, a supposition which is probably greatly exaggerated. Other reasons, moral and otherwise, are advanced. Taking into consideration, however, the existing situation as regards venereal diseases, and the disastrous results on the race, the matter should be

regarded rather from sanitary and practical standpoints than from a sentimental point of view. Marshall states unreservedly that the most effective method of dealing with the venereal diseases is by direct prophylaxis.

Absence of Cancer in the Arctic Regions.

It is reported by Dr. H. C. Ross in the *Lancet* of March 29, 1919, on the authority of Vilhjalmur Stefansson, the Arctic explorer, who has returned recently from an expedition to the Far North that cancer does not exist among the Esquimaux. Moreover, Ross has been told also by Sir William MacGregor, Dr. W. T. Grenfell, Mr. Frank Benzley, and Rear Admiral Peary that they had never seen a case of cancer among the native tribes of the Far North. If it may be assumed that cancer is absent from the Arctic regions, and the assumption seems justifiable, the fact, Ross says, gives rise to some interesting reflections. In the first instance, the Esquimaux are perhaps the most carnivorous race of human beings in the world, and consume few vegetables; therefore, the non-existence of cancer among them would appear to weaken one of the dietetic theories of the cause of this disease. There seems to be no racial or physiological difference which would exempt the Esquimaux from cancer, and, in addition, the observations of Panum, fifty years or so ago, that cancer was either extremely rare or did not exist in Iceland or Greenland, in the settlements peopled by Europeans, would imply that race does not enter into the question. Consequently, as Ross points out, the climatic explanation is the most plausible, and this tends to revive the parasitic theory of origin. The cold in the Arctic regions is too intense for saprophytic organisms to live, and diseases conveyed by aerial convection, such as "colds," are unknown. Ross is of the opinion that cancer may come in a similar category, and that its cause is an organism which invades the body from without which is air-borne in part of its life history, and which therefore cannot exist in the Arctic climate. If it should prove to be a definite fact that the Far North is free from cancer, then the search for a satisfactory explanation of this fact will be interesting.

Demineralization from Gassing.

Phenomena due to gassing will soon lose their interest for the medical man save when they parallel some feature of civil practice. In *Le Progrès Médical* for March 15, Loeper and Verpy call attention to a subject of much interest, to wit, demineralization, in connection with gassing, although apparently the lesions concerned are gas burns rather than internal injuries. The gas accused is the so-called yperite and the blood analyses submitted show that the total mineral matter as well as phosphorus in particular is notably diminished. The authors dwell on the great extent of the burns in these cases as if the demineralization were dependent on this factor. Control cases with other kinds of burns are not mentioned, and, as far as we know, the question of demineralization in ordinary burns has never been made the subject of routine investigation, despite the abundant opportunities offered. These yperite burns seem to be followed by a waste of phosphates in the urine which may amount to 5 gm. in 24 hours, and there is a further demand by the organism of mineral matter necessary to repair the damage done to the skin by the burn. When large blisters are formed as the result of burns an intoxication of a peculiar kind is set in motion, but this appears to have no direct connection with demineralization, which is probably a function of the skin alone. Whatever the cause and nature may be, the symptoms or consequences of demineralization are manifest: asthenia, fatigue, irritability, etc. Should bronchopneumonia complicate, demineralization reaches its maximum and the patient develops a mixed general and pulmonary cachexia which recalls phthisis. Whether these subjects can be cured by a system of remineralization remains to be seen.

Acidosis and Operation.

It is well known, but the fact is sometimes forgotten, that the existence of acidosis is somewhat of a menace to those who are operated upon. That is, especial care should be taken in the preparation of patients suffering from acidosis who are about to undergo an operation. According to Crile, many postoperative accidents are due to acidosis, which might have been prevented by preoperative measures. In the *Medical Press* of April 9, 1919, Dr. François Tennet, writing on the subject, first gives those symptoms of acidosis to which importance should be attached and then recommends the kind of treatment which is likely to allay the condition and to minimize the dangers of operation. It appears that the lesions associated with acidosis bear on the liver, the cerebral cells, the suprarenal capsules, and the thyroid. Tennet points out that, as a rule, the changes are ephemeral, and that natural sleep brings about repair of these changes; but mere repose, apart from sleep, does not have this restorative effect. Patients soon to be subjected to operation should worry as little as possible, and should sleep as much as possible. Of course, this is Crile's anoci-association teaching, and the interest of it lies in the fact that it is advocated by a French army surgeon, who declares that if the precautions employed by Crile are taken, certain major operations, such as for advanced goiter, gastrointestinal cancer, and operations on the bile channels, may be undertaken with a minimum of risk and a maximum of success.

News of the Week.

Pneumonia in Army Decreases.—During the week ending April 26, there were 5,679 new cases of pneumonia reported among the troops in the United States. This is a marked decrease over the preceding weeks.

The National Health of England.—An analysis of the reports of the medical boards which examined recruits shows that out of every nine men examined only three were fit for service; two were more or less unfit but able to do something; four represented wreckage of one kind or another, some of it hopeless but most of it preventable. The average of fit for the entire country was 36 per cent.; London, 28; Scotland, 44; Wales, 46.

Ten per cent. of the men examined were absolutely unfit for any kind of service.

Typhus Among American Workers in Macedonia.—A report from Kavalla, Macedonia, states more than 600 Greek Refugees from Bulgaria have been stricken with typhus fever and that a number of the Red Cross workers engaged in relief work have died from the disease. A second Red Cross medical unit under Major Samuel J. Walker of Chicago, has been sent to Macedonia, to cooperate with the Greek doctors in combating the spread of the epidemic.

State May Take Over United States Hospitals.—The New York State Hospital Commission is to inspect the United States Naval Hospital at Ward's Island, and the hospitals at Camp Mills and Camp Upton with a view to determining if they can be taken over by the State and used to house insane patients.

Many Army Hospitals to Close.—Surgeon General Ireland has issued orders for the abandonment by June 1 of Debarkation Hospital No. 5 at the Grand Central Palace, the army hospital of the Rockefeller Institute, and Emergency Hospital No. 4, the Polyclinic Hospital, New York. The Hospital at Long Beach, L. I., has also been ordered closed before June 1. In addition to the New York City institutions, those at Hot Springs, Ark., Madison Barracks, New York, and Richmond, Va., have been ordered closed. Nine army hospitals are to be turned over for war risk insurance cases. These are at Camps Beauregard, Louisiana; Cody, New Mexico; Fremont, California; Hancock, Georgia; Joseph E. Johnston, Florida, and Logan, Texas; General Hospital No. 13 at Danville, N. Y., and General Hospital No. 15 at Corpus Christi, Tex. The Base Hospital at Camp Sevier will be transferred to the Public Health Service as soon as the need for its facilities in their present capacity is over. A total reduction of 5,500 beds has been called for at the various camp hospitals.

Memorial Hospital for Soldiers and Sailors.—At the annual meeting of the Grand Lodge of Masons for the State of New York held recently in New York City, it was announced that a memorial hospital would be erected at Utica, N. Y., at a cost of $370,000. The institution will be open to all men of the order who have been in the service and who because of physical debility require maintenance or medical care.

Nurses Get Diplomas.—The Bellevue Hospital Training School for Nurses, New York City, at its recent graduation exercises awarded diplomas to 48 nurses. At the same time 155 received postgraduate certificates. Dr. John W. Brannan, president of Bellevue and the Allied Hospitals, presided at the exercises.

Hotel Opens Hospital.—A fully equipped hospital, with operating room and *x*-ray apparatus, has been opened in connection with the New Hotel Pennsylvania for the use of the 2,000 employees of the hotel. A clinic has been in operation since the hotel was opened a few months ago and treats on an average sixty patients a day. The hospital will be in charge of Dr. Joseph Darwin Nagel.

Hospital Directors and Staff Give Dinner.—The directors of the Hospital for Deformities and Joint Diseases, New York City, recently gave a dinner in honor of Dr. Louis F. Rothschild, the treasurer of the institution, at the Hotel St. Regis. The history of the development of the institution from a very small beginning, in 1894, to its present status as one of the largest orthopedic hospitals in the city was reviewed and it was announced that the directors propose to erect a new hospital building at a cost of $1,000,000 which will afford accommodation for 300 resident patients. Dr. Henry W. Frauenthal is physician and surgeon in chief of the institution.

Dr. William E. Studdiford has been appointed professor of obstetrics and gynecology in the College of Physicians and Surgeons to succeed the late Dr. Edwin Bradford Cragin.

Dr. Henry Monroe Moses has returned from foreign service and has resumed his practice at 108 Prospect Park West, corner Sixth Street, Brooklyn.

Dr. Walter M. Brickner has returned from foreign service and resumed his practice in New York City at 151 Central Park West.

Dr. George W. Crile, who commanded the Lakeside Hospital Unit of Cleveland, which served with the British and French Forces and who later became a consultant of the American Expeditionary Forces, has been cited for the Distinguished Service Cross by General Pershing.

Mayor to Name Drug Committee.—At a recent conference of the heads of the various New York City Departments Mayor Hylan announced that he would appoint a committee within a few days to go over the narcotic drug question with the Federal and State authorities. During the conference Health Commission Royal S. Copeland made the following recommendations for handling the problem: 1. Definition of drug addicts. 2. Registration and identification of drug addicts. 3. Passage of a law making it a misdemeanor for a physician to prescribe drugs for an addict without this identification card or for a druggist to honor a prescription without identification. 4. Passage of a law making it a misdemeanor for the sale of narcotics without a prescription. 5. Regulation by the State Narcotic Commission of amendments to the sanitary code on the subject.

Work of Women's Hospitals in Serbia.—According to a communication from Nish, Serbia, nineteen American women doctors are now in the Balkans, assisting the American Red Cross in its relief work. Among those working in Serbia are Dr. Marjorie Burnham of Ashtabula, Ohio; Dr. Mary H. Elliot of New York; Dr. Harriet M. Gerviais of Dorchester, Mass.; Dr. Marion C. Stevens of Reading, Mass.; and Dr. Regina Flood Keyes of Buffalo, N. Y. Dr. Keyes has just been decorated by the Greek Government for her skill in hospital work both in surgery and in the care of typhus patients. Dr. Catherine M. Cook of Washington, Pa., and Dr. Dora E. Bowman of Kansas City, Mo., are assisting the American Red Cross physicians in Montenegro. Dr. Nell G. W. Bartram of Huntington, Pa.; Dr. Mary J. Hyndman of Philadelphia, and Dr. Sarah E. Foulks of Burlington, N. H., are doing similar work in Albania.

British Cross for Three American Surgeons.—Three officers of the American Army Medical Corps received the British Military Cross from King

George at an investure on May 3. They were Capt. Richard Giles, Capt. D. Murphy, and Capt. F. Stone.

United States Civil Service Examinations.—The United States Civil Service Commission announces open competitive examinations for *medical interne*, for both men and women, to fill a vacancy in St. Elizabeth's Hospital, Washington, D. C., at $900 a year, and future vacancies requiring similar qualifications. The positions are tenable for one year during which a post graduate course in mental and neurological methods is given. At the end of the year examinations are held and promotions made to the next grade, that of junior assistant physician. The examinations will be held on June 4 and July 9, 1919. Applicants should write at once for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Medical Society Elections.—THE GEORGIA MEDICAL ASSOCIATION, at its annual meeting, held in Atlanta, April 19, 1919, elected the following officers for the ensuing year: *President*, Dr. Edward G. Jones of Atlanta; *First Vice-President*, Dr. H. W. Hendrix of Tifton; *Second Vice-President*, Dr. J. M. Smith of Valdosta.

THE GEORGIA PEDIATRIC SOCIETY, at its annual meeting, held in connection with the Georgia Medical Association on April 19, 1919, elected the following officers: *President*, Dr. L. B. Clark of Atlanta; *Vice-President*, Dr. Walker of Macon; *Secretary-Treasurer*, Dr. Anthony Warring of Savannah.

THE HILLSBOROUGH COUNTY (N. H.) MEDICAL SOCIETY, at its annual meeting, held at Nashua, April 17, 1919, elected the following officers for the ensuing year: *President*, Dr. Charles E. Congdon of Nashua; *Vice-President*, Dr. C. O. Colburn of Manchester; *Secretary and Treasurer*, Dr. T. F. Rock of Nashua.

THE LOUISIANA STATE MEDICAL SOCIETY, at its annual meeting, held in Shreveport, April 9-11, 1919, elected the following officers for the ensuing year: *President*, Dr. Amendee Granger of New Orleans; *Vice-President*, Dr. J. A. Gorman of New Orleans; *Secretary and Treasurer*, Dr. C. Barrow of Shreveport.

THE ASSOCIATION OF AMERICAN RAILWAY CHIEF SURGEONS, at its annual meeting held in New York City, May 5 and 6, 1919, elected the following officers: *President*, Dr. C. W. Hopkins of Chicago; *Vice-President*, Dr. Duncan Evans of Nashville, Tenn.; *Secretary and Treasurer*, Dr. Louis J. Mitchell of Chicago.

THE ASSOCIATION OF SURGEONS OF THE SOUTHERN RAILWAY, at its annual meeting, held in New Orleans, April 24, 1919, elected the following officers for the ensuing year: *President*, Dr. H. T. Inge of Mobile; *First Vice-President*, Dr. W. H. Armstrong, Rogerville, Tenn.; *Second Vice-President*, Dr. D. W. Scott of McDonoughville, Ga.; *Third Vice-President*, Dr. A. R. Wolson of Greenboro, N. C.; *Fourth Vice-President*, W. T. Matthews, Greenwood, Miss.; *Secretary and Treasurer*, Miss Edith A. Foltz, Washington, D. C.

Obituary Notes.—Dr. FREDERICK WEISBROD of Brooklyn, a graduate of New York University Medical College, in 1890, died in Philadelphia on May 9, aged 55 years. He was a member of the American Medical Association, a Fellow of the American College of Surgeons, and attending gynecologist to the Wyckoff Avenue Hospital, Brooklyn.

Capt. GEORGE EDWARD HENDERSON, M. C., U. S. Army, of Brooklyn, N. Y., a graduate of the Long Island College Hospital, in 1907, on duty with the 330th Field Artillery, died in France on February 12, aged 34 years.

Lieut. BRADNER EARL GORHAM, M. C., U. S. Army, of Kent, Ohio, a graduate of the Grand Rapids (Mich.) Medical College, in 1903, recently returned from military service, died of pneumonia in the Lakeside Hospital, Cleveland, on March 25, aged 37.

Lieut. WILLIAM WRIGHT WALCOTT, M. C., U. S. Army, of Natick, Mass., a graduate of Harvard University Medical School, in 1905, on duty with the 101st Engineers, American Expeditionary Forces, formerly state inspector of health and later district health officer under the Massachusetts department of Health died in France on March 16.

Lieut. WILLIAM LAFAYETTE COWPER, M. C., U. S. Army, of Michigan, N. D., licensed to practice medicine in North Dakota in 1898, died from pneumonia at a hospital in Liverpool, England, on March 9, aged 43 years.

Lieut. JAMES MADISON GRAHAM, M. C., U. S. Army, of Fruita, Utah, a graduate of the Medical College of Ohio, Cincinnati, in 1902 died in United States General Hospital No. 21, at Denver, Col., from tuberculosis, about April 6, aged 40 years.

Dr. NORMUS PAIGE died at his home in Taunton, Mass., on April 15, aged 79 years. He was a graduate of the Medical Department of Dartmouth College, in 1861, an ex-president of the Massachusetts Medical Society, for twenty-five years physician of the Bristol County jail, and a member of the staff of the Morton Hospital.

Dr. JOSEPH MERZBACH, a graduate of the Long Island College Hospital, in 1883, attending physician to the Jewish Hospital, and chief gastroenterologist to the Jewish Dispensary, died of heart disease at his home in Brooklyn on April 28, aged 62 years.

Dr. HENRY CLAY WILBUR of Pine Plains, N. Y., a graduate of Bellevue Hospital Medical College, in 1867, died in Brooklyn, N. Y., on May 6, aged 75 years.

Dr. WILLIAM HENRY HALE, a graduate of Yale University Medical School, formerly superintendent of the Baths of Brooklyn, and one of the founders of the American Association for Promoting Hygiene and Public Baths, died on May 3, at the age of 78 years.

Dr. NATHANIEL GARLAND KEIRLE died, after a long illness, at his home in Baltimore, on May 2, aged 86 years. He was a graduate of the University of Maryland Medical School, and was for 30 years post-mortem physician of Baltimore. He lectured in pathology at the College of Physicians and Surgeons, Baltimore, from 1881 to 1892, and occupied other positions on the faculty of that institution.

Dr. EMMETT V. BALL, a graduate of the Georgia College of Eclectic Medicine and Surgery, in 1894, and a member of the faculty of that institution, died at his home in Atlanta of heart disease, on April 23, aged 49 years.

Correspondence.

THE MEETING OF THE MEDICAL SOCIETY OF THE STATE OF NEW YORK.

To the Editor of the Medical Record:

Sir:—Although the meeting of the Medical Society of the State of New York, on May 6, at Syracuse, was one of the most important of these events in recent years, no mention of its proceedings was given in any of the New York newspapers.

Considering the prominence of compulsory health insurance as a political issue in this State, the fact that the delegates of the society to the American Medical Association meeting, next month, were instructed to oppose this measure in every way was a matter of news worthy of mention, even though the expression on the subject was contrary to the views of the New York press in general.

Another important event was the appearance of Senator Davenport before the House of Delegates. This took place before the election of the president of the State Society, one of the candidates for which office stood avowedly upon an anti-compulsory health insurance platform. The appearance of Senator Davenport was upon the invitation of the president of the society, and was the cause of considerable adverse comment. It led to the introduction and passage of a resolution that no one hereafter should be invited to address the House of Delegates unless invited to do so by the society itself. A request of a most unusual character was made of the society after the members had finally concluded to permit Senator Davenport to address them. This was made by the chairman of the legislative committee of the Medical Society of the County of New York. It was to the effect that the Senator was to be heard without question, interruption, or mark of disapproval. Evidently the mover of this motion did not realize the difference existing between the temper and amenities of a representative body of medical men and those of a miscellaneous aggregation of opponents to a political measure of this kind at a hearing before the Legislature at Albany. One of the reasons given during the discussion for allowing Senator Davenport to address the society was that he would do his cause no good by his argument in its favor. This proved to be correct, inasmuch as his sole plea for compulsory health insurance was that it offered a means to combat the rising spirit of Bolshevism among the working classes in America by ministering to them in sickness and disease, and thus getting them to realize that the politician was the modern representative of the "good Samaritan," no matter to what political party he belonged.

This appropriation of the time-honored distinction and reward of the profession of medicine, as embodied in the Biblical character in whom is personified our mission, was not accompanied by any proof whatever that lack of medical service to the poor in Russia in any way figured among the causes of this lapse into anarchy, under the guise of socialism, by this once great and powerful people.

A measure to establish a commission for the purpose of protecting the profession from adverse legislation at Albany was proposed and pressed for adoption. The composition of this body was severely criticised. It was claimed that it would be controlled by the members selected from among the Public Health Committee of the New York Academy of Medicine, from which source the funds and the active management would also proceed. It was shown, as well, that from this body had arisen the various plans for compulsory health insurance in this State, which the society was now united in opposing. The matter was not put to a decisive vote on its merits, but was left over for action by the Council of the Society in the fall.

A most astonishing proposition was one to exclude every person from the meeting of the House of Delegates during its session except the delegates themselves. The delegate making this proposition claimed that the presence of visitors invaded a privacy that was semi-sacred in character. It prevented, or at least interfered with, cerebration relating to matters of medical legislation of a family nature. He was voted down as verging upon madness of a stark, staring kind, which would make the Medical Society of the State of New York an anomaly among legislative bodies of a deliberative character everywhere.

The project for annual registration of physicians was approved with but one dissenting vote. The result of this will be to place the burden of opposing this measure on medical men and medical bodies not affiliated with the State Medical Society. It was supported by the chairman of the legislative committee of the State Society. The chief reasons given were that "somewhere in this State" diplomas of deceased doctors were offered for sale, and that their purchasers were practising medicine under them; also that the dentists and veterinarians were registered, and did not object to this measure. It was stated, as well, that local district attorneys will not prosecute illegal practitioners, and that the attorney general, to whom this duty will attach, will have no such scruples in the matter as his deputies in the rural districts. It should not be overlooked that those who are responsible for this form of registration are also advocates of periodical examinations of physicians, of which the registration bill is the entering wedge. It also accords with the new political dispensation which demands the registration with the police of every one who can be brought within the purview of the State. This form of "measuring and mugging," figuratively speaking, was advocated in laws before the last Legislature for any one renting a room to a lodger in this city or for any one "suspected" of having venereal disease.

John P. Davin, M.D.

OUR LONDON LETTER

(From Our Own Correspondent.)

London, April 16, 1919.

The Special Clinical Meeting of the British Medical Association.—The special clinical meeting of the British Medical Association, whose activities came to an end last week, was an unqualified success, scientific and social. A well devised piece of statesmanship on the part of the authorities of the association led them to hold this meeting in lieu of the autumn scientific and social gathering, for such an autumn meeting of the accepted type would not have taken advantage of the opportuni-

ties now present in London, owing to the sojourn in or near the metropolis of so many representatives of the medical department of the American Army and of the British Dominion Forces. The special idea of the meeting was to bring these learned and gallant of our colleagues into personal relations with the medical profession of the home country, to gather from their experiences, and to make the medium of interchange between the Dominions and ourselves for the lessons learnt at the war. The meeting was carried out in exactly this spirit, and because it was not over large it gained its particular efficiency. Many people who had met before met again, resumed their friendships, revised their opinions of each other, and interchanged views, and projects without the stiffness inseparable from recent introduction. Moreover, as it happens, there are large questions, of medical education and medical reform generally, on the lips and in the minds of the medical profession at home, and these supplied endless topics for discussion, apart from the actual business of the special meeting, upon subjects which cannot be looked at from too many points of view, and whose consideration should always be revised by as much intimate knowledge as can be obtained of the different circumstances in which medical men carry on their work. From these discussions many of us have received liberal instruction in sociology at many pleasant reunions.

Among these reunions may be mentioned first, the reception of the congressists at the Guildhall, the beautiful medieval building which is the center of the City of London Municipal Government, as distinct from the London County Council. Among the guests received here by Sir Clifford Allbutt were many members of the American Medical Service who were notable alike for the interest which they took in the lectures and illustrations of London life from the Roman times downwards and for the energy with which they danced, for an impromptu feature of the function was a dance. On one afternoon the President of the Royal College of Physicians was at home in Pall Mall to members of the Congress, when the unique collection of books, manuscripts and pictures in the possession of the college was on exhibition under the learned direction of the President, Dr. Norman Moore. On another afternoon the President of the Royal College of Surgeons of England, Sir George Makins, entertained the congressists at an exhibition of the Hunterian and Listerian relics possessed by the college in Lincoln's New Fields. The whole Hunterian Museum of the college was opened to the inspection of the guests. Sir Clifford Allbutt entertained certain of the prominent organizers of the meeting to dinner at that home of Bishops, Judges and Professors, The Athenæum, and on the same evening the guests proceeded to join the Congress assembled later at the Royal Society of Medicine, where a reception was given by the President, Sir Humphry Rolleston. On the last day of the Congress the editor of *The Lancet* entertained at luncheon the representatives of the American and Overseas Forces, the office-bearers of the Congress, and others connected officially with British Medicine. At all these functions real cordiality and good-fellowship prevailed and it is impossible that there should not follow from so much close interchange of ideas good results for medicine.

The Local Government Board and the Housing of the Poor.—One of the first acts to be undertaken by the Government must be to improve the housing conditions of the county. New houses were wanted for the industrial classes all over the kingdom even before the war, and no building has been undertaken, save in the direction of temporary hospitals, munition and other factories, aerodromes and accommodation railway stations since the autumn of 1914. The country is probably 400,000 houses short, while many that are still inhabiteed are from the medical point of view uninhabitable. A Housing and Townplanning Bill is before the House of Commons at the present moment, and under it local authorities, who are local and popularly elected committees entrusted to carry out the essentials of local government, will be required to supply information to the Local Government Board as to the number of houses needed in their districts, and the proposed building scheme to meet the need. It is necessary that the local authorities should consider their action well and have their plans cut and dried so that no time may be wasted, and that building and reconstruction can take place the moment the Housing and Townplanning Bill becomes law. Therefore the Local Government Board has just issued a valuable memorandum for their guidance in drawing up such schemes, from which information can be drawn upon such essential matters as the choice of site, the method of drainage, the laying down of roads and the building of houses combining sanitary virtues and some measure of comeliness with economy. Local authorities whose schemes find favor with the Local Government Board will receive state grants, in aid of their activities.

The Late Dr. A. G. Bateman.—Dr. A. G. Bateman whose death was announced this week was one of the best known medical men in the country because of the nature of his occupation and the brilliant way in which he discharged its duties. He was the secretary of the Medical Defense Union, an association of medical men for their mutual protection in legal difficulties, which took notice also of infringements of the law where these offenses were especially to the detriment of the medical profession. Thus a doctor threatened by a disgruntled patient with an action for malpraxis, or by a mean patient with a refusal of his fees on the ground of exorbitant charges, or by some salacious or blackmailing woman with a charge of assault, can go straight to the Medical Defense Union, if he is prudent enough to be a subscriber, and cast his burdens upon the association. Bateman received all such cases with learning and enthusiasm. A barrister as well as a doctor, and in his time a coroner, he was versed in all the methods of the cheat and the blackmailer, and seldom indeed did any action succeed against any of his clients. Quacks and unqualified practitioners feared his name also, for he was quick to detect where their habits of charlatanry became illegal and ruthless in tracking the of-

fenders down, haling them before justice, and exacting the fine. Bateman raised the Medical Defense Union from a small organization to a really powerful affair—he lived for his work and reveled in it. His industry and enthusiasm were all the more creditable to him that he had exceedingly bad health; but the idea of living like a vegetable in order to prolong his days made no appeal to him, and he died, full of zeal and full of work, suddenly in his sixty-sixth year.

Some Revelations of War Records.—The statistics of the recruiting medical board have before now been referred to in these letters as revealing deplorable facts in the physique of the manhood of the country, and the *Times* has published today some figures for which they do not claim official support but which they assert are yet sufficiently accurate for practical purposes: Out of every nine men examined, three were fit for service and were good lives; two were more or less unfit, but able to do something; four represented wreckage of one kind or another, some of it hopeless, most of it preventable. The picture for the whole of the country will, we believe, be found to average out something after this fashion: Fit men, 36 per cent.; fairly good men, 23 per cent.; unsound men, 31 per cent.; totally incapacitated, 10 per cent. Put in that way the record is dismal indeed, but the recruiting boards had not to take cognizance at all of all that great mass of healthy manhood that joined the war in the first rush. From the medical point of view, however, dismal records of this sort have their value, for they frighten the public into giving money for the many medical agencies necessary to counteract such a state of affairs. London is believed to come particularly badly out of the statistical ordeal; London is not an over generous city, considering its size, wealth, and prestige toward the causes of medicine and medical research, and a scare as to the physique of its inhabitants may open hearts and also purses.

Progress of Medical Science.

New York Medical Journal.

May 3, 1919.

1. Early Recognition of Carcinoma of the Stomach. John B. Deaver.
2. Diagnosis of Gastroduodenal Ulcer. Anthony Bassler.
3. The Medical Treatment of Gastric and Duodenal Ulcer. H. H. Roberts.
4. An Unusual Case of Carcinoma of the Esophagus. Albert S. Hyman.
5. Meningitis. Hyman I. Goldstein.
6. Influenza Pneumonia Treated by Blood Transfusion. F. B. Bogardus.
7. Postinfluenzal Empyema. Marshall William McDuffie.
8. Medication by Inhalation. P. David Shultz.
9. Secondary Suture and Skin Graft Under Local Anesthesia. Julius A. Miller.
10. Studies in Epidemic Encephalitis (*Encephalitis Lethargica*). Israel Strauss, Samuel Hirshfeld, and Leo Loewe.

1. Early Recognition of Carcinoma of the Stomach.—John B. Deaver refers to the difficulty of diagnosis in cases of cancer of the stomach, a difficulty rendered all the greater in the absence of a reliable test for early cancer. The medical man should therefore consult the surgeon in all cases at the so-called cancer age (35 to 45 years), presenting a history of symptoms which suggest this disease. One of the frequent findings at operation, or postmortem, is evidence of healed ulceration—described by Smithies as the "tabloid" type. In such cases the mistake often lies in treating the symptoms instead of the cause. In the majority of cases the clinical history is that of gastric ulcer—periodical attacks of dyspepsia, with generally good health between the attacks. These cases, if taken in time, need never have developed cancer. In other cases, in which cancer is grafted on an ulcer of atypical type, where the history could be construed as chronic appendicitis, chronic cholecystitis, or chronic pancreatitis, early diagnosis is impossible; the only salvation offered is in opening the abdomen, inspecting and feeling. The skillful employment of the *x*-ray or fluoroscope is the next approach to diagnosis, but even so the findings may be none other than distortion of the duodenum, a shadow in the gall-bladder region, delayed passage of the bismuth meal, or the presence of adhesions. In these cases the treatment indicated is medical, but this should not be persisted in if the condition does not yield promptly and give reasonable evidence of permanent cure. Since one-half, or more, cases of gastric cancer follow on ulcers, the treatment of early carcinoma depends largely upon the early recognition and treatment of gastric ulcers. Although a good deal of reliance is placed on gastric analysis in the diagnosis of cancer, Deaver points out that in early carcinoma there is no actual rule as to the acidity of the stomach contents. High acidity is often noted in gastric ulcer; this, acting as an irritant, particularly on the edges of the ulcer, produces changes in the glandular cells, which are probably the first step in carcinomatous proliferation. High acidity is therefore not necessarily ruled out, especially when located on the anterior wall of the stomach, involving the greater curvature where it is likely to cause only slight disturbance of motor function. On the other hand, hypochlorhydria or the absence of hydrochloric acid, which is generally considered pathognomonic of cancer of the stomach, is associated with about 30 per cent. of cases of gallstone disease and also about the same percentage of other conditions, such as pancreatitis, diabetes, renal calculus, etc., so that a low hydrochloric acid, or absence of this acid, furnishes evidence but no proof of cancer. Nor is the presence of lactic acid and the Boas-Oppler bacillus proof positive, since lactic acid is frequently, and the Boas-Oppler bacillus occasionally, associated with benign dilatation of the stomach. When the case has advanced to the stage of permitting recovery of the Boas-Oppler bacillus, surgery promises little or nothing. Detection of pus by the microscope and the presence of occult blood may be of diagnostic value, but they are not always demonstrable in early cancer. None of the tests devised have proved specific in diagnosis, and this is also true of *x*-ray and fluoroscopic evidence. Their importance rests on their demonstration of a surgical condition in the stomach, but not on their power of differentiating the condition. In the last analysis, therefore, we come to history and exploration, which are the most reliable sources of information. A patient in middle life giving a history of gastric ulcer, or one who has always enjoyed good health until about a year or six months ago, and now complains of gastric symptoms, epigastric pain, with more or less rigidity, progressive loss of weight, strength and appetite, with or without vomiting, with more or less motor insufficiency, hydrochloric acid increased, moderately diminished or entirely wanting, lactic acid and Boas-Oppler bacillus present or absent, justifies a tentative diagnosis of cancer. The *x*-ray in such cases will probably show some changes in the outline of the stomach and anomalies in the peristaltic waves, but laparotomy and the pathological laboratory will give definite information which will enable the surgeon to act, giving the patient a promissory note for relief if not for a permanent cure. What William J. Mayo wrote in 1904 still holds good: "In an early exploratory incision we have the one diagnostic resource which is reliable, and which must be resorted to in a large majority of cases before a surgical diagnosis can be made. Without it the truth is but slowly established at the expense of progressive hopeless involvement. Exploration can be safely accomplished through a small incision and with a short time of disability. It is said that the patient will not submit to an abdominal incision upon suspicion. Herein we do the intelligence of the public an injustice; we have seldom been refused the opportunity, when the matter has been fairly and candidly laid before the patient and his

friends. The plea for delay has more often come from the attending physician."

Journal of the American Medical Association.

May 3, 1919.

1. The Value of Biological Principles in Surgical Practice. J. Shelton Horsley.
2. A Case of Tetanus Illustrating Modern Methods of Treatment. M. S. Woolf.
3. Bromidrosiphobia. Richard L. Sutton.
4. Treatment of Pneumonia. George Douglas Head.
5. Hemothorax Following Gunshot Injuries of the Chest. Wm. A. McGuire.
6. Empyema at Camp Mills, L. I., with Special Reference to the Use of the Phillips Empyema Apparatus. H. B. Phillips and A. G. Langmann, with Comment on the Apparatus by C. L. Mix.
7. Septic Arthritis of the Knee Accompanying Fracture of the Patella: Cure of a Case by Irrigation of Joint and Staining with Gentian Violet. John W. Churchman

1. The Value of Biological Principles in Surgical Practice.—J. Shelton Horsley points out that surgery is more a science than an art, and that the science of anatomy is essential to the mechanics of surgery. A surgeon who is a dexterous operator and who skillfully amputates a leg that with patience and scientific application could be saved is merely a good artisan and is distinctly inferior to the surgeon who could save the leg even though he should be a bungling operator. The principles underlying an operation are correct only if they conform to the laws of physiology and of repair of the tissue or organ that is affected. If we could get away from blindly following what someone says and do things because of reasons that have sound biologic foundations, the results would be more satisfactory. Speaking of hyperemia, Horsley likens the methods of procedure formerly in vogue to the situation described in the old poem about the four blind men who went to see the elephant. Each was partly right in what they saw, or rather felt, but their conclusions were wrong. In connection with the treatment of slow or threatened gangrene, Carrel and Guthrie, after two experiments, concluded that the blood circulating in the leg of a dog could be completely reversed within six hours. Further experiments, however, showed that there was no real reversal; what happened was that dissection paralyzed the vasoconstrictor nerves, and the dilated capillaries permitted red arterial blood to flow through unchanged. Many useless operations have been done attempting so-called reversal of the circulation in threatened gangrene. The only good accomplished was damming back the venous blood and forcing the small amount of arterial blood that reached the tissues to stay longer than it normally would and so deliver to the tissues more nutrition; this can be simply effected by ligating the femoral vein. Surgery of the gastrointestinal tract suffers from the lack of application of physiological principles. For instance, the popular operation of gastroenterostomy does relieve the symptoms of many patients with duodenal or gastric ulcer. The unfortunate minority, however, still have their symptoms, and the restoration of normal channels by undoing a gastroenterostomy is not infrequently brought about. The cures have never been fully explained. Some say gastroenterostomy is a drainage operation, and yet in draining other hollow viscera they are not opened at the lowest point. Others say that the operating cures because the acidity of the gastric juice is lessened, and still others assert that by short-circuiting the course of food, rest is given the ulcer. Roentgenoscopy, however, reveals that unless the pylorus is closed a considerable portion of food continues to go by this route, and no pyloric closure seems to be permanent unless a resection is made. Recent physiological research has shown that the character of the gastric juice has nothing to do with hunger pains, except in so far as it excites an abnormal amount of peristalsis. Food or sodium bicarbonate lessens peristalsis and so relieves pain. Recent investigation seems to show that the stomach has a limited supply of nerves that conduct pain, and that these nerves are rendered abnormally sensitive by the inflammation around an ulcer. Gastroenterostomy probably relieves pain by facilitating the emptying of the stomach and so lessening peristalsis. This being so, it is the treatment of a symptom and not an effort to remove a pathological condition. The work of Cannon and Murphy in their studies of peristalsis after resection of the bowel has not received proper attention. Lateral anastomosis practically abolishes peristalsis in the region of the anastomosis and food can be pushed through only where a column of it extends into a proximal loop where peristalsis is unimpaired. Postmortems in dogs have always revealed an accumulation of food at the site of the lateral anastomosis. With attention to the triangular mesenteric spaces and careful closure of these and of other raw surfaces before the bowel is opened, together with disinfection of the bowel ends after opening, equally good technical results are obtained in end-to-end union, with the advantage of securing normal peristalsis and normal emptying. One of the common problems of surgery, and a most interesting one, is surgical drainage, which really depends upon a reversal of the circulation in the local lymphatics and is chiefly a biological process. It is nature's effort to extrude a foreign substance. In drainage of the abdominal cavity, where there is an enormous lymph space and where lymph is enormously poured out, the drainage tube causes an immense flow of lymph that carries through the tube much of the septic products that would otherwise have been absorbed. Drainage prevents positive pressure in the suppurating cavity and at the same time has the equally important function of being a stimulus for the reversal of the lymphatic circulation. When a wound is packed with gauze, the gauze acts as a foreign body and lymph is poured out into the gauze in an effort to wash it away. In portions of the body where lymph is not so abundant, drainage must be dependent. The cigarette drain is an exciting cause for reversal of the lymph circulation, a fact which explains its beneficial action. In neurological and bone surgery metal screws and steel plates have been used, with the result that nature, in an effort to expel these foreign bodies, causes an absorption of lime salts, the bone softens, and the screw becomes loose. Furthermore, osteoporosis is induced and callus formation is prevented or retarded. In certain cases of surgery the effect of the emotions is of the greatest importance; for instance, fear or excitement in exophthalmic goiter. Again, skin grafting and the transplantation of organs or tissues are dependent on biological laws; skin grafts from others than the patient are practically never permanent, and the transplantation of highly developed organs, such as a kidney, from one animal to another, even if of the same species, is always a failure. Real progress in surgery, therefore, lies not so much in cultivating the art of surgery and in striving after mechanical dexterity as in the study of biological principles which concern function, metabolism, and repair of tissues, and in the thoughtful application of these principles to every operation and to every method of surgical treatment.

The Lancet.

April 12, 1919.

1. Lumleian Lectures on Cerebrospinal Fever. Delivered before the Royal College of Physicians of London on April 3, 8, and 10, 1919. Sir Humphrey Rolleston, K.C.B.
2. Sanitary and Insanitary Makeshifts in the Eastern War Areas. Lieut.-Col. Andrew Balfour, C.B., C.M.G.
3. The Treatment of General Paralysis of the Insane by the Introduction of Salvarsanized Serum into the Lateral Ventricle and a Suggestion for the Arrest of Tabetic Optic Atrophy by the Same Means. Harry Campbell and Sir Charles Ballance, K.C.M.G.
4. Malaria and Trench Fever. Major Gordon Ward.

3. The Treatment of General Paralysis of the Insane by the Introduction of Salvarsanized Serum into the Lateral Ventricle and a Suggestion for the Arrest of Tabetic Optic Atrophy by the Same Means.—Harry Campbell and Sir Charles Ballance refer to papers published by each of the authors in the *Lancet* for May 30, 1914, which were based on three cases of general paralysis of the insane in which salvarsanized serum was introduced into the lateral ventricle. As one of the patients in question is still alive five years after the first treatment (the serum was introduced on two separate occasions, at short intervals) and has been able to return to his profession of violin playing in a London orchestra, the authors believe that there are

grounds for holding that the treatment did arrest the disease and restore the patient to such a state that he could earn his living. These authors point out that it is known that the *Treponema pallidum* is very sensitive to the antibodies in the blood and to remedies which probably have a direct action on it. The object, then, is to introduce salvarsanized serum into the cranial cavity in such a way as will admit of the serum coming into contact, by the shortest route, with the brain cells which are in danger of destruction by the syphilitic virus. The essential points are that the serum should circulate in the perineurotic spaces of the brain where the spirochetes reside, and that more salvarsanized serum can be inveigled into these spaces by the intraventricular method than by any other. The method proposed can only be fully effective in the very earliest stage of the disease before extensive damage has been done to the nerve cells. The pre-clinical stage of syphilitic brain disease is therefore the ideal time, and here investigation of the cerebrospinal fluid affords valuable help. In this connection the authors draw attention to the following facts: So long as the central nervous system is not infected by the spirochete, giving rise to interstitial or parenchymatous syphilis, the cerebrospinal fluid gives a negative Wassermann reaction, owing to the fact that the capillaries of the central nervous system (those of the choroid plexus among others) are impermeable to the Wassermann substance. It is quite common to get a positive blood reaction and a negative cerebrospinal fluid reaction. A positive reaction of the cerebrospinal fluid is thus proof positive that the central nervous system is infected with the spirochete. When the cerebrospinal fluid gives a positive reaction the blood generally does so too. This is as we should expect, seeing that the fluid drains off into the general blood-stream. In rare cases, however, the blood reaction is negative when that of the fluid is positive. In general paralysis both the fluid and the blood give a positive reaction in practically every case. If we find the blood negative the chances are nearly 100 to 1 that we have not to deal with a case of general paralysis, but if there is any doubt the fluid should be examined, since in very rare cases of general paralysis the fluid may give a positive reaction, while that of the blood is negative. In the case of interstitial syphilis of the nervous system we may hope to render a positive reaction of the fluid negative by administering mercury and the salvarsan group of remedies through the blood. In the case of parenchymatous syphilis of the central neurons this is much more difficult; with general paralysis it is impossible. By introducing salvarsanized serum into the spinal subarachnoid space a positive reaction of the fluid can be rendered negative in the case of tabes dorsalis. By introducing the serum into the cerebral ventricles we may hope for a similar result in general paralysis. The authors suggest that the same method might be employed to arrest tabetic nerve atrophy, but whether the injection should be made into the lateral ventricle or through the outer angle of the sphenoidal fissure into the subarachnoid space at the base of the brain remains to be determined. They add that the demobilization of the army and the probable increase of syphilis make it highly desirable that any means which may have a remedial influence on syphilitic infections of the nervous system should receive careful study.

British Medical Journal.

April 12, 1919.

1. The New Birth of Medicine. Sir Clifford Allbutt.
2. Discussion on War Neuroses. Introduced by Lieut-Col. F. W. Mott.
3. Discussion on Gunshot Wounds of the Chest. Introduced by Colonel T. R. Elliott.
4. Surgical Aspects. Colonel G. E. Gask, C.M.G., D.S.O.
5. Discussion on the Dysenteries:
   Bacillary Dysentery. Colonel Leonard S. Dudgeon, C.M.G.
   Amœbic Dysentery in England. Warrington Yorke.

3. Discussion on Gunshot Wounds of the Chest.—Colonel T. R. Elliott comments on the necessity for more knowledge of the physiological and pathological changes associated with the gross objective features of chest wounds and the importance of collecting and preserving all available observations and clinical notes on this subject. He points out that, on account of its elasticity, the lung tissue, though infected with blood, does not fissure and rarely shows contrecoup injury at a distance from the wound and that the changes in the pulmonary circulation are probably only those associated mechanically with the hemothorax. On the other hand, the muscular coat which envelops the bronchial airway can be directly relaxed or constricted by nervous impulses; in the guinea-pig the injection of egg-white will cause death by sheer asphyxia, and in goats strong constrictions of the bronchiole muscles occur upon exposure to phosgene or chlorine gas. In man the physiological activity of the muscle is obscure, but it may be that its main purpose is to protect the elastic tissues of the air sacs from harmful overdistension. Assuming that the musculature is thrown into strong contraction throughout the lungs as the usual reflex reaction to a chest wound, cyanosis and dyspnea result, both of which disappear as a rule with rest and the administration of morphine. Occasionally, however, these conditions persist and experience has shown that such patients stand an operation badly. It is fair to assume that the condition is caused by a prolonged reflex constriction of the bronchiolar musculature, which damps down the air current. In this case the lung would remain virtually inelastic and instead of being sucked out by inspiration, the intercostal space would conversely be sucked in, a phenomenon which is actually seen to occur. After a chest wound, respiration is shallow and quickened, with a small air current. On the injured side the intercostal muscles are said to show an increased tone, "guarding the wound within," while their respiratory rhythm is often lessened almost to complete immobility. The rhythmic movements of the diaphragm are also lessened, but the tone of the muscle does not seem to be increased, for the *x*-rays a few hours after the wound show that it is in a position of extreme elevation, that is, of relaxation in the complete expiratory phase. The outstanding characteristics of a hemothorax are the elevation of the diaphragm, the small size of the chest, and the tendency to partial or complete collapse in any area; while later the part of the lung on the wounded side which is not submerged in the hemothorax shows an unusual compensatory emphysema. The lung tends to be small on the wounded side and to collapse everywhere. Sir John Rose Bradford has explained these characteristics by assigning them to an external compression caused by the retraction of the chest wall and the immobility of the diaphragm in an extreme expiratory phase. The smallness of the lung, however, might equally be explained by an associated constriction of the bronchiole muscles, cutting off the diminished air current from the alveoli. The diminution of the air current, which results from the lessened inspiratory activity of the external muscles of respiration, must also be recognized as of importance; otherwise the lung might be overdistended as in the case of the guinea-pig's death from anaphylaxis. When once these conditions are established, the air in the air sacs—nitrogen as well as oxygen—is rapidly absorbed into the circulation and large areas of the lung may be completely deflated. General massive collapse of the lung on either side is rare, its only practical importance being that it is a contraindication to operation. Smaller areas of collapse do occur, but not in the frequency claimed by some writers. Such collapse is seen most often in a triangular area occupying the middle sector of the lower lobe, with the base of the triangle resting on the diaphragm. Such a distribution must be determined by some factor within the lung itself, and dissection has proved it to be due to the fact that the main bronchus of the lower lobe divides into three branches which do not communicate with each other, the middle one supplying the middle triangular sector. This bronchus is crossed at right angles by the great branch of the pulmonary vein which runs forward from the back of the lower lobe to join the main trunk at the lung's root, no lung tissue intervening between the vein and the bronchus. These conditions were reproduced in a case of phosgene gas poisoning described by the author. The main pulmonary artery on one side was greatly obstructed by a thrombus on its inner wall, so that the vessels in the contralateral lung must have been engorged just as with a hemothorax. Thick mucopurulent secretion half blocked the bronchus. Consequently, the airway at this critical

anatomical point was closed and collapse ensued. The result of this chance anatomical relationship is analogous to that with intratentorial tumors of the brain. Its chief importance lies in its reference to the general theory of collapse. Colonel Elliott holds the view of a general reflex bronchiolar constriction, which prepares the lung for collapse when the external respiratory movements are inadequate; a theory which may also explain the excessive emphysema. Further information, however, is needed, with observations on the presence or absence of early cyanosis, on the precise activities of the thoracic muscles of the diaphragm in early hours, especially in cases which felt "winded" after their wound. Knowledge of the action of the bronchiole muscles is much needed for general medicine and it is important that surgeons should bring forward their own observations to decide whether the hypothesis outlined above is true or false. It should be remembered that all reflex conditions are liable to rapid alteration when the thorax is freely opened by the surgeon. Were this knowledge available, it might be possible to control by drugs such a bronchiole constriction and thus bring dangerous cases within the reach of a successful operation. In regard to hemothorax, the view put forward by Henry and the author is generally accepted; that the effused blood very rapidly passes through the clotting process, but that the coagulation is interfered with by the respiratory movements so that the fibrin is to a considerable extent whipped out of the blood. Very rarely does an entire massive clot form. Sometimes the fibrin is completely separated, leaving a fluid blood, red, non-coagulable, and full of corpuscles. Usually the process is of an intermediate type, and lumps of jellied clot are deposited on the pleural surfaces or lie away in the pleural recesses. The pleural membranes then react by mild inflammation to some constituent of the hemothorax, even when it is sterile. There is an outpouring of pleural effusion containing more fibrinogen, and the clot on the lung surface is thickened and organized. The fluid mixture can be withdrawn by aspiration; the clot cannot. In process of time, the hemothorax develops into a tough jacket which restricts the lung to the size at which it is for the moment confined, and hinders subsequent expansion when the fluid is removed. When the hemothorax is chiefly fluid, with little clot, early aspiration will suffice and the lung expands almost at once. In the case of a large hemothorax—considering the hemothorax in itself only—early aspiration must be the routine; and if this should fail by reason of the clot, the chest must be evacuated at the earliest possible date by thoracotomy without drainage. During the war, however, the problem has been the checking of the spread of infection (50 per cent. of the cases of septic hemothorax died). The thoracic wall is now closed and repaired by early operation and infection is thus prevented from creeping inwards to the pleural cavity. Moreover, the surgeon now opens the wound and removes infected material lying within the hemothorax.

4. Surgical Aspects.—Colonel G. E. Gask points out that the great lesson that has been learned in this war is a clear conception of the biology or evolution of a wound. Nearly 100 per cent. of all wounds are contaminated, a period of some hours elapsing between contamination and infection, that is, before the organisms have had time to multiply and invade the tissues. Antiseptics are of little value. The wound should be excised in the latent period between contamination and infection, and foreign bodies removed. The wound should then be closed and the patient kept at rest. If this can be done, much needless death, suffering, and disability can be saved. The advance in thoracic surgery is due to the application of these principles to gunshot wounds of the chest. Fatalities from chest wounds fall into three main groups: (1) Deaths a few hours after admission to a casualty clearing station, usually due to extensive and severe injuries with loss of blood and shock. Few only of these cases can be saved, but the percentage has been improved with the aid of better resuscitation methods and blood transfusion. (2) Deaths two or three days after the injury, due to sepsis of the pleural cavity and its contents. (3) Deaths at the base, invariably due to sepsis. Treatment must therefore be directed towards elimination of infection. The pleural cavity may be contaminated: (1) By the missile or portions of clothing or equipment carried in with it; indriven splinters of rib are a factor both of causing and maintaining sepsis. (2) Through the wound of the chest wall. A wound which leads directly into the pleural cavity and through which air is sucked at every breath will always lead to infection. Even a small wound, through which air is not being sucked, unless cleansed by operation, may suppurate in the course of a few days, and unless the thoracic cavity has become sealed off by natural means organisms pass through into the pleural cavity, where they find the hemothorax fluid a good breeding ground. (3) From the wound of the lung itself in which the missile, bone, or piece of cloth may be retained. The duty of the surgeon is (a) to arrest hemorrhage; (b) resuscitate collapsed cases; (c) when required, to cleanse the wound of the chest mechanically. Chest wounds present themselves to the surgeon in the following categories: Perforating or through-and-through bullet wound; perforating or through-and-through shell wound; penetrating wound with retention of large missile; penetrating wound with retention of small missile; open thorax; tangential parietal wound; thoracic wounds complicated by injury of the abdomen or spine or by multiple wounds. Clinical appearances are initial distress and hemoptysis. Principles of treatment are considered by the author under physical examination, x-ray examination, and resuscitation. The indications for early operation are: A ragged wound of the soft parts; compound fracture of the ribs; continued bleeding, whether from the inside or out; suction of air into the pleural cavity (open thorax); retention of a large foreign body; pain—out of proportion of the apparent severity of the injury (often the result of indriven splinters of bone scratching the lung with every respiratory movement); rapidly increasing pneumothorax (valve pneumothorax). The skillful administration is of more importance than the kind of anesthetic employed. At operation, the objects to be aimed at are: Excision of the wounds of the soft parts; excision of the broken bones—ribs or scapula; cleansing of the pleural cavity from blood, missile, indriven fragments of bone, or clothing; excision (when possible) of the damaged area of lung; suture of lung; closure of the thoracic cavity. If a careful and complete operation is performed, no special after-treatment is required as a rule; care must be taken, however, that no accumulation of fluid takes place in the pleural cavity and, to this end, systematic needling is advocated. In injuries involving both chest and abdomen, the abdominal viscera may herniate into the pleural cavity, a complication more frequent on the left side because of the protection of the liver. As efficient repair of the diaphragm can only be obtained from above, it is better to open the chest first, replace the abdominal contents, suture the diaphragm, and deal with the chest as already indicated, and then, if there is evidence of injury to hollow viscera, laparotomy may be performed. Similarly with multiple injuries involving both chest and abdomen, it is probably better to deal with the abdominal injury first, but when the patient's condition allows, the chest wound should be treated, even if only to excise the parietal wound. In the treatment of hemothorax, as soon as infection is proved or suspected, it is essential to empty the chest of all infected blood and clot. This cannot be done by aspiration and must be done by open operation. The common practice has been resection of one inch of rib and insertion of a tube. Provided that operation is done within a few days of receipt of the wound, it is better to do a wider resection, removing all clot and washing the pleural cavity. The chest should then be closed. The method offers the following advantages: The chest may remain closed, the organisms not developing; the lung is allowed to expand and adhesions may form which will prevent complete collapse, even if the pleural cavity is subsequently drained; respiratory distress is much less with the closed chest. Drainage of the chest the author considers in the same light as amputation of a limb; it is sometimes necessary to save life but still a surgical failure. Commenting on the lessons learnt in military surgery, which may be applied to civilian practice, Colonel Gask draws atten-

tion to the following points: (1) The treatment of crushed or "stove in" chests. These cases occur in civilian practice. When associated with severe laceration of the lung by indriven fragments of bone, thoracotomy may be of service. (2) The author has discussed the advisability of thoracotomy for the cure of intrathoracic carcinoma of the esophagus with Dr. Meyer, and cites the urgent warning of the latter, that the condition of patients wasted with disease renders them much more dangerous subjects for thoracotomy than the vigorous soldiers operated on in France. (3) In regard to improving the treatment of empyema he is more hopeful. He suggests that in certain cases, particularly of children with a pneumococcal empyema, the pleural cavity may be washed out and the chest closed without the use of a drainage tube. This method has been performed successfully and may be beneficial in suitable picked cases.

Western Medical Times.

April, 1919.

1 An Open Letter to the Medical Profession. Eli G. Jones.
2. The Value of the "No-Good" Goiter. Douglas H. Stewart.
3. Preventive Medicine or Hygiene. E. Stuver.
4. Prolapse of the Rectum. Charles I. Drueck.

2. Goiter.—Douglas H. Stewart emphasizes the fact that there are exceptions to every rule formulated so far as goiter is concerned. With regard to the influence of water on the origin and development of goiter, one point stands out, namely, that the drinking of certain water is so much a factor that women have the trouble more than men, because they drink more water. Goiter-producing water often contains lime and iron. Much has been made of this, though the fact that the water from goiter-producing wells may be drunk with impunity, if it be previously and thoroughly boiled, rather militates against the idea of the cause being anything of a mineral nature. Good reports were made at one time concerning the value of the addition of iodine to water. Much was expected of it, but thyroid administration has rather pushed that considerably into the background. The usual test of a goiter is to ascertain whether it rises or falls during the act of swallowing, and if it move with that act then it is to be considered a goiter. The matter of position is rather baffling to a beginner, when he hears some glandular swelling called goiter, yet it is at once evident that the glandular involvement may be in some such gland as the submaxillary. Or it may even be found within the larynx or trachea. It must be remembered that the thyroid has a way of having accessory thyroids pretty much anywhere about the neck, and as the gland itself and these accessories have no ducts, it is very likely that an accessory thyroid could be placed almost anywhere and could yet function perfectly, so that he only who would insist that a goiter must be near or alongside the larynx or treachea, would be the only one who could be deceived by a goiter in some unusual position. The prognosis of goiter is favorable. The simplest method of cure, and perhaps the fundamental one, is to see that the goiter-producing substance is not present in the water. For, if the goiter is once started, a very little of the unknown substance will make certain that goiter's growth. As for treatment, whether it be medical or surgical, it is very possible that the success or failure of that treatment may turn on the question as to whether the patient drinks plain or boiled water. A surgeon may remove a goiter, may do so well and skillfully, but he may have trouble later with some such form as recurrent goiter, that the drinking of boiled water might have forestalled. Boiled water is not the unpalatable thing that it is taken to be if it is only put into a bottle and well shaken so that air is well mixed anew with the fluid, to replace that driven out by the process of boiling. It is very curious indeed to note that the North American Indian was almost exempt from goiter, even though it affected the white man who followed him in the occupation of the same lands. Nor is it less strange that along the Yser River goiter is endemic along the left bank, though not at all so along the right bank. The question is often debated as to why, if water has something to do with the matter, the animals do not suffer. What makes them immune? The answer is, that they are not immune, only they are not investigated with sufficient care, for cases are reported of dogs, cats, goats, and sheep being affected. It may be that the goiter-producing substance is a ferment or something similar, and the plan used by Woaker of England rested on the giving of hydrofluoric acid, well diluted, thirty drops three times a day. While goiter may or may not be amenable to treatment; while surgical and medical treatment may both be had; and while partisans of both treatments may be found to attack all treatment, yet this much is stated here, if any patient is put upon boiled water, upon cod liver oil and upon orange juice, the chance for success of either treatment or any treatment, will become brighter at once.

Berliner klinische Wochenschrift.

March 3, 1919.

The Regulation of the Composition of the Blood.—H. Hirschfeld in a lecture considers this subject in general, as well as a separate consideration of the various elements composing the blood from the viewpoint of the mechanism of their quantitative regulation. The writer insists too lengthily on elementary questions, but there are some interesting remarks to be found relating to recent data acquired in the domain of the genesis and destruction of the blood cells. Erythrocytosis is dependent upon the partial tension of the atmospheric oxygen breathed, it is regulated by the action of the bone marrow and spleen. The latter viscus prepares the destruction of the red blood corpuscles which takes place in the liver while at the same time it inhibits their genesis in the bone marrow. The spleen appears to be an organ of repair of the entire ferric metabolism and above all as an economic agent in the struggle against the disappearance of iron. The writer also studies the influence of various endocrine organs over the maintenance of the leucocytic equilibrium. This certainly adapts itself to the conditions of life. Thus the diet during the war, with its excess of carbohydrates, appears to have increased the percentage of lymphocytes in many apparently well people.

Münchener medizinische Wochenschrift.

February 28, 1919.

Surgical Affections Due to Influenza.—Schmieden says that septic pleurisy of influenzal origin has a decided tendency to extend to the opposite pleura as well as to invade the pericardium and peritoneum. The peculiarity is due to the necrosing action of the bacteria when they are unusually virulent and an absence of fibrous tissue reaction. Tracheal ulcerations may give rise to mediastinal phlegmon and mediastinal emphysema for which a tracheotomy may sometimes be successful in saving the patient's life. Influenzal infection of the cervical lymph-nodes does not necessarily end in suppuration. Rarely an influenzal parotiditis may develop, requiring incision. Peritonitis may arise as an autonomous complication of influenza; influenzal appendicitis does not generally suppurate so that operation is not indicated. The same applies to influenzal cholecystitis. In the nervous complications (which are not surgical in nature) the writer refers to purulent meningitis. There is also a form of infantile spinal paralysis which is unquestionably due to influenza. In the limbs one meets with thrombophlebitis, serous or dry arthritis, and osteomyelitis. Abscesses of the soft structures predominate on the thorax and abdominal parietes. The connection between these various surgical affections and influenza must be made by the history of each individual case.

The Solar Treatment of Tuberculous Laryngitis.—E. Pachner relates some cases of this affection which were happily influenced by insolation of the larynx according to Sargo's method. Insolation is accomplished by means of mirrors, the patient being able to turn his back to the sun or remain reclining upon a lounge. The latter procedure has the advantage of tiring the patient less and permits of a more direct use of the rays.

Society Reports.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

One Hundred and Thirteenth Annual Meeting, Held in Syracuse, May 5, 6, 7, and 8, 1919.

(Special Report to the MEDICAL RECORD.)

HOUSE OF DELEGATES.

Monday, May 5, 1919.

THE PRESIDENT, DR. THOMAS H. HALSTED, IN THE CHAIR.

President's Report.—Dr. THOMAS H. HALSTED submitted this report in which he stated that of the 5,000 physicians in New York State about 3,700, or 25 per cent., left their practice and homes for military service, while a still greater number gave a large part of their time to the work of medical examiners, and on advisory medical boards. This of course had resulted in a general confusion and much disturbance in medical practice, just as similar results had occurred in other professions and business. He had spent the early part of his term of office in France as head of the Medical Intelligence Bureau, and later as Field Director of the Medical Research and Intelligence Department of the American Red Cross of which Colonel Alexander Lambert was Chief. On account of this absence he was unable to perform that agreeable part of his work which took him to the District Branch meetings in the fall of the year. It happened, however, that owing to the widespread epidemic of influenza and the large number of members absent in military service the District Branch meetings were very sparsely attended. After paying tribute to the memory of Dr. Frank Van Fleet and Dr. W. Staunton Gleason, whose absence he said would be deeply felt at this meeting of the Society, and expressing appreciation of the effective work of the chairmen of the various standing committees, he discussed compulsory health insurance. He stated that for good and satisfactory reasons the Medical Society of the State of New York opposed the enactment of various bills providing for compulsory health insurance, beginning with the Mills Bill and ending with the Davenport-Donohue Bill of the present session. Governor Smith, in his inaugural address, had urged compulsory health insurance and the Davenport-Donohue bill had been favored by the American Association for Labor Legislation, the New York State Federation of Labor, the City Club, Consumers' League and other organizations, chiefly of women. This bill, as it was amended from time to time during the Session, became exceedingly dangerous to the welfare of the future health of the employees, whom the bill was designed to benefit, as well as to that class of professional men and women, physicians, dentists, and nurses, who were to render the service. Realizing the dangerous character of the bill and the powerful elements in support of it, in letters to the Presidents of the County Medical Societies, he had urged the importance of acquainting the profession with the menace of the bill and the necessity for their using every effort to block its passage in the Legislature. There was an immediate response throughout the State, and at public hearings 350 to 400 physicians came to Albany as delegates, nearly every county being represented, and Kings County sending about 50 delegates. This bill, as it existed in its amended form on March 19, 1919, if enacted, would bring about a demoralization and degradation of the medical profession and an interruption of the progress of medicine that it was simply appalling. If enacted, it would reduce the profession largely to practising that kind of medicine known as "Lodge Practice." It would have taken away from the individual patient the right to free choice of physicians and have handed over the practice of medicine among 80 per cent. or more of the population to the lowest bidder and tended to reduce the profession to a trade or business. While admitting that the Bill had many objectionable features, Senator Davenport disclaimed responsibility for many of these and insisted on a Compulsory Health Insurance Bill, and asked the medical profession to propose constructive criticism and suggestions such as it believed fair. The hearing showed the strength of the opposition of the united medical profession to the Bill but it also demonstrated the purpose of the powerful proponents of health insurance to persist in the enactment of such a measure. Since the hearing further amendments, showing some effect of their opposition to the bill as it was, were introduced. The bill had failed of passage this year but it seemed to him that the society owed it to itself to make a serious study of the question of Health Insurance this year, and be prepared to make constructive and practical suggestions as to a sane and workable bill. If they did not do so they could not expect to receive very respectful consideration in the future by those who were honest in their belief that compulsory health insurance was one of the measures making for the welfare of the people, and who were bound to use every influence to bring it about. The subject was the most important one now before the society, and should be discussed in a broadgauged way during this session of the House of Delegates.

For several years the Board of Regents of the Educational Department had been endeavoring to have a bill enacted requiring the annual registration of physicians, believing this necessary as a part of the plan to regulate the practice of medicine in this State. There had been opposition in the profession to the principle of annual registration, believing it unnecessary and an abridgment of its constitutional rights, a bothersome nuisance, and in principle wrong, and that it required the physicians themselves to pay the cost of protecting the public against unlicensed, ignorant and unprincipled quackery. There was much truth in this contention. On the other hand, the present law by which County Medical Societies were the prosecutors of illegal and unlicensed practitioners of medicine was entirely inadequate to accomplish its purpose. In the proposed amendment to the Medical Practice Act, it became the duty of the Attorney General to prosecute, and such penalties and fines were provided that it was believed that the State would soon be rid of all persons illegally practising medicine, because convictions could be obtained and would be enforced. The local County Society ceased to be prosecutor, and the State Board of Regents became responsible for the upholding of the law. They might be dubious of the effectiveness of the operation of the act had they not had a concrete example of the working of a similar law in the case of the dental profession. In the case of this sister profession a law practically identical with this new medical practice act had been in operation for two years and had given general satisfaction. A veterinary law of like nature was also meeting with the approval of the members of that profession. In addition to the requirement of annual registration the law provided for an extension of the course of medical study of from four years of seven months each to four years of eight months each. The medical profession was burdened with the necessity of making an annual registration in the case of the narcotic laws, both of the State and of the Federal Government. It was believed that arrangements could be made whereby one registration would take care of the two now required by the narcotic laws and this new one under the medical practice act. It might be that these registrations could be effected through the machinery of the county medical societies, in which case a great deal of objection to these numerous registrations would be removed. The matter was under discussion by the Board of Regents, and a report would probably be made during the meeting of the society. The Council in a meeting held in Albany on February 26, 1919, endorsed the act as proposed by the Education Department, and recommended its introduction into the legislature.

There would be submitted to the House of Delegates a plan for a Bureau of Medical Information. As things stood to-day the organized medical profession was without adequate and accurate information on almost any subject that affected the economic or business side of the profession. On scientific questions they were all interested and tried to be informed. Many of the new laws were socialistic or paternalistic, and if enacted would change fundamentally the present relation of the profession to the public, to the

patient, and to each other. These laws would doubtless, many of them, be a step in real progress and should be welcomed. If we were to share in the benefit that would accrue to all, it was essential that they should be armed with the knowledge and information gleaned from the operation of these laws in other countries or states so that they could assist in their construction, opposing when opposition was needed, but fortified by facts so that they knew what they wanted, why they wanted it, and how to go about to get it. Such a bureau would require an office, executive officer, librarian, and stenographers, and would cost a considerable amount of money annually for its maintenance if it was to be of any value at all. It would be a great clearing house for all kinds of information that should be available not only to the organized profession but to the individual physician. He hoped the members of the society would concur in the recommendations favoring the establishment of such a Bureau of Medical Intelligence. The present Legislative Committee of the Society consisted of a Chairman and the chairmen of all the legislative committees of the county societies, an unwieldy committee of sixty men, which never met in conference, and as a result it was a committee in name only, the actual committee consisting of one man. There was too much work and two much responsibility for any one man, therefore an amendment would be proposed, changing the Legislative Committee, so that it would consist of three members. This was simply a return to the method that had been employed successfully for so many years. Because of the growing importance of economic questions as it affected the medical profession and because the County and State Medical Societies were the official bodies, the County Medical Society should be the most important and attractive medical society in every community. Many cities and towns had a local Academy of Medicine which often met more frequently and was more largely attended than the County Medical Society. He renewed the advice of Dr. Martin Tinker, who, when president of this society, urged the merging of local medical societies into the county society whereby these county societies would be enormously strengthened in every way to the betterment of each individual member. Dr. Halsted presented a supplementary report recommending the appointment of a special committee, to be appointed by the President, to consider the subject of public health insurance and to report to the Council of the Society by next fall so that they would be in a position to act with wisdom on any legislation of this nature which might be brought up next winter.

This report was referred to the reference committee on officer's reports which approved the recommendation.

Report of the Secretary.—Dr. FLOYD M. CRANDALL presented this report which showed that the membership of the State Society on January 1, 1919, was 8,268; on January 1, 1918, it was 8,339. On January 1, 1907, it was 5,857, making an increase during these twelve years of 2,411 members, the membership in the society having increased more rapidly than the accessions to the profession. This report contained reference to the loss the society had sustained in the deaths of Dr. W. Staunton Gleason and Dr. Frank Van Fleet. As an appreciation of Dr. Gleason, Dr. Crandall said he thought nothing could be more fitting that his own words on the death of Dr. Wisner R. Townsend: "Paramount to rules and orders, and rising high above business considerations is the tribute we owe to the memory of our late Secretary, the man, and the physian, Dr. Wisner R. Townsend. Encomiums are meaningless to you, his friends, for it was the little unremembered acts of devotion that bound him to you. His winsome personality and adaptability placed him in close touch with our entire membership. Out of the depths of our appreciation we place this laurel wreath of affection to his memory in the archives of this Society."

In appreciation of Dr. Van Fleet, he said in part: "The death of Dr. Van Fleet, Treasurer of the State Medical Society, has brought sorrow to physicians the length and breadth of the State. His friends were many, for to know him was to be his friend and hold him in honor. One of the most certain guarantees of character is to be held in honor most by those who know one best. This test Dr. Van Fleet fulfilled. He was held in high esteem in his own county, and served its Society up to its highest office. In his profession he stood in the first ranks, and in his specialty was second to none. He was a surgeon in the Eye Department of the Manhattan Eye, Ear and Throat Hospital, Chairman of the Board of Surgeons, and for many years Executive Surgeon. During his last months he devoted much thought and labor to ameliorating the sad condition of soldiers blinded in the fields and trenches of France and Flanders. He had for some time been in failing health, but with heroic spirit continued at his work and died in harness. His was a useful and faithful life. He left a great heritage, the memory of a well-spent life and an upright character, and to his son he left an honorable and untarnished name."

Report of Committee on Publication.—Dr. S. W. S. TOMS of Nyack, submitted in this report, which showed that the *Journal* had been issued regularly, the edition being about the same as 1917. The cost had been slightly less than the preceding year. In order to meet the problems confronting all publishers during the early part of last year, the Directory had published only the data of physicians in New York State, New Jersey, and Connecticut. By omitting the lists of hospitals, dispensaries, societies, examiners in lunacy, board of health notes, etc., they had saved the Society about $550.

Report of Committee on Finance.—Dr. HENRY LYLE WINTER of Cornwall submitted this report. The accounts showed a small deficit, $835, for the year 1918, due to the abnormal conditions which made a decrease in the usual number of new members of over three hundred. Taking the amounts received and expended from 1906 to 1918, there had been an excess of income of $4,121.70.

Report of Committee on Scientific Work.—Dr. PARKER SYMS, of New York, presented this report which outlined the work in connection with the preparation of the scientific program. The policy of the committee had been to maintain as far as possible the Section idea. It was the sense of the Committee that the holding of section meetings in the various specialties was a distinct advance in the method of conducting the meetings of the Society.

Report of Committee on Legislation.—Dr. JAMES F. ROONEY, of Albany, Acting Chairman, submitted this report. He stated that since having assumed the work of this committee on February 27, 1919, the bills introduced into the Legislature might be divided into four classes: 1. Those affecting the medical profession, especially as regards medical education. 2. Those relating to Public Health and administrative Public Health policies. 3. Those relating to licensure of various cults. 4. Those relating to so-called "Social Insurance." In the first class the most important bill was that providing for the annual registration of physicians, which was now in the order of third reading in the Assembly. This bill had the support of the Educational Department of the State of New York and of the Health Department of the State, and if previous experience with a similar bill affecting the dental profession was any criterion, would do more to save the public from imposition by quacks and impostors than any other measure. Several other bills coming under this class either were not reported or were killed in committee. Under the second heading were comprised the bills affecting especially the newly instituted department of narcotic drug control. Upon these bills the medical society took no stand because of the fact that it was unimportant to the profession how this law would be administered; it was purely a matter of administrative State policy. A bill similar to the New York City ordinance, requiring registration by the Department of Health of all proprietary medicines was not reported from committee. A similar fate befell another bill which purported to make the giving and delivering of any narcotic drug to a child under the age of sixteen a felony instead of, as it is at present, a misdemeanor. This bill was supported by the Society but was opposed by the pharmacists, and has not been reported. Under the third heading falls the so-called "Chiropractic Bill," which was defeated in the Judiciary Committee by a vote of eight to four. The most important measure in the fourth group

was the Compulsory Health Insurance Bill. A very subtle and continuous propaganda was being carried on to create in the mind of the people the impression that legislation of this sort was inevitable. In the opinion of the speaker this attitude was not true; the passage of this sort of legislation was not inevitable.. The proponents of this legislation realized that they must pass their legislation at this session, because it was not impossible that the reaction against all forms of socialism and communism, of which this was the second step in the entering wedge, would be utterly rejected by the American people. He felt still convinced that the only attitude for the medical profession to take was that of "no compromise." This did not preclude the taking of proper precautions for the protection of the public and secondarily of the medical profession in the event of this bill's passage. The taking of these precautions should not in any way affect the general attitude of the Society in opposing the legislation on the broad principle of lack of proof, either of its necessity in America or of accomplishment of the purpose which it pretends to accomplish. In a supplementary report Dr. Rooney stated that the Medical Registration bill was defeated by Mr. Ferron, of Syracuse, who was an advocate of the Chiropractic Bill which, since the writing of the report, had been defeated.

Report of Special Committee on the Establishment of a Bureau of Legislative Information.—Dr. GEORGE W. KOSMAK submitted this report, the other members of the committee being Dr. Henry Lyle Winter and Joshua M. Van Cott, which consisted in a scheme for the creation of a Research Bureau of Public Health Legislation. The report pointed out that the ability of most medical men properly to analyze or comprehend the many medical bills emanating from the Legislature was doubtful. This required special training, particularly legal. The lack of effective opposition to inimical legislation was becoming increasingly evident during recent years. The admission also had to be made that the legislature could not be made to feel the weight of the combined medical opinion of the State because there was no well-defined procedure or agency by which physicians could be interested directly either as individuals or through their county societies, nor any satisfactory way by which their sentiments could be transmitted through a central agency to those who should be reached by these opinions. The interests of the profession in this State required that some step be taken to meet the situation. It was believed that a centrally organized bureau, properly equipped and officered, would best meet the demands of the situation. Although a departure from custom, the increasing importance of public health and allied legislation would seem to justify a reform in their previous methods of studying legislation, so that physicians as a class might become better acquainted with the subject matter of proposed legislative enactments which might be often of vital interest to them and could, moreover, make the weight of their opinions felt when necessary. It was believed that a movement of this kind could be appropriately inaugurated by the representative medical societies of the State. Two serious difficulties at once become evident; first, the odium attached to a paid legislative agent or "lobbyist," and, second, the prohibitive expense. The committee believed that both of these objections could be satisfactorily met and a working organization created which would be in position to assume the burden and responsibilities of watching medical legislation for the benefit of the entire profession of the State. It was recommended to have the office of the bureau in the city of New York and preferably in the New York Academy of Medicine. The functions of the bureau were as follows:

"To keep on file a ready reference index of all laws and reference books on laws concerning public health, medical practice and preventive medicine in the civilized world and where they can be obtained. File of important proposed laws in other States of the Union which may have a bearing on bills introduced or to be introduced in the current session of the New York State Legislature. File of bills to be obtained as soon as introduced in the Legislature of New York or Congress, to be promptly studied by the counsel and a brief written on the same for argument at hearings before committees of legislators or the Governor if necessary. In this way those interested in the proposed legislation can easily completely inform themselves of exactly what the law intends, what existing laws are enhanced or violated, and what the experience has been with a similar law in other States or countries. Perfecting machinery for the construction of laws in the interest of public health and preventive medicine and for the repeal of existing inimical laws or sections of laws. Bureau of information concerning existing public health laws available to societies, legislators and others properly interested in the welfare of public health. Press agency for dignified propaganda in the name of the bureau in the interest of proposed public health legislation or in opposition of proposed laws detrimental to public health and preventive medicine. Such other activities within the scope of the bureau as may suggest themselves."

Report of Committee on Medical Economics.—Dr. HENRY LYLE WINTER submitted this report, which stated that the committee had continued to pursue the study of Health Insurance and State Medicine during the past year. It was apparent from the manner in which the health insurance bills were amended by their proponents that the costs of the administration of the medical provisions were under constant consideration, hence the committee had thought it advisable to provide itself with first hand cost data. As the result of information obtained from questionnaires sent out it was the opinion of the committee that the medical provisions of all health insurance bills so far presented failed to provide for proper medical care of the sick and efficient supervision of the public health, and did not safeguard the interests of the medical profession. They advised therefore the continued and united opposition of the society to these measures. In order that the attitude of the society should be most influential a Statewide effort to increase membership was advised. The committee found that the complexity of social conditions incident to the rapid industrial growth through which the country was passing had produced a necessity in some quarters for specific changes in medical practice and the application of public health measures. The proponents of health insurance proposed to meet these conditions through that medium. This committee was satisfied that the desired conditions could not be met by the medical provisions of a health insurance law. They believed that it could be done through the medium of State medicine, which should include the establishment of diagnostic clinics and laboratories at convenient points, and also a system of investigation and correction applied through the medium of the State Health Department or some other central body which would work effectively for the prevention of disease. That some plan satisfactory to the whole profession might be evolved the committee advised the establishment of a Committee on Economics in each county society to cooperate with the State Committee.

Report of Committee on Public Health and Medical Education.—Dr. JOSHUA VAN COTT of Brooklyn submitted this report, which stated that the committee had studied the Davenport Donohue bill for establishing compulsory health insurance in the State of New York and that it was opposed to the bill. It was claimed that the amendments to the bill offered the necessary protection and representation for physicians. But close analysis of the amended portions of the bill they felt did not sustain these contentions. The bill as a whole created a machinery which, in its organization and administration, was under the danger of political influence, and it was difficult to see how, under its provisions, its purpose could be successfully realized. If compulsory health insurance was to become a law, unless the bill were so drawn as to be measurably acceptable to the medical profession of the State of New York, our young men would go elsewhere to study and practise medicine. The time was not yet ripe for such legislation, but when it did arrive some plan should be evolved which would make it possible for self-respecting physicians of the best type to undertake the work and receive adequate compensation for it. The committee approved Assembly Bill 1276, 1693, Int. 1145, introduced by Mr. Kenyon, to amend the Public Health Law in relation to the practice of medicine.

Report of Special Committee to Consider Economic Methods of Caring for the Public Health.—Dr. F. PARK LEWIS of Buffalo submitted this report, which stated

that the purpose of modern medicine was to limit as far as possible all avoidable disease and to restore as quickly as might be the sick to health. All preventive measures and all scientific treatment were based on early and accurate diagnosis. In order to reach an early and accurate diagnosis the services of a group of trained workers was necessary. A most urgent problem, therefore, was to determine how they might be secured. This committee suggested that the remedy would seem to lie in the establishment of numerous easily accessible diagnostic clinics readily available through the medium of the family physician and safeguarding not only the physical welfare of the patient but the economic protection as well of all affected by the arrangement, including the patient, the family physician and the consultants. The proper place for such clinics would seem to be in the public hospitals, which were already equipped for such work and whose staffs could be augmented as necessity requires. It was evident that this would demand a revision of the plan of work as now carried out in nearly every hospital in the country. The subject was one having many sides. It concerned not only the physicians and the people of New York State but those of the whole country. It was recommended, therefore, that the delegates of the New York State Medical Society of the American Medical Association be directed to present this important matter to the house of delegates of the American Medical Association with a request that it be considered by that body in order that some method might be adopted by which group diagnosis should be secured which would be equitable alike to the patient, to the physician, and to the State. All of the foregoing reports containing recommendations were referred to the reference committee.

Report of Special Committee on Drug Addiction.—Dr. EDWARD B. ANGELL submitted this report, in which the conclusion was reached that the present act, which went into effect on February 1, 1919, was less complex and burdensome to the physician, and as it stood to-day less exacting in its requirements than the Federal law. Perhaps for the general practitioner the most annoying requirement of the act was that the order to the manufacturer or wholesale dealer be issued in triplicate on an official blank. The Federal law already required a duplicate order and it did seem a useless sort of tautology to require a physician to write five times for a small package of ¼ gr. tablets of morphine. However, this was an incident to be forgotten. The committee was, furthermore, of the opinion that drug addiction should be treated in a proper institution.

On motion this report was referred to a special committee appointed by the president.

Report of the Counsel.—JAMES TAYLOR LEWIS, Esq., submitted this report, which outlined the work he had done for the society during the past year. It showed that not a single case tried during the year was lost, and not a case was settled. Twenty-one cases had been finally disposed of during the year. Thirty-two new actions were brought during the year. One case, a sponge case, was lost in trial court in 1915. This case was appealed to the Supreme Court, Appellate Division, Second Department, and there the judgment was affirmed. From there the case was appealed to the Court of Appeals of this State, and the judgment originally rendered by the jury was affirmed together with the costs and interest. It was extremely regrettable that our State court of last resort accorded the profession no added information as to what rule should govern, if any, other than that laid down in the case of Pike vs. Honsinger, which had furnished for more than twenty years the exact measure of the doctor's responsibility. Other State courts had furnished the profession valuable suggestions in so-called sponge cases and laid down most important dicta. He knew no more about the responsibility of a nurse, an interne, or the equipment of a hospital, whether it be good or bad, or whether the hospital and not the operator was responsible for miscounts, dirty instruments, or bad equipment leading to an unfortunate result, than he did before this case was taken to the Court of Appeals. The society should be advised that he had been informed that some of the insurance companies had abandoned the defense of doctors because of losses in the trial of their cases. There must be but one explanation of this if it were true, and that was that when a jury learned that a doctor was indemnified it was very willing to bring a verdict which held the insurance company responsible, but incidentally ruined the doctor's reputation. A doctor's reputation seemed to be a matter of small moment to a jury when they knew that an insurance company was really the defendant. The State Dental Society had not made progress in the defense of its members, and he felt convinced that their efforts had been hampered by the importunities of insurance companies' runners who had interfered with the society's honest effort. Every member of the society had heard him repeatedly express his feeling with reference to physicians taking insurance policies indemnifying them against loss for negligence. These policies were a very serious menace. The doctors who held them must remember that the State Society might not defend them, and they must choose between the attorney for the insurance company and the wholehearted defense of the State Medical Society should they be sued. Since his last report the Whitney bill had been passed. He did not believe that one doctor in a hundred was familiar with this law, and he was also convinced that 50 per cent. of the profession violated the law every day. He had thought that the Harrison law was unconstitutional, but of the eight Federal Supreme Court judges five had declared it constitutional, while three declared it unconstitutional. He thought the Whitney bill was unconstitutional; but whether constitutional or not it had been enacted and must be obeyed. Physicians would have to study these two laws together and try to comply with them. A record must be kept of every 1/16 grain of morphine prescribed. The law requiring doctors to register every case of contagious disease or venereal disease must be watched. Every member should have these laws before him lest he be charged with a crime in failing to register names. He believed this law was also unconstitutional.

Address on Health Insurance.—Senator DAVENPORT delivered this address, in which he said that he would like to have all parties interested in health insurance bring to the discussion of the subject the facts so that they might know just what should be done in the matter. It had always been his policy, he said, to bring a controversy out into the open, for he thought that very often when that was done the heat passed off and the light began to appear. He would not be in favor of compulsory health insurance if he did not believe that it would benefit every group concerned, the employer, the employee, and the physician. He told the history of the bill and of his endeavor to get suggestions from all parties concerned. Politically he said he was an anti-Bolshevist liberal of the Roosevelt style. He believed that the greatest menace of the present time came from Moscow; if necessary that menace should be dealt with by the machine gun, but there was another way of dealing with it, and that was by doing away with the sources that gave rise to Bolshevism by trying to make this world a better and a happier place in which to live. The greatest danger from Bolshevism was not from the standpoint of disorder, for that could be dealt with by force, but from the Bolshevist philosophy, the idea that the man of genius, the man of initiative, the inventor, were worth nothing. He was interested in destroying the Bolshevist philosophy, and he saw in health insurances a point at which capital and labor could come together. It was not wise to oppose all liberalism; one must learn to distinguish between liberalism and Bolshevism. The best barrier to Bolshevism was not capital, but a great, strong contented working class, especially the higher layers of the working class. He had found a strong sentiment in favor of some form of protection against sickness among the laboring classes. It seemed to him that the present treatment of illness was too individualistic; people were too apt to neglect consulting a doctor when they should do so or to put off consulting him much longer than they should do. While he did not feel that the blame could be laid at the door of the medical profession, the fact remained that the people were not getting the most perfect treatment under the individualistic system. Evidence of this was furnished by the large number of men rejected by the draft boards; about 40 per cent. of the men between the ages

of twenty-one and thirty-one coming before the draft boards were found unfit for service. Investigation had shown that there was a vast amount of illness among the industrial population that was not adequately cared for. There was here a great amount of work to be done. There were two ways of doing it, either by reorganizing and extending our health department service or by some form of health insurance. At the present time the burden of illness fell on certain persons, or certain families, and his idea was to distribute this burden. Illness was much like fire or accident in that it was a matter of chance and the burden could be distributed just as it was in fire or accident. The old theory of the survival of the fittest had been outgrown and we had found that it was by developing the social processes that the finest kind of initiative was developed. He thought that health insurance would better the condition of the medical profession and the plan would leave the profession in a very flexible position. A family would select its own physician. The fund was to pay the doctor a standard fee and if the fee of any individual physician was above that standard the family employing the physician was to pay the difference between the standard fee and the one asked by that particular physician. He referred to the report of the Insurance Acts Committee of the British Medical Association as showing how compulsory health insurance had worked out in England, where the attitude of the opponents of compulsory health insurance had entirely changed during the past few years. He presented arguments to show how compulsory health insurance would aid in sickness prevention, and said that he was especially anxious that the medical profession should be associated with the development of a system of health insurance, for he felt that physicians would be better off under a properly organized system of compulsory health insurance than they were under existing conditions, both as regarded prestige and finances. He asked that in this work he might have the cooperation of a group of men from the Medical Society of the State of New York.

Tuesday, May 6, 1919.

Election of Officers.—The following officers were elected for the ensuing year: *President*, Dr. Grant C. Madill of Ogdensburg; *First Vice-President*, Dr. Dwight H. Murray of Syracuse; *Second Vice-President*, Dr. William M. Dunning of New York; *Third Vice-President*, Dr. George W. Cottis of Jamestown; *Secretary*, Dr. Floyd M. Crandall of New York; *Assistant Secretary*, Dr. Edward Livingston Hunt of New York; *Treasurer*, Dr. Harlow Brooks of New York; *Assistant Treasurer*, Dr. Thomas C. Chalmers of Forest Hills, Queens, N. Y.; *Chairman of Committee on Scientific Work*, Dr. Parker Syms of New York; *Chairman of Committee on Public Health and Medical Education*, Dr. Joshua M. Van Cott of Brooklyn; *Chairman of Committee on Legislation*, Dr. J. Richard Kevin of Brooklyn; *Chairman of Committee on Medical Economics*, Dr. Henry Lyle Winter of Cornwall; *Chairman of Committee on Medical Research*, Dr. Frederic E. Sondern of New York; *Committee on Prize Essays*, Dr. Albert Vander Veer of Albany, Dr. Edward D. Fisher of New York, and Dr. Charles G. Stockton of Buffalo; *Delegates to the American Medical Association to serve two years*, Drs. James F. Rooney of Albany, William Francis Campbell of Brooklyn, Thomas H. Halsted of Syracuse, George D. Stewart of New York, Floyd M. Crandall of New York, and E. Eliot Harris of New York; *Alternates*, Drs. William S. Gottheil of New York, James F. McKernon of New York, Sylvester J. McNamara of Brooklyn, G. W. Wende of Buffalo, T. C. Chalmers of Queens, N. Y., and G. S. Towne of Saratoga Springs.

It was voted to hold the next annual meeting in New York City, at a date to be decided upon by the Council.

Amendments to Constitution and By-Laws.—An amendment of Article IV of the Constitution, submitted at the annual meeting in 1918, which provided for representation of the society in the House of Delegates on the basis of actual active membership of the county societies instead of by assembly districts, was brought up for consideration. The House resolved itself into a committee of the whole to debate the proposed amendment and after lengthy discussion reported adversely on the amendment. Other amendments adopted provided that the annual meetings of the society should be held the first week in May; that the Committee on Legislation should consist of a chairman and two other members; that each district-branch might adopt a constitution and by-laws provided that such was first approved by the Council of the Society, except that it should have a free hand in dealing with members addicted to practices considered not strictly professional in their method of practice.

Resolutions.—Among the resolutions and recommendations introduced, upon which action was delayed until the next meeting, was a recommendation by Dr. Dwight H. Murray that the House of Delegates amend the Constitution and By-Laws so as to provide for the election of a speaker and vice-speaker for the House and that a section be added to the Constitution defining their duties. Dr. James F. Rooney introduced resolutions approving of a survey of the State to be made by the State Department of Health and the State Industrial Commission, with the object of ascertaining the conditions under which the industrial population of the State were living and working, having as its purpose the improvement of such conditions. This resolution was adopted. Dr. Malcolm C. Rose introduced resolutions providing for the establishment of a Bureau of Location in the office of the State Society, which would be helpful to general practitioners and specialists who were looking for locations and for communities in need of physicians. It had happened during the past year that there were communities which were without medical service. Such a step would also be an advantage to the Society in increasing its membership, since physicians who were assisted in selecting a location would be glad to lend their support to the Society. Provision was also made for the cooperation of the county societies in the working out of such a plan. These resolutions were referred to the Council for action. Resolutions instructing the delegates to the American Medical Association to express the sentiment of the Society as unqualifiedly opposed to compulsory health insurance were adopted. A special committee to consider the question of compulsory health insurance was appointed, which was to report to a special meeting of the House of Delegates to be convened in the fall on a date to be decided upon by the Council. The Erie County Medical Society presented resolutions favoring the establishment of a group of diagnostic clinics throughout the State if adequate and continuous control of their organization and management by the medical profession could be fully assured, as they recognized the necessity of further action which would improve the care of the sick and further the prevention of disease. These resolutions were referred to the Council.

OPENING MEETING.

Tuesday Evening, May 6, 1919.

THE PRESIDENT, DR. THOMAS H. HALSTED IN THE CHAIR.

Invocation.—The Rev. Dr. McGUINNIS of Syracuse opened the meeting with an invocation.

Address of Welcome.—Dr. DWIGHT H. MURRAY of Syracuse, chairman of the Committee on Arrangements, said that it was with pride that the local branch of the Medical Society of the State of New York welcomed the parent organization. This meeting was of especial significance because it was the first Victory Meeting of the Society, when it took pleasure in welcoming home those of its members who had been in the service of their country. The war had given them another opportunity to prove that the medical profession, with little or no thought for itself, always stood ready to give its services for the nation or the individual.

Address of Welcome.—Hon. WALTER R. STONE, Mayor of the City of Syracuse, welcomed the members and to express the sentiment of the Society as unqualifiedly guests of the Society in behalf of Syracuse. He said that the City of Syracuse was impressed with the importance of having the Medical Society of New York meet here. They were deeply impressed with the fact that the scientific discussions that would take place would be of inestimable benefit both to the medical pro-

fession of the city and to the people. The people were awake to the value of the work that the medical profession was doing, as was demonstrated by the fact that they had recently established a Department of Health in the City of Syracuse instead of having the public health work cared for by other city department.

President's Address.—Dr. THOMAS H. HALSTED delivered this address, in which he stated that at the time of signing the armistice 30,591, or 37 per cent., of the effective active practitioners of this country had given up their private practice and had left their homes in war service. In addition to these, 21,616 doctors were serving on medical examining boards and advisory boards, giving many hours daily or weekly to the important service of selecting and classifying the drafted men. If the war had continued another year, there would have been left at home to care for the civilian population less than a third of the usual number of doctors, and those doing this home work were either above sixty years of age or physically unable to stand the strain of military life. Had the medical profession of the world stood the test of efficiency in service when the great opportunity came to prove its worth in saving lives, shortening sickness, alleviating suffering, preserving limbs, returning the soldier to his home in as good condition physically as the ravages of shell, bullet, bayonet, mental strain, and infectious disease would permit? In answering this question Dr. Halsted said that the great causes of death among the wounded were infection and sepsis due to the streptococcus. Antitoxin against tetanus had saved the lives of thousands of wounded. The discovery of Dakin of the value of hypochlorite of soda for the killing of the organisms of sepsis and of Carrel's genius in devising the means of using Dakin's discovery marked a great advance in the treatment of septic wounds. This method, together with débridement, won the battle of medical science against sepsis, provided the wounds were brought out of shell hole and "No Man's Land" in time. It was only toward the end of the war that a serum was discovered that was effective against that horrible complication of deeply infected wounds, gas gangrene. The marvellous advance in lung, brain, abdominal, and joint surgery, made possible largely through the *x*-ray, saved thousands of lives which would have been hopeless in any previous war. The wonderful surgery of the genius Morestin, who literally worked himself to death in Paris, dying a few weeks ago at the age of forty-six years, and of other surgeons skilled in plastic surgery of the face, saved from a living hell any number of the victims of those most frightfully disfiguring of all war wounds. The transplantation of living tissue by Carrel and the still more advanced work of Nageotte and Sencert, whereby dead but sterile connective tissue, nerve, artery, tendon, etc., was transplanted successfully from animal to the living subject, opened a field of surgery the end of which almost staggered the imagination. That the percentage of deaths from battle casualties was not greater was largely due to the fact that medical science in the lager sense salvaged the wounded and saved them to their countries. More than eighteen million wounded soldiers survived their wounds, many of whom would not have been saved but for the combined victory of the surgeon and the medical laboratory and research worker. It was probably no exaggeration to say that the new surgery employed in the treatment of the wounded reduced the numbers of those who would have died, under the conditions of any previous war, by seven and three-quarters millions, the estimated number of soldiers who lost their lives in this war. Dr. Halsted cited statistics showing the extent to which deaths from disease had depleted the ranks of the armies of the different countries in modern wars. The Canadian Army had lost 94 per cent. of its dead soldiers from battle casualties and less than 6 per cent. from disease. That the United States did not have a record approaching this was due to the epidemic of influenza, and had the war continued for a year or two our record would probably have approached that of the Canadian Army. Such a record stood out in bold contrast to that of the Spanish-American War, during which typhoid fever caused 86 per cent. of the total deaths of the war. In a trench warfare typhoid fever and cholera would, under former conditions, have found most favorable elements for their development had not vaccination against these diseases, together with the efficiency of the Sanitary Department in protecting the drinking water of the army, been successful in preventing them. The discovery of the method of transmission of trench fever, which was causing more morbidity than any other disease, made the prevention of this disease a simple matter. This disease was rapidly being mastered at the time of the signing of the armistice. Another of the most serious causes of hospitalization and consequent reduction of man power in all the armies, as in previous wars, had arisen from venereal disease. So efficient was the prophylaxis against these diseases that they prevailed in the army to a much less extent than in civil life, being less than 1 per cent. in our army, as against that in other armies where this prophylaxis was not taken. Many other triumphs of medical science might be enumerated, but these served to show what surgical skill, sanitary science, and high-grade medical personnel, coupled together and operating under marvellous organization, saved, from what would have been certain death in any previous war, more wounded and sick soldiers than were killed in battle or died from their wounds and their diseases. It required little imagination to believe that 10,000,000 people, chiefly the best youth in the world, were alive to-day who would have been buried in the trenches in Europe but for the scientific progress in medical, surgical, and sanitary science of the past twenty-five years as applied to this war. The most valuable asset of any nation was its people. A celebrated actuary estimated the average capital value of a man in the six countries, United States, Great Britain, France, Germany, Russia, and Austria at $2,892. On this basis $28,920,000,000 worth of human life had been saved out of the wreck of the war by the late developments of medical science alone, a saving to the world almost equal to the total cost of the war to France or Great Britain and three-fourths that expended by Germany. The mere statement of such facts as these was sufficient to prove the wisdom of taking every precaution to care for the welfare of that most valuable resource of national wealth, human life. Yet, except in time of war, when the human unit was so essential, the nation took, as a government, comparatively little interest in this item of its wealth. It would seem that one of the first results of the coming readjustment in national government would be the addition to the great departments of a department of health with a seat in the Cabinet of the President. The duties of such a secretary would be, in a large way, to coordinate in it the various interests that were now scattered, to supervise national medical education, promote scientific medical and animal research and investigation, to guard the country against the increase and spread of endemic diseases, and doing those things which would tend to preserve health, prolong life, prevent disease and decay, safeguard child welfare, and promote the productive efficiency as well as the happiness of this valuable national human asset. Dr. Halsted made a plea for the standardization of medical education in the United States and said that until there was standardization there could not be reciprocal exchange of license and privilege among the states as there should be. The first part of the medical student's course was spent in the so-called scientific branches, anatomy, physiology, chemistry, bacteriology, pathology, and laboratory subjects taught by full time professional teachers, trained pedagogues, men who were specialists in their lines, and the result was satisfactory alike to the student and teacher and the subjects taught. It was in these subjects and by these men that the marvellous advances in scientific medicine had occurred, and it was to them most largely that the huge saving in life in the present war was more or less directly due. It was in the latter half of the medical course that failure in the medical course was most apparent. This was because of the system of volunteers and unsalaried teaching in the clinical subjects by men actively engaged in practice and selected, not always, with regard to their peculiar fitness and qualification for the chair. This volunteer system was apparently a good way of getting clinical teaching by medical colleges and universities for nothing, because the best service was not being given or received. This system was absolutely wrong. It was time for the medical

profession to cease carrying the burden which had become too great for it with all the modern advances and requirements. The clinical half of a medical course should be put on the university basis, like the first half, and when that was done there would be as great progress made in clinical medicine as had been made in laboratory medicine. The hospital would become the clinical laboratory. Teachers would be chosen because of their special qualifications, and if their work was unsatisfactory or inefficient they would be replaced. It was within the truth to say that no man in this country, or perhaps in the world, had ever seen in his own lifetime such reward for money well invested as John D. Rockefeller, who through the scientific labors of medical scientists working in the Rockefeller Institute in New York, had made such discoveries in the causation and treatment of disease that literally millions of men in the world owed their lives and health to investigation conducted in that medical research laboratory.

Oration. The Doctor and the Changing Order.—George B. Vincent, president of the Rockefeller Foundation, delivered an address in which he said, in part, that he was not a Doctor of Medicine, but a Doctor of Philosophy, so he hoped they would have forbearance with him if not patronage for him if he diverted their minds from exacting and scientific pursuits to a little philosophy. He dwelt in humorous vein on the power of a popular phrase as a substitute for thinking, and of the influence of phrases in moulding the philosophy of a people. Even a phraseology which no one could understand had its influence. The legal profession had a bewildering phraseology which no one but a lawyer could understand and even the medical profession could not prove an alibi; it had many phrases ending in "itis," some of which were not only incomprehensible and bewildering, but even fatal. He went on to show that in the phrases of a people one could find their crystallized philosophy of life. In the pioneer days of our national history were found such phrases as "paddle your own canoe," "look out for number one," "let every tub stand on its own bottom," "America, the land of opportunity." These were the phrases that marked the individualistic philosophy of life where everyone was for himself. In that period the "jack of all trades" was exalted and there was no place in a community for the man who knew more than his fellows (in fact, it was still an indivious distinction to know more than someone else). In those days there were no organized charities. If a man was in need his neighbors took it as a matter of course that they should help him. If there was sickness in a family the neighbors came in and nursed the patient and the patient often survived. Under the conditions of those days the individualistic philosophy had its place and worked, but there came a time when the country was no longer all frontier, when the fact that a man failed to get along was not due to a lack of effort on his own part, but because of industrial and market conditions. There came a time when we needed a new set of phrases and we began to hear such phrases as "social organization," "interdependence," "social justice," "brotherhood," "social welfare" and finally "service," a phrase so overworked that one almost hated to use it, because this coin had been handled until it was worn so smooth that one could scarcely see the inscription. People began to ask what these phrases meant, until finally they had come into our national life. Dr. Vincent alluded to conditions in colonial times to show that at that time the people of one section of the country did not understand those of other sections, and showed how we had developed a national solidarity which we did not fully understand until it was revealed to us by the war. He said he had not mentioned reconstruction because he believed more in evolution and in growth than in the sudden making over of society. He believed that everything that happened was the outcome of what had gone before. One who had studied the situation could have seen the French Revolution coming on for a hundred years before it actually occurred. The occurrence of the recent war was inevitable from the time Germany took Alsace-Lorraine. There was no unexplained sudden force through which society was developing, but a constant change of relationships; religious, social, economic changes had been going on for a long time and the war had only accelerated them. One of the great things the war had done was to reveal America to herself. We had been afraid that in case of war the foreign people that were here would side with the countries from which they had come. The war had shown us the solidarity of the American people. We had also discovered much illiteracy. We found, too, that many people speaking foreign languages were isolated from those among whom they were living. As to the relation of the medical profession to the changing conditions of the present time, they should prepare to adapt themselves to these changed social conditions. There were three ways of looking at the present situation. The first of these was an attitude of alarm and a conviction that things were worse than they were in earlier years. A second way was to see a possible complete social transformation which was to be easily brought about. He could not quite sympathize with this view, but thought the third way of appraising the situation, namely, the Greek golden mean, was perhaps the most rational. We should go loyally and courageously forward meeting the new situation with a new philosophy and new phrases. The doctor faced an entirely new situation from that of ten years ago. New knowledge and new discoveries had accumulated so rapidly that it was impossible for any one man to keep up with them. Specialism was the only solution. The physician was becoming less and less able to perform his work efficiently, independently. The cooperative clinic was already being operated successfully. A maternity clinic in Boston was so conducted that the mother received prenatal care, medical service at the time of the birth of the child, and after care, all for an inclusive fee. There were also the infant welfare, tuberculosis and venereal clinics. As to health insurance Dr. Vincent said that his mind was open. He spoke hopefully of the possibility of developing some plan that would protect the industrial population against pauperism and social dependence and which would preserve their dignity and enable them to maintain their status in the democracy. It would be necessary to learn to conform ourselves to new social ideals in order to perform our function to society and to be a part of the common life. In closing, Dr. Vincent congratulated the medical profession on its achievements in the past and described in eloquent terms the vista of service that was opening up before them.

(*To be continued.*)

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Virginia State Board of Medical Examiners.

Richmond, June 18-21, 1918.

(*Continued from page* 718.)

THEORY AND PRACTICE OF MEDICINE.

1. Describe a typical case of measles, giving periods of incubation and contagion, symptoms, complications, and treatment.
2. Give clinical picture of chronic gastric ulcer.
3. Discuss the subject of asthma from standpoint of etiology and treatment.
4. Give clinical symptoms and physical signs of chronic cardiac dilatation.
5. Name the two varieties of jaundice and give two examples of each variety.
6. Define monoplegia, paraplegia, ataxia, tic (simple.)
7. Diagnosis, course, prognosis, and therapeutics of acne vulgaris.
8. Define obesity and give in detail treatment of a case.
9. Name the three clinical forms of myxedema.
10. Treatment of acute nephritis.

EMBRYOLOGY AND OBSTETRICS.

1. What are the functions of the corpus luteum?
2. Describe the embedding of the ovum in the uterine mucous membrane.
3. Give four most valuable signs of pregnancy at the sixth or eighth week.
4. Give the functions of the liquor amnii.

5. Give the proper management of a normal case of labor from beginning to end.
6. How would you know that the relations between the child's head and the mother's pelvis were normal?
7. Give the normal mechanism of the expulsion of the placenta.
8. Give three causes of retained placenta.
9. Make a differential diagnosis between caput succedaneum and cephalhematoma.
10. How does rickets cause a flat pelvis?

ANSWERS.

THEORY AND PRACTICE OF MEDICINE.

1. MEASLES.—*Symptoms:* "After an incubation period of from ten to fourteen days the disease is manifested by a chill or chilliness, fever ranging from 101° to 102° F., muscular soreness, headache, and intense nasal, pharyngeal, and laryngeal catarrh. There are present also intolerance to light, redness and watering of the eyes, sneezing, and coughing. On the second day the fever remits to rise again on the fourth day, when an eruption of small, dark red, velvety papules arranged in crescentic groups appears on the face and soon spreads over the entire body. The catarrhal symptoms still persist. The eruption is attended by itching and more or less burning, and about the ninth day begins to fade and disappear entirely by bran-like desquamation. All the symptoms then gradually ameliorate. Koplik's spots (a peculiar eruption consisting of small, irregular spots, of a bright red color, with a bluish-white center, which appear on the mucous membrane of the lips and cheeks on the first day of invasion) are said to be pathognomonic.

"*Complications:* Catarrhal pneumonia and gastro-enteritis; as sequels may be mentioned tonsillitis, tuberculosis, ophthalmia, and cancrum oris. With regard to *contagion:* A child who has been exposed to infection should not be allowed to go to school till sixteen days have elapsed since last exposure; one who has had measles should not be allowed to return to school till one month after the onset of the symptoms and if there are no discharges and no sequelæ.

"*Treatment:* Isolation, rest in bed, and protection from drafts and from bright light are necessary from the onset of the disease. It is often desirable to give a diaphoretic mixture. The bowels should be kept regular by means of some mild laxative. The diet should be semisolid. Mild cases require no medicines. Cool sponging or the following will reduce the temperature when it becomes alarmingly high:

℞ Tinct. aconiti.....mxij to iv
Spts. ætheris nitrosi.....mxx to xv
Liq. potas. citrat. q. s. ad f 3j

M. S.—Every two hours.

"Daily inunction of cold cream, cocoa-butter, eucalyptol in petrolatum, and similar oily substances will serve to relieve the itching of the eruption. Camphorated oil rubbed on the chest and applied to the nose and neck aids in lessening the catarrhal symptoms."—(Hughes' *Practice of Medicine.*)

2. *Gastric ulcer* is generally caused by injury or bacteria, is most apt to occur between the ages of twenty and forty-five; after eating there is pain localized in the stomach, vomiting occurs soon after eating, hematemesis is common, there is localized tenderness over the stomach, and examination of the gastric contents shows an excess of free HCl.

3. *Asthma* is a paroxysmal expiratory dyspnea. It is supposed to be due to a diminution in the caliber of the smaller bronchial tubes; the cause is unsettled. It generally comes on suddenly at night; patient sits at open window or seeks the air; expiratory efforts are violent; there is wheezing, pale or livid face, anxious expression. Speech is impossible, pulse small and feeble, may last from a few minutes to several hours. Never fatal by itself.

Asthma may occur as a symptom in cases of chronic nephritis (*renal asthma*), or in chronic heart disease (*cardiac asthma*); it may also be caused by the action of the pollen of certain grasses or plants on a particularly sensitive respiratory mucous membrane (*hay asthma*); certain irritants may also cause the condition (*bronchial asthma*).

Treatment of hay asthma: Any existing nasal trouble must be found and removed or otherwise treated; a change of climate is often beneficial, a sea voyage or a sojourn in a mountainous district being of service; tonics, such as strychnine, quinine, or arsenic, should be administered before and during the attack; the eyes may be washed with a solution of boric acid (about 1:50); the application of Dobell's solution in the form of a spray or of adrenalin solution (1:5000) on pledgets of cotton has also been recommended. Some have also advocated the treatment by antitoxic serum or pollantin.

Other remedies of asthma include emetics, the nitrites, iodide of potassium, belladonna and stramonium, pilocarpine and adrenalin.

4. CARDIAC DILATATION.—"*Inspection* detects enlargement and distention of the superficial veins and an indistinct, often wavy and diffused, cardiac impulse. If tricuspid regurgitation is present, jugular pulsation will be observed. *Palpation* confirms inspection; the impulse is feeble, irregular, and heaving. *Percussion* serves to determine extension of the area of cardiac dullness transversely, and especially toward the right side. *Auscultation* in the presence of valvular lesions reveals characteristic murmurs. If there are no valvular lesions the cardiac sounds are weaker than normal and the first sound is sharper in quality than usual."—(Hughes' *Practice of Medicine.*)

5. VARIETIES OF JAUNDICE.—I. *Obstructive:* (a) Due to foreign bodies within the bile-ducts; (b) due to stricture or obliteration of the duct. II. *Non-Obstructive:* (a) Due to specific fevers; (b) due to poisons.

6. *Monoplegia* is paralysis of one limb only.
Paraplegia is paralysis of the lower extremities.
Ataxia is lack of coordination in muscular action.
Tic is a twitching or spasm of one or more muscles.

7. *Acne vulgaris* is an inflammatory disease of the sebaceous glands characterized by papules and pustules, and usually situated on the face or back. There is an aggregation of small papules, pustules, and comedones about the face, chest, and shoulders. Pustules or papules predominate according as the disease is acute or chronic. New lesions develop as the old disappear, so that the disease usually runs a protracted course. Subjective phenomena are absent. The distribution, the chronic character of the affection, the involvement of the sebaceous glands, and the association with comedones are the diagnostic features which separate acne from all other affections. The disease is curable, but is rebellious to treatment and prone to relapse. The general health must be improved. The diet should be nutritious, but easily assimilable; rich food must be prohibited. Constipation should be relieved by mild laxatives. In the anemic and debilitated, iron, quinine, strychnine, and cod liver oil are useful remedies. The special drugs which have been recommended are arsenic and calx sulphurata. Arsenic is best suited to the sluggish indurated forms; the calx sulphurata (1/10 to 1/6 grain four times daily) to the pustular variety. Vaccine treatment, especially the conjoint use of the *Bacillus acne* and the *Staphylococcus albus*, is sometimes useful. In the acute form mild applications should be employed, like the following calamine lotion:

℞ Pulveris zinci oxidi.....3iij
Pulveris calaminæ.....3ij
Glycerini f3j
Aquæ calcis.....f3vj.—M.

In chronic cases the sebaceous plugs should be removed by a watch-key and the pustules incised. Thorough washing with very hot water and green soap is also advisable. The best local remedies are sulphur, mercury, and resorcin.—(From Stevens' *Practice of Medicine.*)

8. OBESITY is a disorder of metabolism characterized by the excessive deposition of fat in the tissues. *Treatment:* "The essence of successful treatment consists in bringing the diet within the requirements of the body as regards heat and energy, and in promoting oxidation and the destruction of fat by carefully regulated and graduated exercise, massage, and baths—all of which must be carefully supervised on account of the frequency of associated cardiac weakness. There are several systems of dietetic regulation, of which

the best known are Ebstein's, Oertel's, von Noorden's, and Banting's (for details of which one may refer to special treatises). In general, however, the amount of food should be reduced, especially the starches and sugars; the fluid intake should be greatly restricted, and the small amount (two to three pints daily) allowed should be taken preferably two hours after meals than with food; alcohol should be prohibited in most cases. Care should be taken to see that the nitrogen output does not exceed the intake, since this (destruction of the body protein) is answerable for most of the weakness that attends many 'cures.' Medicinal treatment is of secondary importance; a weak heart sometimes has to be stimulated, general weakness suggests the use of tonics, anemia requires the use of iron, etc. Thyroid extract is sometimes of service, but it must be employed with caution, since it leads to breaking down of the body protein as well as fat, and may induce thyroidism in those ill able to withstand its effects."—(Kelly's *Practice of Medicine.*)

9. *The three clinical forms of myxedema* are: (1) Myxedema of infants or children—cretinism; (2) spontaneous myxedema of adults; (3) post-operative myxedema.

10. *Treatment of acute nephritis:* "The patient should be placed at rest in bed until all the symptoms have disappeared. A strictly milk diet is most suitable, but if the depression and weakness are marked, animal broths, and even oysters may be allowed. Tea, coffee, beef-tea extracts, and stimulants should be interdicted. Water or cream of tartar lemonade may be freely used for its diuretic effect. Dry cups should be applied over the kidneys, followed by digitalis or jaborandi poultices, using equal parts of flaxseed and the leaves of digitalis or jaborandi. The bowels should be kept freely opened by means of the saline cathartics, compound jalap powder, ʒi, in water before breakfast, or elaterium, gr. 1/6, repeated as the occasion requires. Combined with these procedures there should be free sweating or diaphoresis. This is best obtained by the use of the hot-air bath, the hot pack, or the wet sheet and blanket bath, stimulating the peripheral circulation after free sweating has occurred by rubbing with alcohol and water. Drugs may be administered coincidently to aid the sweating process. Spirit of nitrous ether, ♏v to xxx, fluidextract of pilocarpine ♏v to xxx, every three or four hours, pilocarpine hydrochloride, gr. 1/6, hypodermically, as the occasion requires, or the wine of ipecac, ♏i to iii, every half-hour may be used for this purpose. Diuretics, such as digitalis, digitalin, gr. 1/100, citrated caffeine, gr. ii to iv, or sparteine sulphate, gr. ⅓ to ½, should be employed. The onset of uremia calls for special treatment. As soon as the blood disappears from the urine some preparation of iron, preferably Basham's mixture, should be administered until the health is entirely restored. The addition of 1 minim of spirit of nitroglycerin to each dose of Basham's mixture increases its efficiency."—(Hughes' *Practice of Medicine.*)

EMBRYOLOGY AND OBSTETRICS.

1. *Functions of the corpus luteum:* During pregnancy it is concerned in the formation of the uterine decidua and the fixation of the fertilized ovum to the wall of the uterus; it is also concerned in the development of the mammary gland and the secretion of milk.

2. *Embedding of the ovum in the uterine mucous membrane:* "The generally accepted view is that the ovum penetrates the mucosa like a parasite through an opening which it makes for itself. The maternal tissues are probably dissolved by the action of ferments secreted by the trophoderm. The ferments affect not only the epithelium but the connective tissue and endothelium of the bloodvessels of the stroma. The cavity thus formed in the mucous membrane of the uterus therefore contains the blastocyst and a large amount of maternal blood which has escaped from the invaded vessels. The invasion of the maternal bloodvessels by the trophoderm results in the essential character of a placenta of the hemochorealis type, namely, that the superficial embryonic tissue (chorionic ectoderm, trophoderm) comes in direct contact with the maternal blood. Implantation usually occurs either on the posterior or anterior wall of the uterus and determines the situation of the placenta. It probably does not take place in a gland but between glands. The cause of penetration of the uterine mucosa by the ovum remains undetermined. It is assumed, however, that ameboid activity of the superficial cells of the trophoderm is at least one of the prime factors."—(Cragin's *Obstetrics.*)

3. Pregnancy cannot be diagnosed at the sixth or eighth week. The four most valuable signs at this time are: Cessation of menstruation, morning vomiting, changes in the breasts (enlargement, firmer, and more distended to touch, increased pigmentation and elevation of primary areola, and enlargement of Montgomery's tubercles), and softening of the cervix.

4. Functions of the Liquor Amnii.—(*a*) *During pregnancy:* (1) As a protection to the fetus against pressure and shocks from without. (2) As a protection to the uterus from excessive fetal movements. (3) It distends the uterus and thus allows for the growth and movements of the fetus. (4) It receives the excretions of the fetus. (5) It surrounds the fetus with a medium of equable temperature, and serves to prevent loss of heat. (6) It prevents the formation of adhesions between the fetus and the walls of the amniotic sac. (7) It has been supposed, by some, to afford some slight nutrition to the fetus. (*b*) *During labor:* It acts as a fluid wedge, and dilates the *os uteri* and the cervix; it also slightly lubricates the parts.

5. *The patient* should receive a full bath before labor begins and all bed clothing and personal clothing should be clean. If there are any pathological discharges from the genitals, the vagina should be thoroughly scrubbed with tincture of green soap and hot water, followed by a mercuric chloride douche (1:2000); this followed by a douche of sterile water. The physician's hands should be scrubbed for ten minutes with tincture of green soap and hot water, followed by alcohol, and immersion in mercuric chloride (1:1000). All instruments should be boiled for ten minutes or immersed in mercuric chloride (1:1000) for half an hour. Examinations should be made when necessary to determine the position, presentation, size of fetus, etc.

During the first stage a rectal enema of soapsuds with turpentine (ʒi) should be given, and when the os is dilated to the size of a silver dollar, the patient should be placed in bed, lying upon the side toward which the fetal back looks. If the pain is severe, chloral hydrate (gr. 15) may be given every half-hour for three doses.

During the second stage examinations should be made only when necessary. In multiparæ, the membranes may be ruptured with the finger or with some aseptic instrument. Care should be taken not to injure the child's scalp or the lower uterine segment. The pain may require the administration of chloroform or ether, but not to the extent of complete anesthesia. The expulsive force of the abdominal walls may be increased by directing the patient to pull upon a sheet firmly secured to the foot of the bed. Attempts may be made to prevent the laceration of the perineum by making firm backward and upward pressure against the occiput during the pains; by restraining voluntary expulsive efforts during the pains; and by securing expulsion of the head between the pains. The head should be supported when born; the eyes should be cleansed with sterile water; and if the cord is coiled about the neck, it should be loosened or slipped over the head. Delay in delivery of the shoulders may be overcome by stimulating the uterus by friction through the abdominal wall or traction. The cord is ligated and cut when pulsation has ceased, and the child is placed by the mother's side with its face turned away from the maternal discharges.

During the third stage ʒi of fluidextract of ergot is administered and irritation of the uterus by friction through the abdominal wall is practised for ten to fifteen minutes. If the placenta is not expelled by this time, the uterus is firmly grasped between the thumb and four fingers and compressed. Firm pressure is then made from above downward and backward in the direction of the pelvic canal. This usually causes delivery of the placenta. A vulvar pad of salicylated cotton and carbolized gauze and an abdominal pad and binder are then applied.—(*Pocket Cyclopedia.*)

6. If the patient is of normal stature, is not lame, does not give evidence of rickets or other bone disease, does not have a pendulous abdomen, and pelvimetry demonstrates normal measurements, it may be inferred

that the relations between child's head and the mother's pelvis are normal. Further, if internal examination shows that the fetal head is engaged in the pelvic brim at the first stage of labor, and that it has a tendency to descend with successive uterine contractions and pains, this inference is strengthened.

7. *Expulsion of the placenta:* "In most cases this follows directly upon separation. Two methods of expulsion are known, and it is still rather an open question which is the more common. The first is generally known as Schultze's method. In this the placenta is expelled like an inverted umbrella, the fetal surface coming first, and the membranes trailing behind. Where there has been the formation of a large retroplacental clot, this mechanism is probably common. The second method is usually known by the name of Matthew Duncan's. In it the lower edge of the placenta is first extruded and the whole organ slides down folded longitudinally upon itself."—(Johnstone's *Manual of Midwifery.*)

8. *Three causes of retained placenta:* Inertia uteri, endometritis, and morbid adhesion of the placenta to the wall of the uterus.

9.

CEPHALOHEMATOMA.	CAPUT SUCCEDANEUM.
This is a bloody effusion beneath the pericranium.	This is a serous effusion in the epipericranial tissues.
Develops two or three days after birth.	Present at birth.
Usually localized at the sides of the head.	Always over the presenting part.
Generally due to pressure.	Due to lack of pressure.
At first soft and cystic to the touch; later crepitant.	Soft, non-fluctuating.
Persists for a week or two, and may suppurate.	Disappears in two or three days.

10. *Rickets cause a flat pelvis,* as follows: "During the process of growth the lack of lime salts peculiar to the disease results in an abnormal softening of the bones, which, in consequence, yield more readily to the forces acting upon them. Extreme distortion of the pelvic bones may thus be produced. The pressure of the superimposed body upon the softened sacrum results in excessive bowing of the latter, with exaggerated prominence of the promontory and a marked decrease in the vertical height. There is a backward bowing of the vertebral column, as a result of which the body weight is directed from above downward and from behind forward; the pelvic crests are flared outward, and there results an upward and anterior inclination of the iliac fossæ, together with a marked separation of the anterior superior iliac spines, whereby the relationship existing between the intercristal and interspinous diameters is materially altered, the dimensions of the two being approximated. The obliquity or inclination of the pelvis is also increased, as in all forms of obliquely-contracted pelves; this induces greater traction upon the ligaments attached to the ischial tuberosities, and as a result these tuberosities are drawn outward and the pelvic outlet thereby increased in size. The pressure from below transmitted through the femora drives out the softened innominate bones, thereby increasing the width of the pelvis; this increase, however, is more than compensated for by the underdevelopment of the entire pelvis that characterizes the disease. The sacrum shows imperfect development of its alæ and thus contributes to the narrowing of the pelvis; as a consequence, the posterior surfaces of the iliac bones approach each other, as shown by an approximation of the posterior superior spines. In addition, all the articulations participate to a varying degree in the epiphyseal thickening."—(Dorland's *Obstetrics.*)

(*To be concluded.*)

Mortality from Grippe in Bordeaux.—Davezac has shown that in this city which should house a population of 300,000, the total deaths from influenza during the months of August, September and October amounted to but 481.—*Journal de Médeciñe de Bordeaux.*

Miscellany.

Professor Bernheim.—Doctor Blum in *Le Progrès Médical* for February 15 gives an appreciation of the lately deceased authority on suggestion. He was a great clinician and medical philosopher whose fame was world wide. Physicians from all parts of the habitable world have made pilgrimages to his clinic at Nancy. Here they were welcomed by a man of such simplicity and modesty that to the theatrical technique of many celebrities was formed an unusual and not unpleasant contrast. His notes were always dictated at the bedside and for 40 years he maintained this custom without interruption. Every morning found him in the hospital at 8 and there he remained until noon. On many days he returned later to watch an interesting or serious case. Bernheim as a result of these efforts was able at an early day to give a scientific foundation to psychotherapy and his priority in this field is undisputed. His hysteria however was not the phenomenon studied in the Salpêtrière before the eighties of the last century. A controversy between the two viewpoints developed and persisted for years: Bernheim, at first in the position of a rank outsider, predicted that his opponents would in time come to accept his views and this prophesy has been realized. We have not space to reproduce the essentials of the controversy but Bernheim's treatment has been summed up in the term *desuggestion,* which at the same time throws light on his conception of hysteria. Commonly reputed as a hynotist he was in reality a believer and practitioner of suggestion in all forms and of persuasion and reasoning in proper cases. For him sickness was not imaginary but visualized by imagination. But he was far more than a psychotherapeutist for he wrote lucidly of typhoid fever, aortitis, cardiac asthma, uremia, grippe, and many other organic affections, and first of all he was a traditional physician and well able to understand where suggestion begins to enter as a factor in pathogenesis. His last years were saddened by his own illness and by the war. One of his latest works, "Automatism and Suggestion," was written for psychologists. His best known rival Liébault supplied observations but Bernheim furnished their rationalization.

Mortality of Holland in 1918.—The deaths in the Netherlands for 1918 amounted to 115,426 as against 87,473 for 1917. These figures correspond respectively to 17.06 and 13.12 per 1000 inhabitants. Death rates in individual provinces vary greatly, from as high as 21 to as low as 12. These discrepancies do not accord well with the view that influenza was responsible for the great increase in deaths in 1918. It is a fact, however, that the provinces with the highest mortalities were the worst ravaged by the pandemic. But the high death rate was more than offset by the extremely high birth rates of the past two years—167,622 in 1917 and 173,112 in 1918. The exact number of deaths from influenza in 1918 was 17,744, but of this number only 8527 death certificates were worded "Spanish influenza." In 1917 the total number of deaths from influenza was but 453.—*Nederlandsch Tijdschrift voor Geneeskunde.*

Medical Record

A Weekly Journal of Medicine and Surgery

ol. 95, No. 21.
Whole No. 2533.

NEW YORK, MAY 24, 1919.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

A CASE OF OSTEITIS DEFORMANS.*

BY ALBERT WARREN FERRIS, A.M., M.D.,

WATKINS, N. Y.

RESIDENT PHYSICIAN, THE GLEN SPRINGS.

N January, 1913, there came under my care a lady ged about fifty-five years, suffering from pains in arious joints, showing great difficulty in sitting nd rising, and walking with a waddling gait. She ave a history of "rheumatic pains" in 1907, sup- osed to have been due to "sleeping in damp heets," but on second thought ascribed to a fall he suffered while walking in the mountains early hat summer. During that year she went to urope, where she drank Vichy water in such large uantities that she became very thin. On her re- urn her physician found her "perfectly healthy," he reports, but put her "on a diet for rheumatism," hereupon she regained her lost flesh. In 1910 she egan to have pain occasionally in both knees, and oticed that her legs were becoming bowed. She ent for treatment to a Spa, where she was told he had rheumatic gout and was treated without nprovement during the winter of 1910-1911. On eturning, she and her family noticed that her face ad altered; her temples had become sunken, and er head somewhat triangular. Various treatments ere instituted, without affording her any relief. uring the years 1911-12 her femora and some her bones acquired a decided curve. During 1912 ain appeared in her wrists and elbows, and lately he had experienced nocturnal pain in the left hip- int.

Besides the joint and bone pains and the increas- g disability, she complained on admission of a urning feeling in the stomach, with regurgitation gas and some cough, all of which symptoms ielded promptly to treatment with an alkali. She mplained of no other symptoms besides those oted.

Examination and brief study of her condition re- ulted promptly in a diagnosis of "osteitis defor- ans," which is so rare a disease that I make bold report it.

Our first accurate knowledge of the typical char- teristics of this malady was communicated to the edical world in 1877, when a case was presented the Royal Medico-Chirurgical Society of London Sir James Paget, who proposed the accepted me of the disease. Earlier cases than his, among em that of Wrani of Prague in 1867, were re- ported by Sir James. But his thorough knowledge and scientific presentation of the matter resulted in the disorder being called "Paget's disease" quite as often as "osteitis." A thoughtful and exhaustive paper was published in the *American Journal of the Medical Sciences* for November, 1901, by Packard, Steele, and Kirkbride, in which one hundred alleged or possible cases were considered, with the result that the authors rejected all but sixty-seven, reported previously to their own, thus presenting a

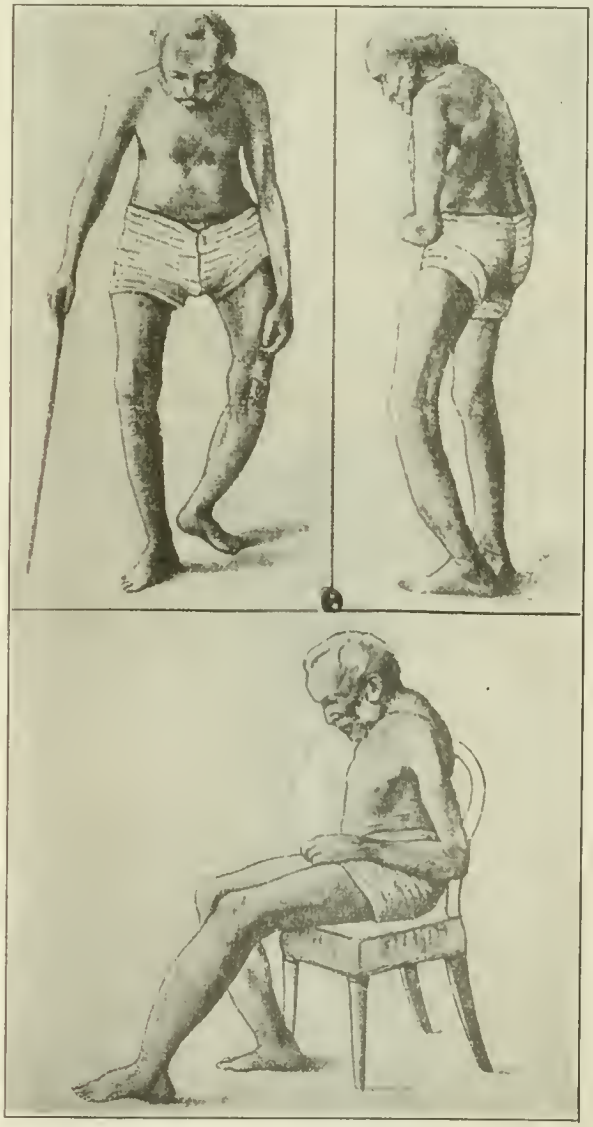


FIG. 1.—Case of osteitis deformans reported by Sir James Paget of London in 1876.

*Read at a meeting of the Fourth District Branch the Medical Society of the State of New York.

total of sixty-eight in the medical literature, to that date. In the MEDICAL RECORD for December 28, 1912, Fosdick Jones of Denver reported a case; and in the course of his article, which concludes with

FIG. 2.—Case of oesteitis deformans, reported by Dr. Arthur W. Elting of Albany in 1901.

an admirable bibliography, he states that so far as he is able to ascertain there were but twenty-six cases reported in this country since the publication of the résumé of Packard, Steele, and Kirkbride.

FIG. 3.—Right ulna and radius in author's case.

In the cases tabulated by the authorities mentioned, enlargement of the head was the first symptom noted in fourteen cases, enlargement of both tibiæ first in thirteen cases, enlargement of the left tibia the first symptom in eleven cases. In fifty of their cases the bones of the skull were involved, while in forty-seven both tibiæ were involved, and in forty-one both femora. Of their sixty-eight cases, forty-two occurred in males, twenty-six in females. Their oldest patient was aged seventy-three at the time of coming under observation; their youngest thirty-nine years. Eleven had definite symptoms at forty years or prior to that age. The average age on observation and diagnosis was sixty-one years. The disease appears to be one attacking people in middle life; although Elsner of Syracuse reported a case occurring in a girl of seventeen years, while Sonnenberg reported one case in a girl of sixteen. The oldest case on record is reported in *Virchow's Archiv* by Stilling, in 1890. This instance occurred in a woman ninety-two years old.

Those who have observed this disease agree in

FIG. 4.—Left knee from inner side in author's case.

reporting that the general health of the patient is rarely impaired. Even when the cranial bones are attacked and thickened there are no brain symptoms referable to the malady. All patients complain of pain, varying in severity, located in the affected bones, and generally of a rheumatic or neuralgic character. The longer bones are usually first affected, as in my case, particularly those of the lower extremities, which the weight of the body would seem to determine. Next in order the changes in the skull are noted, and then in the upper extremities. Probably next in order come the changes noted in the spine, consisting of a marked forward flexion with shortening of the vertebral column. The neck becomes flexed and the head inclines forward, or more often is dropped somewhat and approaches the chest. The joints seem to be rarely involved, though in consequence of the bowing of the lower extremities the knees

and ankles are often very painful, and walking is difficult.

Many theories have been advanced in former years as to the origin of the disease, and cancer,

Fig. 5.—Left femur from the rear, in the author's case.

rheumatism, syphilis, arteriosclerosis, and trauma have all been assigned in turn as the cause. At present these are not associated with the etiology, though in a few cases carcinoma has been intercurrent and the other diseases named have occurred in some patients. In a few cases in which extreme deformity of the thorax resulted, emphysema of the lung, pleural effusions, and even pneumonia have complicated the disease. Abdominal distress has been complained of by some patients in whom the alteration in position of the spinal column has resulted in a lozenge-shaped abdomen, a transverse suclus running across the soft parts, and in a broadening of the pelvis.

As to the pathology, von Recklinghausen advanced the theory that the disease started as a true osteomalacia, associated with inflammatory processes, leading to the transmission of medullary substances into fibrous tissue over which new bone grows. For there appears first to be an inflammatory condition associated with absorption of the bone, with later a hyperplasia of new bone, a marked thickening and irregularity of contour resulting, subsequently to the bending or bowing of the bone which has taken place during the earlier stage. The earliest pains are probably due to a stretching of the periosteum, caused by the deposit of inflammatory products and of new bone beneath it, while the later pains seem largely to be due to distortion of the joints, from alteration of the axes of bones, and the resulting partial displacement of the joint surfaces.

I have alluded to the earliest distortions noted by my patient. Examinations reveal the following anatomical changes:— The chin drops a little on the chest. The bones of the skull form a much larger proportion of the cranium than they should, as compared with the bones of the face. The frontal bone overhangs the face, though it is but fair to say that the patient claims this is a family trait, although not appearing in the case of her sister, who was also my patient. The curves of the clavicle are decidedly increased. The arms are relatively too long for the body, and are both deformed, being curved with an inward convexity. The left forearm is somewhat deformed, both radius and ulna being curved as shown in the skiagram. There is dorsal kyphosis, but no scoliosis. The pelvis is not noticeably enlarged, and its brim is not everted. The glutei are quite prominent, but very flabby, showing decided atrophy. The trochanters are not higher than normal, and the necks of the femora are not horizontal—a fact noted in a large proportion of the cases reported. Both femora are curved, the left much more than the right, the convexity being outward and forward. The left tibia is also more involved than the right. The patient is two inches shorter than she was four years ago.

Standing with heels together, the distance between the internal malleoli is 2.4 cm.; while between the internal condyles of the femora the distance is 18 cm. The bowing outward is most evident in the left femur, and least evident in the upper portions of the tibiæ.

On palpation the femora appear slightly enlarged throughout, the left trochanter being somewhat thickened. The circumference of the leg at the condyles is 43 cm. on both sides. The tibiæ show enlargement of both heads and the shaft of the

Fig. 6.—Left knee and tibia from the rear, in the author's case.

left, the right bone being slightly roughened and the left much roughened, both being irregular on the surface. The right fibula is bowed. There is no tumor formation.

External rotation and abduction of the femur is good on the right side, restricted on the left. Adduction, abduction, and rotation at the hip joint are normal. Flexion of either knee joint is somewhat difficult. The scapulæ present no abnormalities. The left humerus appears straight and not thickened at the surgical neck, though the skiagram shows an irregular contour with thickening of the upper and lower thirds of the shaft. The right radius appears normal, the left being bowed somewhat outward, as is also the left ulna. No abnormalities of the bones of the hands or feet were discovered.

The muscles of the thighs were not atrophied, nor were those of the legs or chest. The muscles of the arms were somewhat atrophied, and also the supraspinatus and infraspinatus were noticeably wasted. I have already noted the atrophy of the glutei.

The knee jerk was diminished on both sides; there was no clonus; there was no Babinski reflex.

The measurements of the skull resulted as follows:— From glabella to occipital protuberance the distance was 37 cm. The biparietal diameter was 16½ cm. The circumference of the skull was 56½ cm.

As the patient complained of increasing disability and a feeling as if her left lower extremity were bending under her, the treatment I instituted consisted of the lactophosphate of lime, iodide of iron, and alkalies to relieve her hyperchlorhydria; while to relieve her pains and encourage sleep, she received carbonic oxide mineral water baths on alternate days with hot packs, the hydriatric treatment being successful.

After three weeks' treatment she passed out from under my observation, and has not been seen by me since.

Watkins, N. Y.

TRAINING FOR LAY WORKERS IN FUNCTIONAL RESTORATION.*

By Capt. E. A. Bott,

Toronto, Canada.

The object of this paper is not to present a comparison of curricula of special training courses inspired by the war, nor yet of established Departments of Physical Education. The object is rather to invite discussion of certain broad principles involved in preparing a body of workers who would be the manual laborers for the medical profession in physical therapy, both during and after the war.

During the war the whole community adjusted itself to be an efficient war machine. Many experiments, discoveries, and advances resulted not merely in the prosecution of warfare, but of production, governmental control, community cooperation, and particularly of medical and surgical practice, including physical methods of treatment. Now that the war has been brought to a successful conclusion, the obligation which the community has hitherto discharged to the military organization as a whole is reversed. What can the army hand back of its stewardship to the community? If the medical branch is to reciprocate this service, would it not involve immediate careful consideration of how to modulate and adjust its successful procedures, that they may be applied as intensively and widely as possible to meet analogous needs of the whole community? If it has been a national asset to develop special methods of treatment to hasten the convalescence of incapacitated soldiers, sailors, and aviators, is it less of a national asset, whatever difficulties may be involved, to extend the same high conception to the health and efficiency of all our incapacitated citizens? The return of our leading medical practitioners from war practice to civil life will not of necessity in itself achieve this end. Methods may be known, but unless the present spirit of preparedness and organization be perpetuated, their application will be all too local. No greater difficulty would confront such a program than that of providing a trained and competent personnel—professional and lay. For that reason I regard provision for training workers for functional restoration as an important phase of the general policy of education to be developed in the period of reconstruction.

The Military Problem.—Specialization: From a military standpoint the first question confronting a teaching program is the objective of the course, *i.e.* the degree of specialization for workers. Following the common practice of classifying post-surgical treatments into those which do and do not, respectively, demand cooperation and effort on the patient's part, we find on the passive side massage, electrical, thermo and hydro treatments, and on the active side different forms of applied exercise, *e.g.* muscle function training and general remedial gymnastics, also occupational therapy and curative shop work. Should lay workers be trained along all such lines, or only in one or in a selected group? (Occupational therapy and curative shops in Canada are under the direction of the Department of Soldiers' Civil Reestablishment, with a separate organization of instruction, and are therefore omitted from the following discussion of the relationship of courses in the Medical Corps.)

The arguments for general training of workers in several of the above lines are chiefly the following:

1. Economy of lay staff and treatment space, *i.e.* the equipment of all branches could be arranged in one or two rooms of liberal size and be used by all workers.
2. That fullness of knowledge contributes to efficiency.
3. That for psychological reasons as well as for proper sequence and proportion of treatment it is advantageous to have only one worker responsible for the treatment and progress of each patient.

The arguments for specialization are diametrically opposed to these, namely:

1. That the plea for economy in staff and space is based on the assumption of small treatment centers such as the Convalescent Home, whereas from the point of view of duplication in plant, equipment, administration, specialists, and all skilled help, the small establishment is uneconomical and inefficient, and consequently for military purposes only a small percentage of workers with general proficiency would be required.

*A paper presented at the International Conference on Rehabilitation of the Disabled, New York, March 18-21, 1917.

2. That as a general rule the efficiency of amateur workers in physiotherapy varies inversely as the number of branches of treatment they attempt to master, and that supervision cannot replace this want of skill.
3. That in military establishments of effective size, it is impracticable to consider a worker accompanying each patient to all his treatments, and that any loss in continuity due to specialization is more than counterbalanced by the added skill and thoroughness in each branch.

In different countries the policy in regard to the specialization of workers has differed, owing in part to local conditions and circumstances, and in part to differences in national psychology. Where there was a sudden and large demand for hospital accommodation early in the war this matter was of secondary importance, and consequently both amateur and expert workers were employed as existing agencies provided. In general, when training was improvised the policy of instruction was adjusted to suit the particular scheme of hospitalization adopted.

In Canada two facts were influential. In the first place for nearly two years of the war our men were treated chiefly overseas. Here conditions presented peculiar difficulties, and while the Canadian Army Medical Corps at the Ramsgate Special Hospital had the honor of initiating physical therapy in Britain along the lines previously developed by our French and Belgian allies on the Continent, pressure of work gave small opportunity for instruction of lay workers. The overseas policies of the Canadian Army Medical Corps later predominated at home, and in respect to lay staff, this is in part responsible for the degree of dependence we have placed on patient material as the source of personnel for operators. In the second place, in Canada prior to the war there was practically no supply of workers fully trained in physical therapy, nor any long established training school. Under these circumstances our policy of instruction has had to grow as we worked. Practical issues have led us to follow lines of intensive specialization, which policy the Director General Medical Services has endorsed. One form of specialization has been muscle function training, the operators therein being termed "trainers."

In terms of results achieved this specialization has proved successful, and from the instructor's standpoint it has been justified owing to the practical difficulty found in giving novices an adequate grounding in more than one technique in a short course of four or six months. It would not follow, however, that such specialization should be continued for workers who are to handle our pensioners and our civilian patients in the future.

Selection and Remuneration.—The selection and retention of workers for military needs present certain problems. Men and women have been proved successful as lay workers, particularly the latter, the chief sex difference being that men excel in collective treatment such as in the gymnasium and women in work requiring careful detail and patience, *i.e.* muscle function training. Otherwise the Canadian Army Medical Corps has employed male help exclusively only for hydrotherapy and for heavy massage. The male operators have been either patients or low category men selected for the most part by the Canadian Army Gymnastic Staff in Englind as remedial instructors, and drafted into other curative branches on the recommendation of medical officers familiar with their capacities. They are paid according to rank, usually as sergeants.

Women operators are certified members of the Women's Aid Department of the St. John's Ambulance Brigade, which uniform they wear with special insignia. They sign for one year's hospital service after training. With the exception of the muscle function trainers, women operators are paid $55.00 per month and a subsistence allowance amounting to $32.50 additional monthly. "Trainers," which were originally a local volunteer corps, have been retained in the Canadian Army Medical Corps on that status, receiving subsistence allowance. Unlike students in civilian life who are proceeding toward a profession, all our women operators have been paid during training, which necessitates a careful basis of selection and a rigorous probation system of two months' duration. Prospective trainers from different localities have been accepted on the direct personal recommendation of an officer of the C. A. M. C. or of the St. John's Ambulance Brigade, usually for capacity shown in other classes of volunteer war work. The wastage from probation in three classes of "trainers" has been less than 10 per cent. With the paid workers, however, secured through advertisement requiring only defined physical, educational, and medical qualifications, the wastage at probation has been about 20 per cent. The wastage in all women operators after graduation and before the expiration of contract has remained constant to date at less than 2 per cent. On the other hand, since the armistice the wastage of male operators, always heavier than of female, has more than doubled through requests for discharge, and threatens to affect the work very seriously.

With the approach of peace the situation in lay help is changing. The problem is how to procure and to maintain a proper supply and quality of workers sufficient to complete our war problem, and to undertake our civilian one. It is doubtful whether a monetary stimulus without adequate status, with all that that implies, will give a satisfactory solution.

Training.—Whatever degree of specialization be adopted in training for physical therapy, there exists a body of knowledge which is essential for all branches and may be given in common by synchronizing the classes. Our practice has been to give four such general lecture courses, *viz.*, anatomy (including osteology and myology) and physiology, taken concurrently and followed by a special course on joints and a clinical course on wounds concurrently. The remainder of the academic work and all the practice work (the latter receiving two-fifths of the total time) was taken in respective departments. For example, muscle-function training included educational gymnastics with special reference to the action of muscle groups, medical gymnastics (passive and resistive movements), kinesiology, theory and use of appliances, measure of disability (joint movement and muscle strength),

psychological factors in applied exercise, conferences, *x*-ray plates, bandaging, skin conditions, etc.

With our three classes of trainers during the past fifteen months we have experimented freely in methods of teaching. The following are points of procedure which experience has led us to put into effect in short intensive courses.

1. Morale of the class should be studied and cultivated. To announce the standards for rating proficiency at the beginning of the course, and make the class conscious of them throughout has been helpful. Equal credit is given for academic work, clinical practice, and general deportment.
2. Make haste slowly in instruction. Two study hours per day for amateur students, affording opportunity to organize their knowledge gives better results than a full program.
3. Lectures should be supplemented by group study—groups of eight supervised by a graduate student who gives daily "grinds" on lecture work.
4. Special teaching devices to visualize the subject matter economize time and effort.
5. The Socratic method is more effective for clinics than the demonstration method and should be supplemented by daily case conferences on practical work.
6. Special instruction is necessary on the psychological principles that underlie successful treatment in muscle function training—mentality of convalescence, psychological reactions between soldier patients and civilian women workers, progression in motives that stimulate self-help, etc.

The Civilian Situation.—Turning from the treatment of the soldier we are already confronted with the problem of expanding the therapeutic methods of physical reconstruction to the soldier-citizen and to the community at large. We are perhaps agreed that this program should evolve from the war program—but how?

There are significant differences between the military and civilian situations. In the first place, the clinical material will differ, particularly in the numerical proportion of different types of cases. Prevention as well as cure must be studied in the physical and likewise the mental impairment which civilian life produces, especially in relation to industry. Secondly, the civilian task will be complicated by the wide distribution of the clinical material, in general hospitals, in the home, in institutions, and in rural districts. Thirdly, the differences in psychological environment must be appreciated. Unlike the military patient, the civilian is a free agent, but with the corresponding responsibility of being on his own resources. He must seek treatment or at least consider it acceptable and worth while if offered to him. The motives which will make a successful policy of publicity and public education in this regard must be carefully studied.

The organization which would solve the problem of hastening civilian convalescence, whether it be by neurophysical clinics in large centers or in some other way, must be liberally conceived. In scope the plan should aim to provide for in-patients and out-patients as well as field workers and institutional aides. In motive the plan should not be urged merely on humane or philanthropic grounds, but rather on principles of practical economy of public health, with special emphasis upon the side of industrial hygiene.

The success of such a program will turn very largely on the question of personnel and training, and suitable provision therefor must be made in the curricula of suitable medical schools. As regards lay workers, I am satisfied that capable women in sufficient numbers would seek such openings. The service which patriotic motives have initiated will be perpetuated through the motives of community welfare and professional occupation. To this end, however, the status of workers must be carefully assured by adequate training of a general and thorough character.

Finally, if the various therapies now for the first time receiving wide recognition are to be expanded and wisely applied, they must be carefully sifted and tested by a program of research. In other words, if a scheme for community welfare is to be well balanced and effectively developed its advocates must urge that all three sides, the practical, the educational, and the scientific march forward together.

MEDICAL AND LEGAL ASPECTS OF THE AUTOMOBILE PLAGUE IN WASHINGTON.

By R. W. SHUFELDT, M.D.,

WASHINGTON, D. C.

Forty or more years ago, there was not a city in the United States that combined so many advantages and attractions as a place of residence, or offered more inducements to those in search of old-fashioned American homes, with all their comforts and surroundings, than did Washington. Everybody worth knowing seemed to know and to be on the most friendly terms with everybody else worth knowing, and society and the families were largely of the old stock, kind and charming in every way. Libraries, museums, and similar institutions were as good or even ahead of those of other cities, and amusements came along at a rate that left nothing to be desired on that score. All the country about was more than attractive, for it was young and fresh and still unmarred by man. Wild flowers flourished abundantly everywhere, while birds passed in thousands through the region with each vernal and autumnal migration. It was by no means a rare thing to observe in the elegant shade trees that lined the streets of old Washington such birds as the Baltimore oriole, scarlet tanager, blue grosbeck, and many others of a similar sort; while down on the Potomac, and in the marshes that lined the city along its southern limits, hundreds of marsh and water birds of many, many species were to be seen every year. At that time the sparrow of the Old World had not been introduced, and the boy's air-gun had not been invented.

The people who lived in Washington in those days will remember all this, and some of them will recall the Sunday afternoon promenades on what then existed of Connecticut Avenue—the elegant turnouts, blooded horses, and the mounts that lent so much to these afternoon occasions. As years came and passed, all this changed and changed radically;

old Washington was eliminated and with ever increasing rapidity. It changed in every conceivable feature as the population doubled and trebled, and the total made its impress upon the old order of things. Nearly all the wildness and the beauty of the surrounding country gradually passed, never to be restored. Nature died, and man's mockery usurped her place, and the grackles and sparrows ruled supreme in the city's shade trees and streets. Broad, smooth, manufactured roads led off for miles in all directions from those of the city's system; while the "betterments," as Natty Bumpo termed them, were responsible for the rest of the long list of transformations.

Then came the *automobile*—a curiosity at first, but gradually the successful rival of the horse wherever the latter existed, and finally, at the present time, practically the monopolizer of all the public roads and highways of the District of Columbia, with the congestion most marked within the city's limit. During the war, at a time when this congestion had arrived at its maximum, a condition existed throughout the entire city which, as one looks back upon it, is almost unbelievable. Every inch of parking-space was choked to the limit, and in most of the main thoroughfares traffic of every description was continually being brought to a standstill. An unbroken stream of cars passed up one side of most of the avenues, and a similar one down the other side. Where the road was more open, these machines paid no attention to the rules of speeding—the majority of them often traveling at a rate of from thirty to forty miles an hour. The Emergency Hospital and police records showed a death rate of slaughtered pedestrians, hit by automobiles, averaging one a day or even more, and minor injuries were too numerous to be mentioned. It is hardly necessary to say that the police—not numbering an army corps at any time—were practically helpless in the matter of abating either the killings or to arrest the hundreds of speeders. Thousands of the machines in the city belonged to transients or non-residents but this did not alter the conditions and for rather obvious reasons—probably rendered them all the more aggravated. Later, the congestion grew less, owing to the closing of our part in the war; to the return to their homes of the soldiery and their friends and relatives, and of the great army of war workers. Still, many hundreds did not thus depart, but arranged to make Washington their permanent abiding-place, and owing to this fact many thousands of automobiles remained in Washington.

In connection with this unprecedented invasion of automobiles, the city was very soon confronted with the problem of housing them,—that is, locating and building garages in sufficient number to accommodate the thousands that were licensed and carried on the books of the Chief of Police. Very soon it was discovered that the requirements could not be met, and as a consequence hundreds of cars were lined up along the curbs to the sidewalks throughout the city, or in groups in unoccupied city and suburban lots, and in other places. This was especially noticeable at night, though it was likewise the case for all hours of the day. Then came the garage-building craze. It was truly marvelous to note how they were squeezed into every nook and recess that would stand for one. Those who owned homes and aimed to have a garage for their automobile, cut in anywhere where the necessary space could be found. Some went into cellars, or the cellar and a part of the kitchen, and others sacrificed their little flower-gardens or the lawn. Then speculators commanded an entire alley, erecting cheap and hideous garages all the way down both sides of it. Hundreds of isolated ones were built in all sorts of places, even under the steps of handsome mansions, where no such disfigurement had ever been dreamed of before. Then came the *rent sharks*, who gobbled up the remaining recesses and nooks in which to erect garages that for architectural design would have disgraced a side alley in hell.

Then, in the huge army of drivers of all classes of these machines, from the ponderous army truck to the cheapest Ford, there grew up an utter disregard for each and all of the city ordinances that had been passed to protect the lives of pedestrians and others that crowded the city's thoroughfares. Very soon it was discovered that the Police Department could not control the situation, though, be it said to its credit, it handled the problem as best it could with the totally inadequate force at its command.

In a little while, exceeding the speed-limit was the order of the day; to kill some luckless pedestrian was a matter of daily occurrence, and served to help the local papers to the extent of a six-line news item. As this article was being written, the *Washington Post* gave a brief account of a metropolitan police officer who was shot through the lung by one of the occupants of a speeding car in his attempt to halt it; fortunately a simultaneous shot from his own revolver killed one of the three men in the runaway machine.

The fumes given off by these machines, night and day, have been announced by Doctor Woodward, of the city's Health Department, to be a menace to the health of those breathing them; and surely it is not difficult to imagine the effect of the various noises the machines give rise to, which, night and day, run the entire gamut from a bursting tire to the honking of the most unmelodious of all horns known to man.

So much, then, for all these various conditions as they exist at the present time; and it surely goes without the saying that they must have their effect and reaction upon the mental and physical constitutions of all those who are subjected to their influences. In the first place, the constant dodging of automobiles on the part of pedestrians, in order to avoid being either killed outright or maimed, exerts a most baneful effect, and is a subtle strain on the minds of nearly all nervous people, timid women, and those who suffer from certain diseases and disabilities. There are cases on record where the sudden shock from dodging a speeding automobile has caused instant death where marked heart disease was present in the person so affrighted.

Next we have the effects of the various noises, or the din when such noises emanate from several machines preforming in unison, and the added effects of the gasoline fumes upon those who are, for one unavoidable reason or another, subjected to these twin menaces to personal health and com-

fort. All this is bad enough during the day when many become more or less accustomed to it; but for not a few reasons it becomes an entirely different matter between the hours of ten P.M. and daylight. During the day, those most likely to be deleteriously affected are the ones of feeble minds and constitutions; victims of certain nervous diseases and psychoses; many workers in the various departments and branches of scientific and educational pursuits, and those engaged in experimental work of different kinds and degrees of delicacy.

As has just been stated, however, the most disastrous effects produced by the causes in question are to be observed in the case of any one susceptible to them in the great body of the city's population who keep regular hours with respect to retiring at night and arising in the morning. It would appear that no law has been passed governing the matter as to where garages may be built; and as the scramble to secure location has no parallel in history, the erection of these by no means sightly structures has taken place without the slightest regard for the health or comfort of any of the inhabitants. In no end of instances, miserable makeshifts of the sort referred to, accommodating from one to four automobiles each, have been built so close to other buildings and homes that there was no protection whatever either from the fumes of the gasoline or from the din created by the machine, when coming in or going out. Most people who follow the ordinary rules of health either sleep on a sleeping-porch or in a room with windows opened to their full extent. Now, there are hundreds of cases at this time in Washington where this most commendable practice has been entirely broken up through garages having, in any particular instance, been built either directly under the bedroom, or within twenty or thirty feet of a sleeping-porch. When a machine so housed returns, either during the middle of the night or in the early hours of the morning, the driver invariably brings his car to a standstill, allowing the motor to run, while he opens the doors of the garage. If more than one person are in the car, these disturbances may be accompanied by loud conversation, even with profanity, should there be any difficulty in getting the car housed, which is the case in a large percentage of instances. The escaping fumes of the gasoline rise and flow into the open windows of the bedroom above, or completely charge the air with their unhealthy stench over and around the sleepers on the porch, producing effects that vary in accordance with the mentality, constitution, or physical condition of those subjected to the ordeal.

Plenty of cases are now on record where people have not only been compelled to abandon their homes on this account, but to dispose of them at a loss in pocket. Where this step has not been feasible, and the menace and nuisance in no way abated, it has given rise to various physical and mental disorders in the healthy; rendered life intolerable to those suffering from any of the chronic troubles affecting the mind or body; disturbed the needed rest of thousands of infants and young children; produced the most harmful effects upon expectant mothers during the latter months of pregnancy, and in many instances ruined the tempers and militated against the success of the professional work of no end of other victims of this unchecked and calamitous condition of things. What all this gives rise to during the course of a year can perhaps be better appreciated by any physician residing in Washington, than by the non-professional resident of the city.

Not a few of these garages have been erected in lots in the rear of homes solely for the purpose of renting them to others. So hastily has this been done in some instances, and so keen the greed of the builder, that no precaution whatever has been taken with respect to the safety of the structure. Should one desire proof of this, one need go no further than to the records of the Commissioner of Buildings of the District, where due search will furnish one with a case of the caving-in of the roof of a half-built, cheaply constructed brick and mortar garage, that came near killing one of the workmen engaged upon it at the time. This matter is simply referred to in the present connection as furnishing another class of cases where physical injury or suffering has been caused by the automobile epidemic in Washington—an epidemic that, at this writing, rages with ever-increasing intensity, and presents no hope of abatement to which the hundreds of victims may look for relief.

Well may the question now be asked, have we available any remedies to meet this state of affairs, and, by adopting them, to protect the lives and comfort of the city's residents? Surely there should be means which, if adopted and enforced, would bring the necessary relief. Where one's health has been impaired—either temporarily or permanently—it is clear that an action at law may be instituted, which, if won by the plaintiff, may rectify matters in one way or another. The offending party or parties have been cautioned by the police to keep more reasonable hours, with respect to entering and leaving the garage, controlling the gas fumes, noise, and so on; and where the offenders have been ladies or gentlemen, this has usually resulted in their promptly changing their garage quarters and renting elsewhere; but where the reverse obtains, however, it usually has the effect of making all the objectionable conditions worse, developing, *pari passu*, the unrefinement and the brutal nature of the offender. Thereupon one will be advised by the police to take the matter into the police court for remedy, which simply means loss of time and money, and, through the influence of the city's automobile clique, have the case promptly decided against the complainant.

What is really needed in order to protect the community against this serious, ever-increasing, and dangerous menace is to have certain city ordinances passed at once, enforcing the same with the utmost strictness and celerity. Obviously, these remedial laws should simply meet the conditions; then, it goes without the saying, all this undesirable not to say dangerous state of affairs would be rectified. Occupants who have their automobiles of any description so near the sleeping apartment or sleeping-porches of private residences, that the noise and gas fumes they give rise to when taken in or out happens to prove either a menace or an annoyance to the occupants of such, should be prevented by law from taking their cars in or out of the garage between the hours of 10 P.M. and 7 A.M. This ar-

rangement should rest entirely upon the lodgment of complaint; for if the latter be not filed and the law in force, it is clear no harm or inconvenience obtains, and the user of the garage need not heed the law until such objection is made. Should protest be filed in any case, however, and no regard to it be paid on the part of the offender, it should be considered a misdemeanor and dealt with accordingly by the courts.

3356 Eighteenth Street, N. W.

A STUDY IN REHABILITATION OF THE DISABLED SOLDIER.*

By JOHN CULBERT FARIES, Ph.D.,

NEW YORK.

CHIEF, DEPARTMENT OF VOCATIONAL COUNSEL, RED CROSS INSTITUTE FOR CRIPPLED AND DISABLED MEN.

It is fortunate that the first American book dealing with the problem of the disabled soldier should be the labor of love of a man who knows the subject he treats of and can write clear, vigorous English. His familiarity with the problem of the handicapped antedated the war by several years, and the relations he established in antebellum days with those interested in the subject have brought to his hand an invaluable mass of material that cannot be duplicated in any other collection. Familiarity with the subject has made it possible for him to evaluate all efforts for the rehabilitation of the disabled and penetrate to the principles involved. He does not theorize upon the principles, but no reader can finish a perusal of the book without a very clear idea of the basis upon which the future development of this latest constructive social effort must rest.

It is one thing to know a subject and another to put it across so that the average reader may congratulate himself that he can walk new paths with a firm tread. To do this a writer must be able to handle the English language effectively. And this is precisely what Mr. McMurtrie does without circumlocution, redundancy, or obfuscation. His sentences are terse and vigorous. His meaning is perfectly obvious without rereading and the fatigue often experienced when being initiated into a new subject is entirely lacking. The book is not intended to be so much a treatise on the disabled soldier as a plain recital of facts in which the principles are implicit. The facts recorded are selected with discriminating judgment and reflect the best thought and effort in the chosen field.

The disabled soldier is a man who has suffered some impairment of his human mechanism through the vicissitudes of war. Other men have experienced similar limitations through disease and industrial accidents. The attitude of society in the past to the cripple forms a dark background in the opening chapter. The evolution through the centuries of effort to ameliorate the condition of the unfortunate shows a growing appreciation of the value of the individual. Primitive social groups eliminated the man unfit to fight or produce. Modern society strives to restore him to productive activity by developing the remaining powers and nurturing latent capabilities. The contrast between the first and last chapters is an illuminating comment upon the influence upon society of Him who taught men not to "break the bruised reed or quench the smoking tow."

The disabled soldier is a man who was a productive unit before his injury and who, in all fairness to himself and his country, must be returned to the ranks of the productive. So is the disabled civilian. But definite steps to this end were but haltingly taken before the Great War thrust upon the world its unescapable duty. The beginnings of effort to rehabilitate the disabled civilian are shown to have been made in martyred Belgium in the direct line of the invading Hun. The seeds of that work were propagated in war-torn France and quickly spread to other belligerent countries.

Facing a problem of ever-growing proportions, society has been led to put a new valuation upon the splendid achievements of men who through sheer force of character, and without the aid now being offered to the handicapped, have surmounted physical obstacles. A new interest has been awakened in the successful cripple and what he has accomplished has been storied and filmed for the encouragement of the victims of war. The heroism of abridged men has stirred the disabled soldier to a new heroism in the dull, gray days after "the tumult and the shouting dies." Many of these men are now "doing their bit" denied them in recruiting days.

Every new work must develop a technique. Appropriate means must be devised to bring about the desired end—the industrial rehabilitation of the disabled man. The methods employed to restore men to functional activity and industrial efficiency are clearly outlined by the writer. A complete view of the needs of the man from the moment of his injury to his final restoration is given the reader. The work is seen to be psychical as well as physical, moral as well as vocational, social as well as individual. The environment of the man is a matter of solicitude as well as his treatment and education.

Touching upon the question of pensions, the author takes a bold stand: "Granted a constructive and effective program for the reconstruction of the disabled soldier and sailor, a low pension scale may be a blessing in disguise, in that it may force the men to make plans for support through their own efforts." He sees the greatest need of the disabled soldier to be "not industrial school equipment, not elaborate courses, not splendid buildings—but the finest men the country affords to help him in the critical period immediately following disablement. Where there is found exceptionally successful work with the injured soldiers, there will be found a man of unusual qualifications."

In starting a course for the disabled man two angles must be determined if shipwreck is to be avoided. First, the capabilities of the man must be assessed in the light of his physical limitations. Second, an adequate wage must be kept in view. Training, as such, must be subordinated to his economic necessities. In other words, the job selected for the individual must be one in which his particular disability imposes the least handicap and which promises him steady employment at adequate wages. The discovery of such a job requires a survey of the whole field of industry from the viewpoint of the man with definite physical limitations. Here is

*"The Disabled Soldier," by Douglas C. McMurtrie. New York: The Macmillan Company, 1919.

a new field of effort for the industrial expert who must approach his work with a new interest—that of finding a job for the man with abridged powers. The author reviews the various occupations and industrial processes that have been found suitable for disabled men in different countries. In the light of these industrial surveys "the courses of training must be intensive and practical rather than theoretical. Every feature of instruction must be evaluated according to whether it affords direct assistance to the man's earning a living." The reaction of various technical schools and industrial establishments to the exigencies of the situation is considered in detail.

The wages to be paid handicapped men raises a perplexing question. How to steer between the Scylla of the exploitation by employers of men fortified by a pension and the Charybdis of the maintenance of a minimum wage by organized labor requires the united wisdom of both employers and work people. Wage advisory boards have been found valuable in adjusting the differences that are bound to arise.

The settlement by the government upon the land of disabled soldiers whose life in the open has tempted them to seek an agricultural life has received the serious attention of France, England, Canada, Australia, New Zealand, Germany, and the United States. Another opportunity which government may open to their ex-service men is in the line of civil service appointments. That there are dangers, both to the morale of the disabled man and to the efficiency of public service through the influence of baneful political patronage, is clearly recognized. The danger of leaving trained men to the discouragement of new occupations without adequate after care and oversight is pointed out. An adequate program for the rehabilitation of the disabled must include follow-up work which shall insure the establishment of the worker in his new job.

The education of the public to its duty to the disabled man is a very considerable part of the work. The family must be taught to encourage the injured man to self-help rather than to a dependent attitude. The employer must be taught to give the disabled man a job, not for charity's sake, but upon the basis of utilizing labor that would otherwise be unproductive. This means the employment of handicapped men in all those processes in which he can be as efficient a worker as a normal man. Only upon this basis can a proper relation be established between the employer and the worker, a basis which maintains the self-respect of each. The public must be taught that such an attitude toward the discharged soldier as tends to confirm him in his feeling of dependence upon public bounty only degrades him to the level of mendicancy. Lionization may create helpless cubs if wrongly directed. An ounce of wise assistance is worth pounds of degrading pity.

Various types of disability are discussed in successive chapters dealing with those who have suffered amputations, the blinded, the deaf, the tuberculous, and the neurasthenic, and the net results of efforts in their behalf are indicated.

An historical review of the national programs for the rehabilitation of the war-disabled discloses the wealth of material gathered through the research work directed by Mr. McMurtrie. The facts are selected with admirable discrimination, and the net result is a complete picture of the attempts of the belligerent nations to repair the human waste and damage of war. The efforts on both sides the Hindenburg line are impartially surveyed, and the amazing thing is that so complete a picture of the efforts of the Teutonic allies has been possible during the progress of hostilities and the interruption of communication. The neutrality of Switzerland and the genius of the author for stimulating the collection of data are contributing factors.

The book closes with a brief outline of the program of the United States which is as generous as its unbounded resources. This nation has the decided advantages of the experience of those earlier in the war. The results should be commensurately great. The complete success of the work rests, as is fit in a great democracy, with the people of the United States.

SOME OF THE SALIENT DUTIES OF A NURSE.*

By S. E. EARP, M.D.,

INDIANAPOLIS, IND.

THE nurse does not occupy the position of a czar or high executioner, nor that of a slave; like the doctor she is a happy medium. She is clothed with authority, but when such is exerted beyond the field of duty belonging to a nurse it furnishes the groundwork for criticism and is the nucleus of discontent.

Sulkiness is not in the vocabulary of the nurse—she is in school to be taught and in the home to be active in response to the needs of the patient, with a courtesy which should be characteristic of a gentle disposition.

Cleanliness, neatness, and good manners are necessary attributes.

Loyalty to doctor, associate nurses, alumni, and the graduation school is part of the stock in trade of a nurse and is an investment that continuously bears interest. A nurse is not necessarily licensed to admire a doctor, but if she has suggestions or comments to make, he is the one to go to, not others, and especially not the patient. Criticism of a doctor with whom there has been an association during sickness, whether it be in or out of the sickroom, on or off duty, is always unwise, and places the critic in the rôle of a "backbiter" and will never fail to bring a fulfilment of the old adage, "chickens always come home to roost." There may be evidence of a grouch in members of a family, the patient, and possibly the doctor, but diplomacy is a good remedy, and gentleness of disposition and accuracy in the performance of duty by the nurse will do wonders in clearing the atmosphere.

During the training and afterwards, if there are points that are imperfectly understood, do not slothfully wait for opportunity to bring enlightenment, but seek the library as your best friend and instructor.

Study the patient's condition minutely so that

*Abstract of a lecture before the Training School for Nurses of the Indianapolis City Hospital, reported by Vivian Masters, R.N.

a conference with the doctor will bring good results to all concerned.

It is well that the patient has the confidence of the nurse and the nurse the confidence of the patient, but the nurse should not be the confidant of the patient. Such a condition of affairs quite frequently has brought about woeful results, and the "don't" might be the text for a good sermon.

All legitimate desires of a patient should be gratified promptly, and in conversation the nurse should always face the patient. Experience shows that the suggestions of a patient are not always trivial and have very often proved valuable to both nurse and doctor.

Patients should never be discouraged and never left in suspense. If a remedial measure will be attended by some risk, and danger is contemplated, candid information given gently and with a kindliness of spirit will bring relief and prepare the patient for the ordeal, if such it be.

To keep a patient waiting for a urinal or bedpan is cruelty.

During the presence of visitors there should be no fatigue of the patient; if noticed, put a quietus on it, and save untoward consequences later on. Allow no home worries to be discussed.

Deception, even when there is a mental defect, is likely to be recognized and is often a dangerous procedure.

The character of food is outlined by the doctor, and yet by the nurse it can be made inviting. Sometimes a patient who has either an acute or chronic mental defect will keep food in the mouth unconsciously for a long period of time, or perhaps take several other morsels additionally and so run the danger of the food entering the lungs. Always be sure that food taken into the mouth has been swallowed.

During paracentesis abdominis I have observed instances wherein the nurse had almost full supervision. In such a case the nurse should see that the bladder has been catheterized before the operation and all of the fluid should not be withdrawn during one sitting, lest there be collapse. This should be borne in mind when there is need of catheterization of a greatly distended bladder; and the same caution is to be observed in the case of removal of fluid from the chest. The position of the patient before and after operation is also an item of importance.

In a few words let us consider the question of ethics an all-important one. In brief, if physicians as well as nurses would let the Golden Rule be their guide, neither would go far wrong. Reflect upon it, study it carefully, and you will recognize its great value.

631 Occidental Building.

Grippe in Brazil.—October was the month in which Brazil was principally victimized by the pandemic. A report given out by the National Academy of Medicine is pessimistic concerning our knowledge of the rapid dissemination and mode of transmission of the disease and our relative impotence in prophylaxis, both from our ignorance of causes and the lack of practical enforcement measures on the part of the centralized power, there being no jurisdiction over half of the population.—*Brazil-Medico.*

Medical and Surgical Lessons of the War.

WAR ACTIVITIES OF THE UNITED STATES PUBLIC HEALTH SERVICE.

By BENJAMIN S. WARREN, M.D.,
ASSISTANT SURGEON GENERAL, U. S. P. H. S.,
AND
CHARLES F. BOLDUAN, M.D.,
CHIEF, SECTION OF PUBLIC HEALTH EDUCATION, U. S. P. H. S.

IN describing the activities of the United States Public Health Service, so far as they were directly related to the prosecution of the war, it may be well to record that though many of these activities were not undertaken until 1918, developing as they did out of necessities arising as the war progressed, the need for most of them was foreseen by the Service, and was made the subject of official recommendations. Thus, in a report dated February 4, 1917, two months before the entry of the United States into war, a board of officers of the United States Public Health Service formulated a program of activities which could be undertaken by the Service in order to assist in the prosecution of the war. Among these are mentioned:

> The sanitation of ports and places within the United States in order to prepare them for camps of mobilization, concentration, or training for the Army or Navy.
>
> The sanitary supervision of mobilized industrial forces.
>
> Medical and surgical relief to sick, wounded, or disabled soldiers and sailors at relief stations of the Service.
>
> Medical and surgical relief to mobilized industrial workers.
>
> Laboratory operations, including both research and manufacture of serums and vaccines.

This was supplemented by a memorandum, dated April 7, 1917, outlining desirable activities of the United States Public Health Service in the field of industrial hygiene, especially as related to war industries.

It was clear that the carrying out of the contemplated war activities demanded a considerable increase in the personnel of the Public Health Service. In order that such an enlargement of the personnel might subsequently be available for other public health emergencies Congress was asked to authorize the establishment of a Reserve in the Public Health Service, to consist of medical officers, sanitarians, engineers, and other qualified experts.

A bill covering this matter was introduced into Congress and passed by the Senate on June 18, 1917, but was not adopted by the House of Representatives until more than a year later. The Reserve Act became a law on October 27, 1918.

However, without waiting for authority to establish a Reserve, the pressing demands made upon the Public Health Service led to a great increase in the personnel of the Service. Thus at the close of the fiscal year, June 30, 1917, the Service consisted of 538 professional personnel, 1,506 other personnel, a total of 2,044; at the close of the fiscal year, June 30, 1918, the professional personnel amounted to 1,472, and the other personnel to 3,515, a total of

4,987. These figures do not include the personnel of the American Red Cross, State and local health authorities operating under the direction of the Service.

In the early part of 1918 it became evident that a number of different Government agencies were undertaking what were really Federal public health functions. It was realized that unless some plan of effective coordination was devised, there would be much duplication and waste of effort in this important field.

Under these circumstances, very soon after the passage of the Overman Act, the Public Health Service initiated action looking toward bringing all Federal civil health functions under the supervision and control of the Public Health Service. An executive order effecting this was signed by the President on July 1, 1918. The text of this was as follows:

Whereas, In order to avoid confusion in policies, duplication of effort, and to bring about more effective results, unity of control in the administration of the public health activities of the Federal Government is obviously essential, and has been so recognized by Acts of Congress creating in the Treasury Department a Public Health Service, and specially authorizing such Service "to study the diseases of man and the conditions influencing the propagation and spread thereof" and "to cooperate with and aid state and municipal boards of health;"

Now, therefore, I, Woodrow Wilson, President of the United States, by virtue of the authority vested in me as Chief Executive, and by the Act "authorizing the President to coordinate or consolidate executive bureaus, agencies and offices, and for other purposes, in the interest of economy and the more efficient concentration of the Government," approved May 20, 1918, do hereby order that all sanitary or public health activities carried on by any executive bureau, agency, or office, especially created for or concerned in the prosecution of the existing war, shall be exercised under the supervision and control of the Secretary of the Treasury.

This order shall not be construed as affecting the jurisdiction exercised under authority of existing law by the Surgeon General of the Army, the Surgeon General of the Navy, and the Provost Marshal General in the performance of health functions which are military in character as distinguished from civil public health duties, or as prohibiting investigations by the Bureau of Labor Statistics of vocational diseases, shop sanitation, and hygiene.

(Signed) Woodrow Wilson.

The White House, July 1, 1918.

Before taking up the war activities of the Public Health Service in more detail it may be well to point out that much of the work of the Service in dealing with the pandemic of influenza in the fall of 1918 was imposed on the Service because of the entry of more than 30,000 physicians practising in the United States into military service. With the spread of the pandemic over the United States urgent calls were addressed by stricken communities to the Public Health Service for medical assistance. In response to this the Public Health Service organized a mobile corps of nearly 1,100 physicians and detailed these to render the needed medical attention. The emergency expenditures required for this and other purposes in dealing with the pandemic were met by a special appropriation of $1,000,000 voted by Congress on October 1, 1918.

In describing the war activities of the United States Public Health Service it may be well to consider these under the following heads:

Sanitation of Extra-cantonment Areas.
Industrial Hygiene.
Scientific Research.
Production and Supervision of Biological Products.
Campaign against Venereal Diseases.
Medical and Surgical Relief.
Miscellaneous Activities.
Publications of the Service.

SANITATION OF EXTRA-CANTONMENT AREAS.

Inauguration and Organization of the Work.—With the outbreak of the war it began to be realized that the backward state of public health administration throughout a large part of the United States threatened to constitute a distinct handicap to the country's military effectiveness. It was felt that this handicap could be materially reduced only by an intensive system of federal health supervision in and about zones surrounding military camps and important industrial centers engaged in war work (mines, munition plants, shipyards). Within the camps themselves responsibility for the supervision and control of sanitary matters rested with the Army Medical Corps; their jurisdiction, however, ended with the camp boundaries and the Public Health Service was responsible for the correction of insanitary conditions which menaced them from without.

In the summer of 1917, in cooperation with the army authorities and State and local health officers, the Public Health Service undertook to sanitate a zone around each of the 26 military cantonments; the end of 1918 saw 47 zones, most of them around military cantonments, under the operation of the Public Health Service. In most instances the officer of the Service who was in charge of a zone was appointed by the State and local health authorities a deputy health officer. Inasmuch as the intensive health work was carried on primarily for the protection of the military forces and of industrial workers engaged in essential war work, it was manifestly unjust to ask the local communities to bear the entire expense involved. In the circumstances most of the work was done with Public Health Service sharing the expenses. Moreover, as will be described in a moment, the American Red Cross maintained a number of sanitary units which rendered invaluable aid in the sanitation of these areas.

At the same time it was felt that the intensive health work carried on as a war measure should be made to constitute really a demonstration of profitable health activities and that every effort should be made to have the local and State health authorities continue the work after the war emergency had passed. To this end it was the aim to rouse a wider interest in health matters, to present the cost and the results of health work in the form of simple statements published in the local newspapers, to invite public attention to attainable results as shown by the experience of other communities—in short to seek in every way to make the people realize that "public health is purchasable."

American Red Cross.—It is certain that the work of the Public Health Service, especially as it related to the sanitation of extra-cantonment and industrial areas, was greatly facilitated by the effective aid rendered by the American Red Cross. At the re-

quest of the Surgeon General the War Council appropriated funds, and authorized sanitary units to be operated in such areas under the direction of officers of the Public Health Service. The first of these units was organized at Columbia, S. C., and by the end of the following year, January 1, 1919, 36 such units were in operation.

A Red Cross sanitary unit consisted of one or two bacteriologists, a chief sanitary inspector and a number of sanitary inspectors, a supervising public health nurse with the required number of assistants, clerks, stenographers, and laboratory assistants, and miscellaneous employees such as laborers, messengers, etc.

In addition to the salaries of these employees the Red Cross paid their traveling expenses, including, where necessary, the service of automobiles, and it also provided limited funds for sanitary necessities of the poor. The direction of the work of the sanitary unit was always lodged in an officer of the Public Health Service. Moreover, a general supervision over the work of the various Red Cross units was exercised by a senior officer of the United States Public Health Service, detailed to Red Cross headquarters as liaison officer.

Cooperation of State and Local Health Authorities.—Without the cooperation on the part of the State and local health authorities it would have been impossible to carry on the intensive health activities dealing with the sanitation of extra-cantonment areas. In many instances this work was supported by funds supplied by State and local authorities. Such support was often invaluable because of the legal limitations on the character of expenditures by the Federal health authorities. In addition to this, officers of the Public Health Service detailed to extra-cantonment areas were usually given appointment as deputy health officers by the State and local authorities, thus arming them with the necessary authority to administer health regulations. It was often discovered that regulations were lacking to provide the desired control. In these cases model regulations prepared by the Public Health Service were recommended, and were usually adopted by the proper local authorities.

Activities Carried On.—The work done in the sanitation of the areas already mentioned has been of endless variety: In some rural areas it has consisted largely of measures designed to control the spread of malaria, in others of efforts to provide proper disposal of human excreta, to protect drinking water, and to safeguard the milk supply; in urban communities, the home of important war industries, questions of sanitary housing, of the control of communicable diseases, of industrial hygiene demanded a large share of attention.

Some idea of the magnitude of this undertaking can be gained from the following list of places where this intensive health supervision was maintained:

EXTRA-CANTONMENT ZONES.

Following is a list of the extra-cantonment areas where the Public Health Service carried on intensive health supervision, and where Red Cross sanitary units were operated:

Alexandria, La.	Sanitary Unit No. 22
Alexandria, Va.	Sanitary Unit No. 31
Americus, Ga.	Ex. Cantonment Zone only
American Lake, Washington.	Sanitary Unit No. 18
Anniston, Ala.	Sanitary Unit No. 8
Atlanta, Ga.	Sanitary Unit No. 11
Augusta, Ga.	Sanitary Unit No. 25
Ayer, Mass.	Sanitary Unit No. 10
Brunswick, Ga.	Ex. Cantonment Zone only
Charleston, S. C.	Sanitary Unit No. 33
Charlotte, N. C.	Sanitary Unit No. 20
Chattanooga, Tenn.	Sanitary Unit No. 16
Chillicothe, Ohio	Sanitary Unit No. 12
Columbia, S. C.	Sanitary Unit No. 1
Columbus, Ga.	Ex. Cantonment Zone only
Des Moines, Iowa	Sanitary Unit No. 4
El Paso, Texas	Sanitary Unit No. 24
Fayetteville, N. C.	Sanitary Unit No. 35
Florence, Ala.	Ex. Cantonment Zone only
Fort Worth, Texas	Sanitary Unit No. 23
Gulfport, Miss.	Ex. Cantonment Zone only
Greenville, S. C.	Sanitary Unit No. 13
Hattiesburg, Miss.	Sanitary Unit No. 6
Houston, Texas	Sanitary Unit No. 27
Jacksonville, Fla.	Sanitary Unit No. 29
Lawton, Okla.	Sanitary Unit No. 34
Leavenworth, Kan.	Sanitary Unit No. 5
Lake Charles, La.	Ex. Cantonment Zone only
Louisville, Ky.	Sanitary Unit No. 3
Little Rock, Ark.	Sanitary Unit No. 2
Millington, Tenn.	Ex. Cantonment Zone only
Macon, Ga.	Sanitary Unit No. 14
Manhattan, Kan.	Sanitary Unit No. 15
Montgomery, Ala.	Sanitary Unit No. 19
New London, Conn.	Sanitary Unit No. 32
Newport News, Va.	Sanitary Unit No. 9
Petersburg, Va.	Sanitary Unit No. 7
Portsmouth, Va.	Sanitary Unit No. 28
Portsmouth, N. H.	Sanitary Unit No. 30
Pensacola, Fla.	Ex. Cantonment Zone only
Raleigh, N. C.	Ex. Cantonment Zone only
San Antonio, Texas	Sanitary Unit No. 26
Seattle, Wash.	Ex. Cantonment Zone only
Spartanburg, S. C.	Sanitary Unit No. 17
Tacoma, Wash.	Ex. Cantonment Zone only
Waco, Texas	Sanitary Unit No. 21
West Point, Miss.	Ex. Cantonment Zone only
Wilmington, N. C.	Ex. Cantonment Zone only
Washington, D. C.	Sanitary Unit No. 26
Wrightstown, N. J.	Sanitary Unit only

The organization built up to deal with the sanitation of extra-cantonment areas dovetailed into the existing local health machinery, thus making up a complete sanitary unit. The amount and character of the work done by the United States Public Health Service therefore varied, in the different areas, according to the amount and character of the work which State, city, county or other local health authorities were willing and able to do. Altogether the end of the year 1918 found 49 commissioned medical officers and 72 acting assistant surgeons engaged in this work by the United States Public Health Service. These, with sanitary engineers, scientific assistants, epidemiologists, sanitary inspectors, and public health nurses, made up a total force of over 500 exclusive of laborers.

Following is a more detailed description of the activities carried on to sanitate these special areas:

Malaria Control.—In general it has been the aim of the Public Health Service to establish around each cantonment a mile-wide belt entirely free from mosquito breeding places. The means to attain this has varied with the local conditions. In some instances extensive swamp areas have been ditched and drained, in others sluggish water courses have been channeled and straightened, here small ponds have been drained dry, there, they have been filled in; in still other cases they have been oiled. Now and then it was feasible to poison mosquito breeding waters by turning into them industrial wastes.

Altogether the total area in and about camps and

war-industrial communities which was thus treated to prevent the breeding of mosquitos was over 1,200 square miles. The total cost of the work was $1,300,000, of which approximately 35 per cent. was obtained locally. Nearly 2,500 miles of ditches were dug and the population protected by these measures was 1,730,000 civilian population and an average of 826,000 military population.

Illustrative of the operations carried on it may be mentioned that at Park Field, near Memphis, about half of the work consisted in regrading and clearing natural water courses. The total area involved was sixteen square miles, and the total cost was $65,000.

In other areas, especially where the soil was free from roots, the antimosquito work consisted largely of cutting V-shaped ditches with a horse plow. Such ditches were from 18 to 25 inches deep and about 2½ to 3 feet in width at the top. Much of the work at Montgomery, Ala., was of this type. There approximately 86 square miles were protected at a cost of $45,000, involving the cutting of 123 linear miles of light ditches.

In still other areas it was necessary to cut and clean an outlet to a swamp and to secure good drainage of such camps when water levels were favorable. This often involved heavy operations, even including blasting with dynamite. The costs have varied considerably, depending on local conditions. Operations of this kind were carried on at Macon, Ga. They protected an area of 26 square miles, involved the cutting of 50 linear miles of ditches, and cost $107,000. Similar work was carried on at Hattiesburg, Miss.

General Sanitation.—Under this head are embraced a number of health activities having to do largely with the correction of the insanitary environment of the rural population usually in a zone from 1 to 5 miles wide around the military cantonments. Much of the work consisted in the improvement of local water supplies and in provision for the safe disposal of human excreta. In connection with the latter, in some communities the double-compartment concrete vault type of privy was largely introduced; in others, sanitary pails combined with scavenger system were utilized. In all cases attention was given to preventing the spread of diseases of excretal origin by flies.

Vaccination.—In order to reduce to a minimum the prevalence of smallpox and typhoid fever in the extra-cantonment areas much emphasis was placed on protective vaccination. Smallpox and typhoid vaccines prepared by the Hygienic Laboratory were administered by officers of the Public Health Service. The extent of this activity is indicated by the following figures showing total vaccinations in the extra-cantonment areas:

Antityphoid inoculations 259,888
Smallpox vaccination 107,497

Morbidity Reports.—With the inauguration of the intensive health work in the extra-cantonment areas, the possibility was presented of securing more complete morbidity reports than had previously been received from any miscellaneous group of the population. Arrangements were accordingly made to secure the following regular reports:

1. Daily morbidity reports, mailed to the Public Health Service.
2. Weekly telegraphic reports, for publication in "Public Health Reports."
3. Records of individual cases of illness, showing diagnosis, age, sex, color, occupation, date of onset, and termination of the disease.

One of the important outcomes of the collection of these morbidity reports was the possibility of currently transmitting the information thus obtained to the medical authorities of the Army and Navy and the Council of National Defense. Accordingly, daily statements were prepared for this purpose containing the following:

1. Transcripts of monthly reports from collaborating epidemiologists and state health officers. (This information was thus available to the military authorities prior to publication in "Public Health Reports.")
2. Transcripts of the daily health reports from the extra-cantonment areas.
3. Transcripts of weekly post card morbidity reports from the larger cities.
4. Information of unusual or immediate importance relative to the prevalence of disease.

Health Education.—Much of the work in the extra-cantonment areas was necessarily educational, and was carried on largely by personal visits to the individual homes by public health nurses or sanitary inspectors. At these visits attention was called to matters relating to child hygiene, to the importance of cleanliness and the proper disposal of human excreta, the need of pure water and milk supplies, the rôle of flies in the transmission of disease, the recognition and prevention of communicable diseases, the control of mosquito breeding, and any other matters of special importance to the particular home visited.

Typhoid Fever Index.—Among the different statistical indices in use by sanitarians for measuring the results of public health activities, the prevalence of typhoid fever has generally been accepted as simple, useful, and reliable. Omitting those extra-cantonment areas which were not established until after the beginning of 1918, the carefully collected morbidity reports from these areas show a total of 2,835 cases of typhoid fever, in 31 areas having a total population of at least 3,033,000. This is equivalent to a morbidity rate of 93.5 per 100,000 population and an estimated mortality rate, according to the usual method of calculation, of 9.35 per 100,000 population.

This rate may fairly be compared to the typhoid fever rate of the United States Registration area, which was 13.3 in 1916 (the latest figures available). As a matter of fact the results achieved were even more favorable, for inasmuch as most of these extra-cantonment areas were located in the South, the comparison should really be made with the typhoid rate of that part of the country. Such a comparison has been made in the following tabulations:

Typhoid Death Rates Per 100,000.

Texas (1917)	19.2	Extra-cantonment areas (1918)	11.0
Georgia (1916)	22.0	Extra-cantonment areas (1918)	7.6
Virginia (1916)	25.1	Extra-cantonment areas (1918)	9.8
S. Carolina (1916)	34.1	Extra-cantonment areas (1918)	7.2
Alabama (1917)	38.0	Extra-cantonment areas (1918)	15.1

Altogether the conclusion is warranted that the public health activities carried on in the extra-cantonment areas resulted in a marked improvement in sanitary conditions and a consequent high degree of health protection not only to the people living in these areas but to those in the military and industrial camps there located.

Malaria Index.—It may be mentioned that malaria, which was a serious potential disability factor about many of the camps, especially those located in the South, was practically eliminated from the soldier population and only 3,160 cases were reported to the Public Health Service during the malarial season of 1918 from among the civil population of three and three-quarter million, a rate of 83 per 100,000. From such data as are obtainable from previous years this was a tremendous reduction in the malarial rate in these communities. These results may well be compared with those in Panama, especially since they were obtained, not under military conditions but through the voluntary work of a civil population.

INDUSTRIAL HYGIENE.

An important contribution to promoting efficiency in war industries consisted in the health and sanitary supervision of these industries by the Public Health Service.

In cooperation with the Safety and Sanitation Division of the Industrial Service Section of the Ordnance Department, officers of the Public Health Service conducted examinations as to the hygienic conditions of the explosives industry in such plants as—

The Etna Explosive Company, Mt. Union, Pa., and Emporium, Pa.
The Atlas Powder Company, Webster, Pa., and Perry Point, Perryville, Md.
McArthur Brothers' Bag Loading Company, Woodbury, N. J.
Nitrate Plant No. 2, Muscle Shoals, Ala.
Penn Trojan Powder Company and Chemical Company, Allentown, Pa.
Picric Acid Plant, Brunswick, Va.
Quaker Valley Works of John B. Semple Company, Sewickley, Pa.
Roessler & Hasslacher Chemical Company, Perth Amboy, N. J.
Tullytown Bag Loading Co., Niagara Falls, N. Y.
U. S. Explosives Plant, No. 6, Nitro, W. Va.
U. S. Nitrate Plant, Toledo, Ohio.
Western Cartridge Co., West Alton, Ill.

Particular attention was paid to the subjects of TNT poisoning and poisoning from other comparatively new similar chemicals and explosive compounds. Laboratory work incident thereto was done by the Hygienic Laboratory and the National Research Council.

The Public Health Service also conducted investigations of the sanitary condition of a number of large aniline and other chemical factories; the electro-chemical industry of Niagara Falls, as well as the storage battery and abrasive industries.

Surveys were also made of health conditions of establishments manufacturing uniforms and other articles of clothing equipment for the United States Army, mostly in the State of Ohio.

The Demonstration at Nitro, W. Va.—On the theory that the Government should take the lead in demonstrating how to safeguard the health of industrial workers, arrangements were made at the request of the Secretary of War to have the United States Public Health Service undertake the sanitation and medical and surgical relief at the United States Explosives Plant located at Nitro, W. Va. Some idea of the magnitude of the work thus undertaken by the Public Health Service may be gained from the fact that it required the services of 35 medical officers, 80 nurses, and numerous other persons including laborers, artisans and clerks. The total personnel was about 500, not including laborers in the Sanitary Department, who numbered approximately 300.

Inasmuch as the sanitary and medical work began with the construction of the plant, the work at first had to do largely with the health supervision of the large army of temporary employees engaged in construction work; subsequently as this phase of activity subsided, matters of industrial hygiene arising with the operation of the plant required an increasing amount of attention. A brief summary of the more important phases of this work may be of interest.

Examination of Applicants for Employment.—A suitable building was erected and properly fitted out, both in supplies, equipment and personnel, for the purpose of examining physically all applicants for employment. In this way it was possible to control the introduction of dangerous communicable diseases and to reject for employment those disqualified by disease or physical defects. Out of the 45,858 applicants examined to July 1, 1918, only 0.8 per cent. were permanently rejected for employment. In addition to this 1.8 per cent. were rejected temporarily. Most of the latter were cases of venereal disease, and the infected individuals were referred immediately to the proper department for treatment. In most cases as soon as they were under proper medical treatment these persons were put to work. In this way the labor supply was conserved and the men were not refused the opportunity to earn a living because of their unfortunate infection. Of the total number of applicants accepted for employment 11 per cent. had marked physical disabilities, such as defects of sight, of hearing, of loss of fingers or of entire limbs. With proper attention to the placing of these individuals, practically no interference with efficient labor resulted.

Delousing.—As a result of the physical examination, 1,690 individuals were discovered to be infested with lice. The infested men were temporarily placed in a detention barracks, and then sent through the delousing house. Here they were subjected to a cleansing bath, medical inspection, and treatment. In the meantime, their clothing was run through the sterilizer. Their bed clothing was placed in a small air-tight building and subjected to cyanide fumigation.

It is of interest to note, however, that in spite of most rigid inspection and treatment, cases of pediculosis constantly escaped notice, to be discovered at a later date.

Vaccination and Typhoid Inoculation.—At the time of enrollment the men were vaccinated against smallpox and were also encouraged to receive typhoid inoculation. By means of the persistent health propaganda carried on, it has been possible to spread the knowledge of the value of these meas-

ures among those employed at this plant, with the result that 116,668 persons have received the prophylactic typhoid inoculation, and 76,920 persons smallpox vaccination. Owing to the many changes among the people employed at the plant, it was not possible to complete the course of treatment in many of these cases of typhoid inoculation. By far the great majority who remained at the plant have completed this treatment.

Hygiene of Housing.—During the period of construction practically all persons engaged at the plant were housed in barracks similar to those used by the Army during mobilization. These barracks number 27, and are 160 feet in length by 48 feet in width and 18 feet high, providing 7,680 square feet of floor space and 69,120 cubic feet of air to each floor. They are two stories in height, with 34 regulation windows on either side and 12 on the ends. They are equipped with 100 double-deck iron beds on the second floor, and 50 double-deck iron beds on the first floor, one-half of the first floor being used as a recreation room. These barracks house 300 men each. Twenty bunk houses, 120 feet long by 24 feet wide and 8 feet high, also offer facilities for sleeping quarters of the laborers. These are likewise equipped with double-deck beds.

Between each barracks building and bunk house is a bath house connecting with the barracks by a covered passageway.

Bungalow Housing.—Various employees, mostly administrative officers and office force, were housed in the bungalow section apart from the barracks section. The total number living under these conditions was relatively small at first, numbering possibly 1,500 persons, but later increased to approximately 10,000.

Medical and Surgical Relief.—Four six-bed emergency dressing stations were constructed in connection with the plant. In addition to this there was a 40-bed emergency hospital, an 80-bed isolation hospital, a 325-bed general hospital, and a dispensary in the bungalow section; the last named was for handling bungalow visits and giving dispensary service to the bungalow occupants. In addition to the relief of those actually ill or injured, medical relief was given those afflicted with disabilities, and to constructive and repair work in connection with eye, ear, nose and throat and dental affections.

Sanitation.—The problem of sanitation required both temporary and permanent measures. Under the former are embraced the measures taken to provide a safe disposal of excreta of the many thousand employees engaged in the construction of the plant; to maintain in sanitary conditions the stables for the several thousand horses and mules used in construction work; the provision of pure drinking water; the disposal of rubbish and garbage; the maintenance of sanitary kitchens and mess halls; inspection of all food—in short, such matters of general sanitation as generally arise in the maintenance of a large construction camp. Under the temporary measures, in order to furnish a safe water supply, a small chlorinating plant was installed, and several deep wells were drilled. From these water was delivered to the whole plant. Under the permanent sanitary measures may be enumerated provision of a safe water supply; construction and maintenance of an adequate sewerage system and sewage disposal; inauguration of a system of street cleaning, including garbage and refuse collection and disposal; establishment of a system of food supervision.

A permanent water system was installed with necessary filters to supply a city of 35,000 population, and chemical and bacteriological analyses of this water were made daily in the laboratories at the hospital.

All food entering the plant was shipped to the Commissary Warehouses and refrigerating plant, and there inspected by the food inspectors, and likewise again inspected in the commissary stores and mess halls before being consumed.

Occupational Health Hazards.—The gradual completion of the plant witnessed the inauguration of the industrial operation for which the plant was established, that is, the production of smokeless powder. Some of the health hazards met with during operation are as follows: Nitric and sulphuric acid burns, caustic alkali burns, the inhalation of nitrous and sulphuric fumes and of chlorine, excessive heat and humidity, alcohol and ether intoxication, poisoning by diphenylamine, and burns from a flare or sudden burning of powder. In order to lessen these hazards an educational campaign was conducted by medical officers instructing the workmen in the dangers and the first-aid treatment to be employed. One hundred and twenty-five stretcher outfits, containing each one stretcher and one blanket, were scattered through the plant, being easily accessible to those who might be injured, and the nearness of the field emergency stations made it possible to render medical service almost immediately upon the occurrence of an accident. Three motor ambulances were stationed at the emergency hospital, having free access to all parts of the reservation. First-aid boxes were installed in all places deemed advisable for immediate relief, and shower-bath facilities were installed in the acid area for bad acid burns.

SCIENTIFIC RESEARCH.

Industrial Fatigue.—With the necessity imposed by the war to conduct its industrial operations at the highest possible degree of efficiency, the Public Health Service at once became vitally interested in the relation of industrial fatigue to efficiency. In cooperation with the divisional committee on industrial fatigue of the Council of National Defense, the Service in the summer of 1917 began an extensive investigation of this important health problem.

While a considerable number of factories were visited, detailed studies were limited to two large establishments which offered exceptional opportunities for observation. One of the main objects in view was the determination of the conditions under which the operatives, the human machines of the factory, can perform their work with the highest degree of efficiency. The subjects considered included output, night work, effect of recess periods, accidents, and physiological tests for fatigue. A summary of the results of these studies was published in the annual report of the Public Health Service for the fiscal year ending June 30, 1918.

Trinitrotoluol Poisoning.—At the Hygienic Laboratory systematic studies were commenced in regard to the methods of absorption, detection, and preven-

tion of trinitrotoluol poisoning. These studies are expected to be of great assistance in providing sanitary requirements which will minimize the danger from trinitrotoluol, a substance which is used principally as a charge in high-explosive shells. The manufacture of trinitrotoluol is surrounded with considerable risk of poisoning.

The investigation related to:

1. Simple diagnostic tests for the recognition of early poisoning.
2. A preventive skin wash for the efficient removal of TNT.
3. The relative importance of absorption of the poison through the skin and the respiratory passages.
4. The prophylactic value of proper diet.
5. The incidence of poisoning in one of the larger shell-loading plants.

Nutritive Value of Various Kinds of Flour and Bread.—At the Hygienic Laboratory an extensive investigation covering a period of nearly two years has shown that highly milled flour and bread made from this flour are considerably inferior in vitamine content to the "low extraction" flours now so extensively used in European countries. This conclusion was reached from well-planned feeding experiments on animals, in which all extraneous and complicating factors were eliminated. One of the main objections against the "low extraction" flour, namely, its excessive cellulose content, could easily be overcome by a method of milling which would permit the elimination of a greater part of the bran.

Influence of Heat on the Vitamine Content of Beef.—Another investigation bearing quite directly on war matters was one carried on by the Hygienic Laboratory to determine whether the canning process robbed meat of the so-called vitamine present in fresh meat. The work has conclusively shown that under ordinary conditions beef does not lose any of its vitamine content when heated for three hours to 120 deg. C.

Studies on Dermatitis from Mercury Fulminate and Parazol.—At the request of the Ordnance Department of the Army and of the United States Navy an investigation was undertaken to devise means of preventing the severe dermatitis which results from mercury fulminate and parazol respectively. A protective skin varnish against parazol was developed.

Antitoxin Against Gas Gangrene.—The Hygienic Laboratory was called upon to prepare and standardize an antitoxin against gas gangrene. Considerable work on gas gangrene has been done by investigators abroad, but no definite results have been obtained. The studies conducted by the Hygienic Laboratory resulted in a method of standardization for perfringens antitoxin for gas gangrene.

Laboratory Studies on Arsphenamine.—Up to the time of the outbreak of the war, arsphenamine (salvarsan) was exclusively manufactured in Germany and was protected by patents in most countries. As a result of the war the supply in the United States was seriously reduced, particularly on account of the blockade, which made it impossible to secure enough of the German product. In 1916 a few private institutions began the manufacture of arsphenamine in the United States, under an agreement with the Farbwerke Hoechst Company, the German holders of the patent in this country. Soon after the declaration of war by the United States the patent on salvarsan was suspended and the Federal Trade Commission was authorized by Congress to issue licenses for the manufacture and sale of the drug. The manufacture of arsphenamine is extremely difficult and results very often in a product of high toxicity which is dangerous to the life of the patient. Hence it is absolutely essential to control the commercial product by proper toxicity tests before the drug is released for sale to the medical profession. These circumstances therefore necessitated the adoption of a satisfactory method for this purpose, and after considerable work such a method was developed. Standards of toxicity for arsphenamine, submitted to the Federal Trade Commission, were accepted and the manufacturer was required to test his product by means of the method developed at the Hygienic Laboratory. This laboratory furthermore controlled the commercial product by testing many hundred samples submitted by the manufacturer. In addition to the toxicological tests, chemical standards were worked out so as to insure, as much as possible, uniformity in the therapeutic value of the drug.

An investigation was conducted into the process of manufacture of arsphenamine. The work was done at the Hygienic Laboratory, the University of Chicago, and at one of the larger plants where arsphenamine was produced. This led to marked improvement in the quality of this particular brand of arsphenamine and removed the serious shortage of the drug at the beginning of the year 1918. As a result of this work the army and navy were able to secure a sufficient supply of the drug.

Another phase of the arsphenamine work had for its purpose the elimination of the untoward reactions sometimes following the administration of the drug to patients. It appeared particularly important to determine the causes of these reactions and to discover means for their prevention and treatment. The work was divided into:

1. A study of the cause of the circulatory and respiratory reactions (nitritoid crises).
2. The study of arsphenamine nephritis. Considerable progress has been made on this subject and upon completion of the work it is hoped that certain definite recommendations will be available which will eliminate some of the disadvantages possessed by this drug and prevent the small number of deaths resulting from its use.

Miscellaneous Laboratory Examinations.—In connection with the rumors that many kinds of contaminations, poisons and glass were being introduced into food by enemy sympathizers, the Hygienic Laboratory examined specimens from suspicious cases submitted by officers of the Government. The specimens covered an exceedingly wide range of objects, such as candy, cakes, bread, pies, breakfast foods, and dried and preserved fruits. The most interesting of these specimens were those of court plaster, sent to the laboratory because it was suspected by the general public that German

agents had introduced tetanus bacilli into the court plaster and then had peddled the plaster to the public. Thirteen samples of the suspected court plaster were examined and tetanus bacilli were found in two samples. This was so interesting that the laboratory deemed it advisable to go into these investigations more thoroughly. Accordingly, numerous samples of court plaster were purchased in drug stores in the open market and submitted to examination. The result showed that a number of the specimens contained tetanus bacilli and that the presence of these bacilli was due to insufficient sterilization of the gelatin used in the plaster. Regulations were accordingly framed governing the sterilization of gelatin used in the manufacture of court plaster.

Another interesting case was the appearance of anthrax in several cantonments among the users of new shaving brushes. Several soldiers who had purchased new shaving brushes developed anthrax with fatal results. The brushes which they used were submitted to the Hygienic Laboratory and the examination showed the presence of anthrax spores in the bristles. The manufacturers of the various brushes were communicated with and their cooperation was secured in solving this interesting problem. It appeared that the bristles used in the manufacture of shaving brushes are to a large extent imported from China. It further appeared that although the bristles were cleansed by ordinary scrubbing, they were not really sterilized. Under these circumstances it is readily seen that anthrax infection in an animal whose bristles were used for shaving brushes could be transferred to the user of the shaving brush. Regulations governing the sterilization of bristles used in the shaving brushes were prepared under the authority of the Interstate Quarantine Act.

PRODUCTION AND SUPERVISION OF BIOLOGICAL PRODUCTS.

The entry of America into the war resulted in an enormous increase in the production and use of serums, toxins, and analogous products. As all manufacturers of these products are licensed by the Federal Government and as the law provides for the examination and control of the products and for the inspection of the manufactories, an immensely increased amount of work was thrown upon the Hygienic Laboratory. It was particularly necessary that every lot should be tested before being released for use in the Army or the Navy, as these two services depended entirely upon the reports of tests made at this institution. Promptness was an important factor. The outbreak of meningitis and pneumonia in the military camps was the signal for using vast quantities of specific sera for these infections. These sera were standardized in the Hygienic Laboratory, and manufacturers were instructed to comply with these tentative standards.

In order to help protect the military forces against typhoid fever considerable attention was devoted to the control and eradication of typhoid infection from extra-cantonment areas. In this work extensive use was made of antityphoid inoculations. The vaccine for this purpose was prepared and furnished by the Hygienic Laboratory. In this connection the following table will be of interest:

Production of Typhoid Vaccine.

Fiscal year ending June 30, 1914.....	4,892 cc. produced
Fiscal year ending June 30, 1915.....	17,248 cc. produced
Fiscal year ending June 30, 1916.....	16,075 cc. produced
Fiscal year ending June 30, 1917.....	99,889 cc. produced
Fiscal year ending June 30, 1918.....348,275 cc. produced	
July 1st to Dec. 1st, 1918.....612,908 cc. produced	

During the period of the war 1,102,812 c.c. of bacterial vaccine were distributed. This includes typhoid, paratyphoid, and the so-called "triple vaccine." The manufacture of the last-named was begun in 1917.

CAMPAIGN AGAINST VENEREAL DISEASES.

Inasmuch as venereal infection had regularly exacted a heavy toll from military forces, and because experience had shown that the source of this infection was principally an infected civilian population, the outbreak of the war naturally focused the attention of civilian health authorities on the control of venereal diseases to the end that the military forces might be protected. Prior to the war a number of progressive States had begun to deal with this problem, and in general the result of their activities had demonstrated a practicable plan by which health authorities might hope to secure some measure of control of the venereal diseases. There was lacking, however, any nationwide interest in this important health problem, and, still more important, very little disposition on the part of most State authorities to provide funds for anything approaching an adequate plan of control.

Charged as it is with the control and prevention of communicable diseases spread from State to State, the Public Health Service realized that it had a definite responsibility in organizing an effective campaign for the control of venereal diseases.

Accordingly, through its division of domestic quarantine it outlined a plan whereby the Public Health Service would cooperate with State health authorities in effective anti-venereal disease control. Briefly summarized, the plan provided for the appointment of an officer in each State to direct the work of venereal disease control. The salary of such officer, selected by the State health officer, was to be paid by the State and Federal governments jointly. Each State was at once to provide for the notification of all cases of venereal disease, and to make provision for the extension of facilities for early diagnosis and treatment. Repressive measures, looking to isolation and treatment of dangerously infected individuals, and educational measures for the general public as well as for the infected persons, were also to be provided for.

Under the stimulus of the war emergency a considerable number of States accepted the plan of cooperation just outlined. Nevertheless it is certain that nowhere near the progress that actually has been made would have been made had it not been for the Federal financial aid given by the so-called Chamberlain-Kahn act approved July 9, 1918.

Under the provisions of this act allotments were made to each of the various States. Such allotments were to be expended in accordance with the rules and regulations promulgated by the Secretary of the Treasury. These provide that approximately 50 per cent. of the State's allotment is to be used in treatment of venereal diseases; 20 per cent. for the educational work; 20 per cent for law enforcement, and 10 per cent. for administration.

At the present time venereal disease clinics are being conducted in 28 extra-cantonment zones, and 112 in other locations. During the period of one year—1918—22,441 cases of venereal diseases were treated in the extra-cantonment clinics. These cases were divided as follows: syphilis, 9,250; gonorrhea, 12,210; chancroid, 981. At each of these clinics a circular is handed to the patients, giving important confidential information in regard to syphilis and gonorrhea.

At the time of the second draft the Provost Marshal General of the Army requested the Public Health Service to carry on a campaign of education among the drafted men. Lecturers were appointed and nine regional supervisors were placed on the road to supervise this lecture work. Three million copies of the leaflet entitled "Come Clean" were printed and distributed to the men in Class A.

The moving picture film "Fit to Fight" prepared by the Army Medical Department has been revised and the title changed to "Fit to Win" and is being shown before civilian audiences throughout the country.

A circular letter was sent to all of the retail druggists in the United States (about 47,000) asking that they discontinue the sale of venereal disease nostrums and cease counter-prescribing for venereal infections. A bulletin entitled "Responsibility of Druggists for the Public Health" was also sent to each of these druggists.

A circular letter will soon be sent to all of the physicians in the United States, asking that they cooperate in the fight against venereal diseases. This is Venereal Disease Circular No. 35. Seventy thousand copies of the Manual for the Treatment of Venereal Diseases are now in the hands of the printer and will be sent free of charge to each physician that replies to this appeal.

More than 17,000 letters have been received by the Bureau as a result of the circular "War on Venereal Diseases to Continue". Out of this total number, only four contained adverse criticisms. All of the other letters received showed a deep interest and sympathy with the movement for control of venereal diseases throughout the country.

Following is a list showing the allotments made under the provisions of the Chamberlain-Kahn Act. Each of the States has received the allotment, with the exception of those marked with a star:

Alabama	$23,247.41	Massachusetts	$36,603.94
Arkansas	17,117.43	Nebraska	12,962.79
Arizona	2,221.95	*New Mexico	3,558.74
California	25,851.07	Nevada	890.22
Colorado	8,687.79	North Dakota	6,274.30
Connecticut	12,120.75	North Carolina	23,988.94
Delaware	2,199.84	New Hampshire	4,681.62
*Dist. of Columbia.	3,598.72	New York	99,089.31
Florida	8,182.47	Oregon	7,315.04
Georgia	28,368.95	Ohio	51,832.61
*Idaho	3,540.19	Oklahoma	18,017.23
Indiana	29,366.62	*Pennsylvania	83,342.76
Illinois	61,308.38	Rhode Island	5,899.80
Iowa	24,194.56	South Dakota	6,348.61
Kentucky	24,898.14	South Carolina	16,476.95
Kansas	18,385.49	*Tennessee	23,755.21
Louisiana	18,008.89	Texas	42,367.08
Montana	4,088.71	*Utah	4,059.33
Michigan	30,555.01	Virginia	22,415.90
Minnesota	22,569.18	Vermont	3,870.31
*Missouri	35,808.43	West Virginia	13,277.22
Maryland	14,084.18	Washington	12,416.85
Mississippi	19,540.22	Wisconsin	25,370.06
Maine	8,071.80	Wyoming	1,587.07

MEDICAL AND SURGICAL RELIEF.

War Work of the Marine Hospitals.—The Executive Order of the President dated April 3, 1917, made all marine hospitals of the Public Health Service available for the treatment of the enlisted personnel and officers of the Army and Navy whenever such treatment was requested by the proper military authorities. Of course the Army and Navy have their own hospitals, but it was expected that in many places where there is no regular military post or hospital, officers and enlisted men would be taken sick and require hospital treatment. In this way the marine hospitals practically acted as military hospitals in many cities. Notable examples of this are Savannah, Detroit, and Chicago. Besides Army and Navy personnel, civilian employees on vessels operated by the military authorities were admitted at many hospitals after the boats upon which they served had been torpedoed. This occurred especially at the marine hospital in Boston. Altogether, for the fiscal year ending June 30, 1918, there were treated at the United States Marine Hospitals and relief stations over 5,000 officers and enlisted men of the Army and Navy. Of this number approximately 1,000 were admitted to hospital for treatment, the remainder having been given treatment as out-patients in the dispensaries operated either in connection with the hospitals themselves or at other relief stations.

In addition to the foregoing, soldiers suffering from trachoma were admitted to some of the marine hospitals for treatment and in the majority of instances these were cured and returned to their respective commands.

Cooperation with Bureau of War Risk Insurance.—A direct outgrowth of the war activities of the Public Health Service is the plan to provide medical, hospital and sanatorium care for the beneficiaries of the Bureau of War Risk Insurance.

Already, with demobilization just begun, the War Risk Insurance Bureau has under medical treatment 1,724 beneficiaries (January 16, 1919).

Within a very short time hospital care will have to be provided for a considerable proportion of the 24,500 soldiers, sailors and marines discharged from military service because of tuberculosis, and for the 50,000 cases of psycho-neurosis, epilepsy, and other nervous and mental disorders reported among the military forces up to December 1, 1918. But this by no means exhausts the demands for hospital care which may be expected to be made upon the Public Health Service. According to the provisions of the War Risk Insurance Act the Government is obligated to provide "such reasonable governmental medical, surgical and hospital services, and with such supplies including artificial limbs, trusses and similar appliances as the director may determine to be useful and reasonably necessary." The application of such sick benefits is limited to illness contracted in line of duty, and it is further provided that symptoms must have appeared within a year after discharge from military service. In order to prevent the unnecessary duplication of hospital construction by various bureaus and departments of the Federal Government, the suggestion was made that the hospitals in the present cantonments be utilized for the care of beneficiaries of the War Risk Insurance. In a bill recently passed by Congress, certain cantonment hospitals, together with the large and newly completed "Speedway" hospital in Chicago, are given over to the Public Health Service for

the care of War Risk patients. In addition to this the bill provides for the establishment of sanatoria for the tuberculous in various parts of the country.

There is an advantage in having the hospital activities of the War Risk Insurance conducted by the United States Public Health Service: both services are lodged in the Treasury Department, and the Public Health Service already maintains a well-organized hospital service which, by law, stands obligated to treat.

1—Merchant seamen.
2—Employees of the Mississippi River Commission.
3—The United States Coast Guard Service.
4—The United States Lighthouse Service.
5—Employees aboard vessels of the Engineer Corps of the U. S. Army.
6—The United States Coast and Geodetic Survey.
7—Injured civil employees of the United States, under the Federal Compensation Act.
8—Civil employees on Army transports.

MISCELLANEOUS ACTIVITIES.

Sanitary Engineering.—The sudden development of industrial towns and villages in connection with munition plants, shipyards and the like resulted in a considerable number of requests to the Public Health Service for assistance in the solution of problems relating to water supply, sewage disposal and the like. Some idea of the character of the activities thus carried on by the Service may be gained from the following examples:

The citizens of Nashville, Tenn., became somewhat alarmed over the safety of their water supply when it was decided to locate a large government explosives works on the Cumberland River, about 12 miles above the city. An investigation was made by the Public Health Service and a report submitted, including suitable recommendations for the disposal of sewage at the Government plant and for necessary additional safeguards to the water supply. Later, the question of the discharge of waste acid liquors into the Cumberland River was raised, and a board was appointed to consider this matter. Extensive studies were made and a remedial plan worked out.

The attempt on the part of the City of Petersburg, Va., to furnish water to Camp Lee led to a shortage in the supply and inadequacy of treatment. An officer of the Service investigated this situation and made recommendations toward general improvement of the supply. The city having declined to make the necessary changes this matter was later referred to the War Department, which assumed charge of the entire water works.

Shortly after the signing of the armistice serious complaint arose in Milwaukee, Wis., over the alleged pollution of the drinking water by a phenol plant located south of the city and discharging wastes into the lake about 12 miles from the water works intake. Investigation by the Service showed that the complaints were well founded. Recommendations were made that the matter be referred to the War Department, and that the contract under which the plant was operating be canceled. The operation of this plant was discontinued very shortly thereafter.

At the request of the Navy Department a visit of inspection was made to the Marine Camp, Quantico, Va., and a report with recommendations was subsequently submitted, with reference to the proper treatment and disposal of sewage of the camp.

A small factory at Gaithersburg, Md., engaged in canning beans for the War Department, had failed to provide proper means of disposal for its waste water and was seriously polluting a small stream. Complaints of nuisance in the town and of the poisoning of cattle were pressed and the closing down of the factory was seriously threatened. An investigation made by the Service resulted in the construction of some temporary works which greatly relieved the situation and made it possible to continue the factory in operation throughout the remainder of the season.

In connection with Service activities at Newport News, the importance of milk pasteurization led to the study of the possibilities of a central pasteurizing plant for that city. An officer of the Service who had already made similar studies for Tuscaloosa, Ala., was assigned to this study and prepared complete plans and in part supervised the installation of this pasteurizing plant. The plant at this time is complete and in operation under the general supervision of the Service.

A similar need for a satisfactory milk supply having arisen at the Government powder plant at Nitro, W. Va., plans were originally prepared for a pasteurization plant, but it was later decided to undertake at that point a demonstration of the possibilities of reconstructed milk. An officer of the Public Health Service accordingly prepared plans and supervised the construction of this plant. The operation has been most satisfactory, and an abundant supply of clean and wholesome milk was assured the city at a price considerably lower than normal city prices at this time.

Cooperation with Other Government Agencies.—Council of National Defense, War Industries Board, Capital Issues Committee.—Actuated as it was by the desire to do all in its power to insure the success of the nation's great undertaking, the Public Health Service gave freely of its services to other Government departments and to agencies engaged in war work. Mention has already been made of the cooperation with the military authorities and the American Red Cross in the sanitation of extracantonment areas and of the cooperation with the Bureau of War Risk Insurance in providing medical and surgical care for beneficiaries of the insurance fund. The Public Health Service also cooperated with the Council of National Defense, in the Medical Section of which the Surgeon General served as chairman of the Committee on Hygiene and Sanitation. In the Council's Section on Labor, the Public Health Service took an active part in matters relating to industrial hygiene; with the National Research Council it cooperated in a number of scientific investigations, and it furnished expert advice as to the health needs of civilian communities to the Priorities Committee of the War

Industries Board and to the Capital Issues Committee.

United States Navy.—An important war activity of the Public Health Service was its cooperation with the Navy Department.

For the purpose of assisting in the protection of health of the Navy and thus aid in increasing the efficiency of the Navy as a fighting force, a medical officer of the Public Health Service was detailed as Sanitation Officer to each of the fourteen naval districts in the United States.

In general the duties of these officers embraced the following:

1. To make regular inspections of the sanitary conditions of the naval stations and all places within the Naval Districts to which they are assigned, with special reference to water supplies, sewage, garbage and manure disposal, introduction, presence and disposition of cases of communicable diseases, the presence of disease-carrying insects, or of conditions favoring their growth, and to the facilities for messing and housing the personnel.
2. To secure information by personal observation and through civilian health authorities as to the prevalence of communicable diseases and sanitary conditions in the areas around naval stations and in localities from which recruits are collected.
3. To advise and assist in eradicating any communicable disease that may make its appearance in the district, and to make such epidemiological investigations as may be necessary and practicable.
4. To secure information as to the quality of water and milk supplied to both naval forces and civil population in the immediate environments of camps and stations, and as to methods of disposal of sewage, etc., in such localities.
5. To pay particular attention to the presence of disease-bearing and other mosquito-breeding areas either within the camp or within its immediate environment.
6. To determine as far as practicable the prevalence of venereal diseases in the civil communities adjacent to camps and stations, and the measures used for their control.
7. To make monthly inspection of the industrial establishments in the navy yards and make suitable recommendations, when necessary, for the correction of insanitary and un-hygienic conditions.

Additional activities were undertaken as the needs arose. In the New York Naval District, for example, these included the inspection of various shipyards in the neighborhood where navy yard personnel was employed, the inspection of ships belonging to the transport cruiser force, and the fumigation of these vessels by the navy personnel under the direction of the Sanitation Officer.

PUBLICATIONS RELATING TO WAR ACTIVITIES.

An important function of the Public Health Service is the dissemination of information regarding public health matters. The following list of articles published by the Service gives such a good idea of the war activities of the Public Health Service that its publication here may be of interest:

Trachoma and the Army—The Dangers Incident to Enlisting Recruits Affected with the Disease. By John McMullen.

Meningococcus Carriers — Their Recognition and Treatment.

Certain Military Aspects of Hookworm Disease. By Ch. Wardell Stiles.

The Lighting of Industrial Establishments—The Need for Supervision, with Suggested System of Maintenance Rating for Artificial Light Equipment. By Davis H. Tuck.

The Simulation of Disease—Drugs, Chemicals, and Septic Materials Used Therefor. By A. G. DuMez.

Trinitrotoluol—Practical Points in Its Safe Handling. By J. W. Schereschewsky.

Mitigation of the Heat Hazard in Industries. By J. A. Watkins.

Extra-Cantonment Zone Sanitation—Camp Shelby, near Hattiesburg, Miss. By J. A. Watkins.

Industrial Efficiency—The Bearings of Physiological Science Thereon—A Review of Recent Work. By Frederic S. Lee.

Morbidity Statistics of War Industries Needed. By B. S. Warren.

A State-wide Plan for the Prevention of Venereal Disease. By Allan J. McLaughlin.

Extra-Cantonment Zone Sanitation, Newport News, Va., and Vicinity. By S. B. Grubbs.

Methods for Field Study of Industrial Fatigue. By P. Sargeant Florence.

Suggestions for State Board of Health Regulations for the Prevention of Venereal Diseases.

The Present Status of Our Knowledge of Fatigue Products. By Ernest L. Scott.

Progress in Venereal Disease Control. By J. G. Wilson.

The Dietary Deficiency of Cereal Foods with Reference to Their Content in "Anti-neuritic Vitamine." By Carl Voegtlin, G. C. Lake, C. N. Myers.

The Growth-Promoting Properties of Foods Derived from Corn and Wheat. By Carl Voegtlin and C. N. Myers.

Phosphorus as an Indicator of the "Vitamine," Content of Corn and Wheat. By Carl Voegtlin and C. N. Myers.

Some Qualitative and Quantitative Tests for Arsphenamine. By C. N. Myers and A. G. DuMez.

Dried Milk Powder—A Review of British Experience.

State and Federal Co-operation in Combating the Venereal Diseases. By J. G. Wilson.

Control of Diseases in Establishments for the Manufacture and Loading of High Explosives. Report of Divisional Committee on Industrial Diseases, Section of Sanitation, of the Committee on Labor, Council of National Defense.

Venereal Disease Control—Standards for Discharge of Carriers.

Regulations—Promulgated by the Secretary of the Treasury, under which State Boards of State Departments of Health Receive the Allotment of Funds provided in Section 6, Chapter XV, of the Act Approved July 9, Entitled "An Act Making Appropriations for the Support of the Army for the Fiscal Year Ending June 30, 1919."

War Program of the Public Health Service—Intended Especially for Extra-Cantonment Areas and War Industrial Centers.

Sanitation of Rural Workmen's Areas—With Special Reference to Housing. Report of Divisional Committee on Village and Public Sanitation, Section of Sanitation, Committee on Welfare Work of the Committee on Labor, Advisory Commission, Council of National Defense.

Preliminary Report on Carbon Tetrachloride Vapor as a Delousing Agent. By H. M. Foster.

Maintenance of Health in Industries—Its Relation to the Ac uate Production of War Materials.

Extra-Cantonment Zone Regulations — Regulations Governing the Sale of Food and Drink in the Special Sanitary Zone Around Camp Pike, near Little Rock, Ark.

Tetanus in Court-plaster—Results of the Bacteriological Examination of Fourteen Specimens.

Diphtheria, an Epidemic, Probably of Milk Origin, Occurring at Newport, R. I., and Vicinity.

Arsphenamine (Salvarsan) Licenses Ordered and Rules and Standards Prescribed for Its Manufacture.

Venereal Disease Legislation—A Compilation of Laws and Regulations Showing the Trend of Modern Legislation for the Control of Venereal Diseases.

Physical Fatigue as a Factor in Increasing Susceptibility to Communicable Disease.

Anthrax from Shaving Brushes.

Industrial Fatigue—Investigation by Means of Factory Statistics.

The Reserve of the Public Health Service.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, May 24, 1919.

EVOLUTION AND PROGNOSIS OF SPOROTRICHOSIS.

SPOROTRICHOSIS undergoes a slow, painless evolution, without a rise in temperature excepting in a few rare exceptions in which the lesions are painful. The general health remains good, the patient being disturbed only by the annoyance caused by the lesions when movements are made, and for this reason the case comes up for treatment only when the gummata have attained considerable size or have ulcerated. In almost all cases there is a history of bronchitis or of grippe which occurred before the appearance of the gummata, but it is questionable if these pulmonary affections have any relation to the sporotrichosis. The duration of the evolution varies anywhére from two to six months, hardly ever longer. It progresses in successive attacks and thus can be explained the great variety of lesions presented by the patient. Trauma favors the evolution in several ways, either by creating an entrance for the fungus into the organism or by producing a point of lessened resistance. In the latter case, infection is supposed to have already taken place. The infection extends by either the lymphatics or the general circulation. If inoculation takes place in a wound the lymphatic route is followed, while when inoculation occurs on a mucous surface the infection is carried by the blood.

The prognosis of sporotrichosis is not serious, especially now that its treatment with the iodides has come into practice. Fatal cases have indeed been recorded, but they are few in number. The nature of the soil explains certain serious types of the disease, while an absence of immunity explains recurrences. The sporotrichum is a parasite of low virulence, but it can produce lesions of marked intensity. There are three factors by which this discordancy can be explained, namely, a diminution of the patient's resistance, an increase in the virulence of the fungus, and a progressive sensibilization of the individual. The soil is favorable for the parasite when the subject is an alcoholic, diabetic, or arthritic. The fungus becomes progressively more virulent, a fact well demonstrated by experimental work in animals. This also explains the aggravated nature of the lesions and their greater gravity as new attacks succeed each other when left untreated. The greater the number of gummata the more sensible will the patient become to the propagation of the fungus.

The exhibition of the iodides should be continued for several months after all the morbid manifestations have completely disappeared, because if treatment is suspended too soon the manifestations of the fungus will recur with an increased intensity. Fortunately, in the iodides we have an absolute specific, and a properly conducted exhibition of the drug will result in a cure of the process within a month or six weeks, but we would repeat that it must be continued for some months after all morbid manifestations have disappeared, otherwise a recurrence in an aggravated form is sure to occur. Although the affection is characterized by subcutaneous gummata disseminated over the body surface, it should be recalled that the muscles, bones, and viscera may not escape involvement, another and very good reason for continuing treatment after the cutaneous lesions have retrogressed.

STRAINS OF VARIOLA.

THE reports to the British Local Government Board on Public Health and Medical Subjects frequently contain material of very great value. Dr. R. Bruce Low has recently supplied information of this character to these reports in his elaborate review of the "incidence of smallpox throughout the world," which is discussed at some length in the *Tropical Disease Bulletin*, March 15, 1919. In the course of the review he states that the strains of smallpox infection current in different parts of the world vary in their degree of violence; those in Asia and Africa sometimes being more serious than those met with in North America, or in the recent epidemics in Australia and New Zealand, where frequently, even in unvaccinated people, the disease has been of a mild clinical type with few serious sequelæ. With regard to Australia Dr. Bruce Low's figures show that in seven epidemics ranging from 1868 to 1903 in that country, there was no indication of special mildness; in four years the case mortality per cent. was from 17.3 to 28.8 and in three years from 2.59 to 10.7. In 1913-1914, however, in New South Wales there occurred 1,661 cases of smallpox of a type so mild that at first it was confused with varicella. It was believed this strain was introduced from Vancouver, and that it was of the same character as one causing an endemic long known to prevail in Canada and the United States. In New Zealand in the same period this mild type became epidemic, the chief sufferers being the Maoris. A similar mild type is reported to have been experienced in Venezuela, Barbados, St. Vincent, Grenada, Tobago, and Demerara. In South Africa an apparently similar form of the malady is known by the term "amaas" or "Kaffir smallpox."

The writer, in referring to the mild type

occurring in America, points out that while the benign form is the prevailing type, other and more virulent strains of infection are occasionally imported into the United States, notably from Mexico, and give rise to fatal outbreaks, spreading in virulent form unless energetically dealt with. It has also to be kept in mind that even when the strain of infection is benign some of the persons attacked by it occasionally, under conditions as yet not quite clear, develop a virulent form of the disease. As for example Assistant Surgeon Eskey, U. S. Public Health Service reported in *Public Health Reports*, September 20, 1918, that at Eagle Pass, Texas, both virulent and mild smallpox had been present during the epidemic that prevailed there. Mild cases occurred among those unvaccinated as well as sometimes among those with vaccination scars. The virulence decreased as the epidemic progressed, the number of deaths in the first ninety cases being 27, or 30 per cent., and in the last 60 cases 6, or 10 per cent.

Those who have studied the cultivation of animal vaccine on the calf, have had it forced upon them that strains of vaccine have as definite an existence as breeds and varieties of breeds of horses. Each has its characteristics, which can be maintained so long as conditions attending transfer from animal to animal are practically the same. It seems evident, arguing from analogy, that there also exist strains of smallpox which pass from human being to human being of different races, and under varying climatic conditions and yet remain, in at least the greater number of attacks, true to type, although liable in individual cases to the exhibition of increased or decreased vigor.

HAS SPINAL ANESTHESIA ESTABLISHED ITSELF?

THAT the affairs of men have a rhythmical tendency has arrived at the status of an axiom. Reaction is equal to action, and even greater, as David Harum might have said in another sphere. A little-heeded novelist dies and the public rush to deck his tomb, and buy his books, and a few years later callous critics dip their pens and automatically inscribe their standard exordium: "Now that we are beginning to get the proper perspective on the works of So-and-So it becomes doubtful whether—" and follow by the style of carping harmonious to the public's then mind. This swing of the pendulum backward and forward is seen in medicine as in other human activities. A new therapy is introduced, becomes popular, and is recommended for an extensive list of ailments. Then failures and disadvantages are noted and articles begin to appear questioning whether there is any worth in the method whatever. Later on, as the pendulum vibrates with less and less amplitude, the treatment begins to find its true place in medicine.

Quite often the introduction of a new drug or diagnostic method to the profession is associated with some picturesque or forceful personality whose enthusiasm and weight carry it too far; later he partakes of the reaction, or if perchance he loses caste for some other reason, the innovation he sponsored shares in his downfall. Many instances might be cited in exemplification, but we have in mind just now spinal anesthesia, which enjoyed such a vogue a few years ago, in the peace and quiet of the antebellum days. This method had, according to its advocates, all the merits and none of the drawbacks of general anesthesia by inhalation. Then reports of an occasional death began to mar the serenity of the picture. Soon the succinct criticism "unsafe" attached itself to spinal anesthesia and its day was done.

It may be a matter of speculation, however, to the thinking few whether such a sweeping rejection of a method which certainly had its advantages was justified or not. This question was investigated a few months ago by an English writer, Dr. Rood (*The Lancet*, January 4, 1919), who has been at considerable pains to present the true status of spinal anesthesia without bias. Dr. Rood does not go into the technique, except to say that he uses stovaine, a five per cent. solution, for the most part, novocaine only occasionally. He has had two deaths in eight thousand cases, an experience which compares favorably with any method. He recommends using it in hospitals even where there is no especial indication for its use, *i.e.* in ordinary cases of appendicitis, hernia, and the like, so that the necessary skill may be acquired in its use when indicated. With such skill and ordinary care Rood believes that it is as safe as other methods; he has never seen a death from its use in any simple operation and he has seen many lives saved by it. His conclusion is that spinal anesthesia is past the experimental stage and, while not to be considered a universal anesthetic, and while possessing certain dangers, it has such decided merits that it should be used in suitable cases in all hospitals.

THE PLAGUE EPIDEMIC IN INDIA.

INDIA has been visited repeatedly by the plague during the past two decades, but at present there are evident signs that these periodical epidemic outbursts are permanently abating in virulence. Direct experimental investigation has shown that the newer generations of rats are developing comparative immunity from infection of the disease and that it is quite probable that in time the rats in long-infected districts may become absolutely immune. That this would probably be the ultimate outcome of the plague in India was always predicted by Dr. C. J. Martin, F.R.S., the director of The Lister Institute, who organized the remarkable and extensive series of researches which demonstrated that the infection was conveyed by rat-fleas from rat to man. Dr. Martin's first inquiries into the plague were made in 1897, and his theory now seems to be in process of becoming accepted.

There can be little, if any, doubt that it was in some similar fashion that the plague ultimately disappeared from the British Isles. The supposition is that the Black Death of 1348 and all the successive epidemics down to the Great Plague of London in 1665, were frequently dual in character. They were probably in part bubonic and in part pneumonic. This latter type of plague is conveyed by direct infection from man to man and is characterized by short virulent outbreaks which quickly subside, as in Manchuria some years ago. In bubonic plague the contagion is carried by the rat-flea, and it is suspected, although the inference cannot be directly proved, that the British rats gradually and progressively became immune to plague infection, and it is perchance not impossible that their comparative immunity still continues.

The plague has unquestionably remained persistently endemic through centuries in certain remote parts of the world, such as the highlands of Yun Nan in China, and in Western Arabia. Major Norman White of the India Medical Service, in an official report to the Government of India, warns that country that it is still "by far the most important reservoir of plague in the world." So recently as 1917-18 the peninsula suffered from an abnormally severe epidemic, which extended to towns never before infected. During the last two decades it has taken a toll in India alone of ten million lives, and yet Major White declares with truth that "of all preventable diseases, none is more preventable than bubonic plague." In several years during the two decades the mortality from the plague far exceeded that from cholera, which in the present state of our knowledge should be regarded as almost equally preventable.

Gunshot Wounds of the Pancreas.

It has been for long the general belief that acute disease of the pancreas is very fatal. Mr. Gordon Taylor, writing in the *Clinical Journal* of April, 1919, points out that in cases of injury to this organ the prewar literature does not altogether take this pessimistic view. Taylor said it was a matter of some interest to him on going to France to learn of the reputed very fatal nature of injury to this organ. Attention has been drawn to the fact that in the war gunshot wounds of the pancreas were less frequent, or at any rate less often recognized than those of any of the other abdominal viscera, and it has been explained that the intimate relations of the gland to the large blood vessels are such that a wound of the pancreas involves the greatest risk of an immediate and probably fatal hemorrhage, so that many such cases did not reach the casualty clearing hospital. In General Cuthbert Wallace's series of 965 operated cases, described in his "War Surgery of the Abdomen," the pancreas is noted as wounded in only five, and in but one of these was the patient evacuated successfully. Sir G. Makin's results were much the same. Judging from his own experience and that of others Taylor comes to the conclusion that in the recent war gunshot wounds of the pancreas have indeed been fatal injuries, and the few successful cases recorded are to be regarded as exceptional.

Poisoning with Oil of Chenopodium.

This subject is of interest to the miscellaneous reader because of the recommendation of the remedy for uncinariasis as a substitute of thymol. In the *Correspondenz-Blatt für Schweizer Aerzte* for March 22, Ryhiner, of Professor Freer's pediatric clinic has published several cases of poisoning by this drug which go to show that the book doses may be too high. The author reports three cases in great detail. Two patients were in the third and the other in the eighth year. In two cases the oil was apparently given only because of suspicion of worms, while in the other round worms had been found in the stools. The author concludes as follows: for both ascarides and oxyuris the oil of chenopodium is by far the best anthelmintic, but the book dose is too high. The right posology is about as follows: one drop for each year of the child's age should first be given; this should be repeated in an hour. Then after another two hours a large dose of some laxative should be given, and, should not stool appear after a second two-hour pause, the laxative must be repeated. A cure without severe purgation seems dubious. The symptoms of intoxication are drowsiness passing into somnolence and coma, unilateral clonic spasms and facial paresis, screaming, sluggish pupil reaction, horizontal nystagmus, abolished reflexes, and, exceptionally, death from respiratory paralysis.

News of the Week.

New York Charities Conference.—The New York City Conference of Charities and Corrections held its tenth annual meeting May 13, 14 and 15 for the purpose of discussing questions relative to public health, war labor problems, and public charities. Among those who contributed to the program were: Dr. Royal S. Copeland who spoke on public health problems; Justice Cornelius F. Collins of the Court of Special Sessions, on "After the Saloon, What?" Dr. Pearce Bailey, President of the New York State Commission for the Feebleminded, on "The Problem of the Feeble Minded in New York." Justice Collins expressed the opinion that an increased indulgence in habit forming drugs was almost certain to follow after prohibition and that legislation should be such as to permit medical judgment in prescribing alcohol. Dr. Walter H. Conley, acting General Medical Superintendent, Blackwell's Island Department of Charities and Correction, spoke on "The Unification and Control of Public Hospitals." He believed that an ideal form of control of public hospitals could be obtained by establishing a department of hospitals under the jurisdiction and direction of a commissioner. Under the present system the control of the city hospitals is under the jurisdiction of three different departments having similar plants and equipment and caring for the same cases, a condition of affairs leading to constant friction among employees, overlapping of work and economic waste. Dr. Charles H. John-

son, Secretary of the State Board of Charities, delivered an address on "Cooperation and Relation of Public and Private Agencies."

Boom in Insurance Follows Influenza.—Life insurance written by the companies operating in New York during the four months of 1919 has almost doubled over that of last year. Insurance company officials ascribe the remarkable increase to general prosperity, the lesson of Government war insurance of soldiers and sailors, and the influenza epidemic. Those who have studied the effect of the influenza epidemic mortality on insurance state that new life insurance increased with the rise of influenza mortality, and has continued to increase steadily until it has now soared to a point unprecedented in insurance history. The insurance companies were prepared to face a decrease in new business owing to the war, the fewer solicitors, and other causes; instead of a decrease the total business for the year if continued at the present level would be $10,000,000,000 as compared to $5,800,000,000 in 1918.

Gift to Mount Sinai Hospital.—The Mt. Sinai Hospital, New York, has received a gift of $150,000 from Mr. and Mrs. George Blumenthal for the erection of an auditorium building on the hospital grounds at Ninety-ninth Street and Fifth Avenue. Besides a large auditorium which will be devoted to the educational work of the hospital, the Mount Sinai Training School for Nurses, and the social service department, the new building will house an up-to-date *x*-ray department. The building is to be known as the Blumenthal Auditorium, and is to be erected as a memorial to George Blumenthal, Jr. It will be the sixteenth building in the Mount Sinai group.

Industrial Accidents in New Jersey.—Reports of industrial accidents made to the Department of Labor show a total of 16 fatal and 4916 non-fatal accidents last month. Of this total, nine fatal and 1336 non-fatal accidents are charged to factories and workshops.

Vanderbilt University Raided.—Police raided the medical laboratory of Vanderbilt University on May 12 and seized two patrol wagon loads of whiskey and other intoxicants. Four students were arrested charged with violating the State storage act.

Christian Science Healing Inquiry.—Recently the eight-year-old daughter of Andrew Walker of Newark died after having been under the care of a Christian Science healer for a week. The County Physician testified at the hearing that the child died as the result of diphtheria which could have been detected readily from the symptoms originally exhibited by the child. The law in New Jersey is that "the parents of a child or any person upon whom the duty is imposed to care for a weaker person, owe it to that person to care for and protect him, to provide proper medical attendance, and if, as a result of gross neglect, evincing a reckless disregard of human life, the child dies, the parent is guilty of manslaughter.

Dr. N. B. Potter's Memorial Laboratory and Clinic.—This institution, which was removed from the City Hospital, New York, to the Cottage Hospital, Santa Barbara, Cal., was formally dedicated at the Hotel Belvidere, on the eve of the annual meeting of the California State Medical Society, May 1. The new wing of the Cottage Hospital which houses the Memorial Laboratory and Clinic was made possible through the generosity of Mr. Billings, Mr. Knapp, and Mr. Peabody of Santa Barbara. The purpose of the Memorial Laboratory and Clinic is the study and treatment of nephritis, gout, and diabetes, under conditions which will provide for a thorough clinical and laboratory study of these diseases. The new building is being rapidly furnished and will be ready for occupancy within a fortnight. It is equipped with the latest type of electrocardiograph, a hydrotherapeutic establishment, a complete modern diet kitchen, chemical, biochemical, bacteriological, and clinical pathological laboratories. Some of the ward beds have been endowed so that they may now be offered to deserving sick poor residing outside of Santa Barbara. Dedicatory addresses were made by Dr. Chatfield Taylor and Dr. H. C. Moffitt who paid high tribute to Dr. Nathaniel Bowditch Potter, the Director of the institution, for his untiring zeal and enthusiasm in organizing the work.

Urge Opposition to Compulsory Health Insurance.—The Physicians' Protective League of New York, at its meeting on May 8, passed resolutions endorsing the action of the Medical Society of the State of New York in instructing its delegates to oppose Compulsory Health Insurance at the annual meeting of the American Medical Association and recommended similar action by other medical bodies in this State.

General Pershing Praises Nurses.—In a cablegram received at the headquarters of the American Red Cross in Washington, on May 13, General Pershing expressed the gratitude of the American troops in France for the devoted service of the army nurses enrolled through the American Red Cross. The letter says "The successful organization by the Red Cross of our nursing forces for war can hardly be overestimated. All of us in the American Expeditionary Forces have only gratitude for these devoted women who cared for our comrades and brought many back to life and health. To the late Miss Delano, Director of the Department of Nursing of the American Red Cross, we owe a special debt of thanks and admiration."

New League of Red Cross Societies.—A message from Paris announces the success of the Red Cross leaders in their efforts to unify and coördinate the Red Cross organizations in the United States, Great Britain, France, Italy, and Japan into a league of Red Cross Societies. The league which has been created will extend to Red Cross societies throughout the world and it is hoped through this plan of cooperation the Red Cross will become that great agency for the people's welfare which its founders determined it should be.

Treasury Gets Brooklyn Hospital.—The Norwegian Hospital at Fourth Avenue and Forty-sixth Street, Brooklyn, has been taken over by the Treasury Department. Last December it was taken by the War Department as a Base Hospital for wounded soldiers. The Treasury Department has taken the institution for the use of men cov-

ered by the War Insurance Act, whom the Army refuse to discharge from the service until cured.

Discussion on Thoracic Drainage.—In the very interesting discussion on this subject appearing in the report of the American Association for Thoracic Surgery in the issue of MEDICAL RECORD of May 10, the remarks of Dr. Willy Meyer were for spatial reasons published in the form of an original article. As Dr. Meyer had another article in the same issue we think it due him to state that this arrangement was made by the editor with the consent but not at the suggestion of the author.

Public Health Issue in Alabama.—Following a charge at the recent meeting of the Alabama Medical Society at Mobile that the State system of public health administration is grossly undemocratic as now constituted, a strong demand has developed for the enactment of laws at the session of the Legislature which meets in July to provide specifically that the public health administration shall be responsible to the people of Alabama. At the present time the Alabama Medical Society is constituted by law the State Board of Health. This society with a membership of 1800 appoints directly or through its subordinates every health official connected with the State Department of Health. It is now contended that laws should be enacted making the State Department of Health an integral and unquestioned part of State government, and consequently responsible to the wishes of the people. The State can through the Governor or otherwise call to account any official in other departments of the government. In the Health Department this is not possible since the Supreme Court has ruled that officials elected by the boards of health are mere agents of the boards, are not State officers and are not of or under the State.

Doctors Raise Fees.—The physicians of Chicopee, Mass., have voted to increase their fees. Under the new schedule which has already become effective, the fee for office calls remains at $1.00, while the house call fee is raised from $1.50 to $2.00. A fee of $1.00 is to be called for office telephone calls—which hitherto have been free. The night call fee has been raised from $2.00 to $3.00. A fee of $1.00 to $1.50 is charged for surgical dressings in the office and for outside surgical dressings, $2.00 to $2.50. Fees for industrial accident cases are to be from $3.00 up. The fee for confinements has been increased from $20 to $25.

The American Association for Thoracic Surgery will hold its annual meeting at Atlantic City on June 9. Further information regarding the meeting can be obtained by addressing the secretary, Dr. Nathan W. Green, 152 West Fifty-seventh Street, New York City.

The New York City Mortality Rate Drops.—The New York City Health Department calls attention to a noteworthy decrease in the mortality figures and the lessened prevalence of some diseases. The general death rate for the week of May 10 was well below that of the corresponding week of 1918, the rate being 12.16 per 1000 population for 1919 as against 14.19 in 1918. There was a decrease in the mortality from tuberculosis from 207 deaths for the week of May 10, 1918, to 160 deaths for the corresponding week of this year. Deaths from influenza and pneumonia combined amounted for this week to 247, as compared with 255 for the corresponding week of 1918. The records show that measles and whooping cough are less prevalent than usual.

The American Therapeutic Society will hold its annual meeting at Atlantic City on June 6 and 7. A program of the proceedings may be obtained from the secretary, Dr. Jacob Diner, 316 West Eighty-fourth Street, New York City.

The American Library Association will hold its 21st annual meeting at Atlantic City just preceding the meeting of the American Medical Association. The opening session will begin at 3 p. m., June 9, at the Hotel Marlborough. The Secretary of the Association is Dr. John Ruhräh, 1211 Cathedral Street, Baltimore, Md.

The American Association of Orificial Surgeons will hold its 32nd annual convention September 15, 16, and 17, at the Congress Hotel, Chicago. In addition to the usual scientific addresses and essays an extensive clinical program will be provided. Dr. Paul C. Goodlove, 504-5 Broadway Central Building, Detroit, Mich., is the secretary.

Commission for the Rehabilitation of the Industrially Crippled.—A Commission has recently been created by act of the New Jersey Legislature which provides for the rehabilitation of those crippled in industry. New Jersey is thus the first State in the Union to apply to her civilian population some of the lessons learned in the war. Governor Edge and the Commision recently visited United States Army General Hospital No. 3 at Colonia, N. J., for the purpose of investigating the methods of organized surgical reconstruction in operation there which might be applied with equal success in the case of the industrially crippled, and were so greatly impressed with the work that they appointed Dr. Fred H. Albee of New York, Chief of the Surgical Service in that hospital, Chairman of the Commission.

Colonel Depage Announces Plans for Edith Cavell Hospital.—Colonel Antoine Depage, professor of surgery at the University of Brussels and head of the Belgian Red Cross, has arrived in this country and intends to make a tour of the principal cities of the East to thank the people who contributed through his wife to the Belgian Relief Fund. In his first address in New York, on May 12, he announced his plan for building a memorial hospital at Brussels to bear the names of Edith Cavell and his wife, Marie Depage, who was one of the victims of the *Lusitania* disaster, drowned while returning with the funds collected in this country. Colonel Depage states that Mr. Lloyd George has started a fund in England to defray half of the expense of the institution.

Decorations for Women Workers in Luzancy Hospital.—The French Government has decorated twenty-two women who served during the war as physicians, surgeons, dentists, nurses, and ambulance drivers in conection with the American Women's Hospitals at Luzancy. Among the physicians and surgeons so honored are Dr. Delan Kinney of New York City, Dr. Louise Hurrell of Rochester, Dr. Charlotte Fairbanks of St. Johns-

bury, Vt., Dr. Kate Doherty of Milwaukee, Dr. Margaret Ethel Frazer of Denver, Dr. Mary MacLachlan of Portland, Ore., Dr. I. J. Manwaring of Norwich, Conn., Dr. Inez C. Bentley of Kings Park, L. I., Dr. Olga Stastney of Omaha, and Dr. Edna Ward of Littleton, Col.

Dr. H. H. Judd of Bozeman, has been appointed full time health officer of Gallatin County, Montana.

Major Alfred E. Lemon of Sault Ste. Marie, Mich., Surgeon of the 125th Infantry, who recently returned to this country has been decorated with the French Croix de Guerre, with a gold star, for bravery in action.

Charitable Bequests.—By the will of the late Bertha Herzfeld of Philadelphia the sum of $5,000 is bequeathed to the Jewish Hospital Association.

By the will of the late Thomas Skelton Harrison, of Philadelphia, bequests are made as follows: To the College of Physicians of Philadelphia, a portrait of Dr. Michael Leib, one of the founders of the College; Pennsylvania Hospital, $10,000; Day-Kimball Hospital of Putnam, Conn., $10,000, for the maintenance of Louise Harrison Beds; Philadelphia Home for Incurables, $5,000; Children's Hospital of Philadelphia, $4,000; Maternity Hospital, $5,000.

By the will of the late Mary E. Stuart of Philadelphia the following bequests are made: Presbyterian Hospital $5,000 for the maintenance of a free bed; American Oncologic Hospital $5,000 for study of the treatment of cancer; Philadelphia Home for Incurables $5,000; Rush Hospital for Consumption and Allied Diseases $2,500; Free Hospital for Consumptives $2,500.

Obituary Notes.—Dr. FOSTER SUDLER, a graduate of the Medical Department of the University of Pennsylvania, in 1896, died from tuberculosis at his home in Sudlersville, on May 8, aged 49 years.

Dr. JOSEPH W. MCKEE, a graduate of the Northwestern University Medical School in 1884, died from pneumonia at his home in Kansas City, Mo., on April 27, aged 69 years.

Dr. WILLIAM L. CAMPBELL, a graduate of the Kansas City Medical College in 1897, died from Bright's disease at his home in Kansas City, Mo., on April 24, aged 74 years.

Dr. FREDERIC RUSSELL STURGIS, a graduate of the Harvard Medical School, in 1867, died at his home in Boston on May 6, aged 75 years. He was formerly visiting physician to the City Hospital in New York City and a member of the Faculty of New York University from 1880 to 1882. He retired from the practice of medicine some years ago.

Dr. JOHN W. HOBART, a graduate of the Boston University School of Medicine, died suddenly at his home in Richmond, Virginia, on May 3, aged 80 years.

Dr. JAMES W. SNOWBALL, a graduate of Jefferson Medical College, in 1894, died at his home in Atlantic City on May 14, aged 55 years.

Dr. WILLIAM BEAM, formerly of Philadelphia, died at Khartoum, Africa, on April 15. He was a graduate of Jefferson Medical College. He had been for fifteen years in the employ of the British Government, in the capacity of chief chemist to the Wellcome Research Laboratories at Gordon Memorial College, Khartoum.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, April 23, 1919.

The Return of Rabies.—The occurrence of canine rabies in various parts of the country, but especially in and near London, has certainly had a disturbing effect upon the population, with whom the idea of there being any risk from hydrophobia has appeared a myth for the last twenty years. It is now more than twenty years since the incidence of rabies in various parts of the United Kingdom caused the authorities to take a strong line both as to the admission of animals from abroad and as to the muzzling of dogs at home. In those days the public did not receive the muzzling orders, which were issued by Mr. Walter Long as president of the Board of Agriculture, in any docile spirit, largely because the enemies of medical research were loud in their protests either that danger from rabies existed only in the minds of vivisectionists, or that, rabies or no rabies, man had no conceivable right to inconvenience his four-footed friend by putting a wire over his jaws. It happened, however, that Mr. Long, a strong and popular man, a sportsman who could not be suspected of faddism, and an old parliamentary hand, was very determined that the muzzling orders introduced by him should be stringently carried out. The good sense of the country backed him up with the result that whereas in 1895 there were 672 cases of hydrophobia reported in Great Britain, by 1903 the disease was extinct.

From that time forward no case of rabies occurred in the British Isles until September, 1918, when cases were reported simultaneously from Devonshire in the neighborhood of Plymouth and from the Isle of Man, which, of course, is in close connection with Portsmouth and Southampton. The actual number of cases which occurred is somewhat in doubt; but although no fatalities were reported, a large number of inoculations were carried out. I sent you a short account of this little epidemic at the time (see MEDICAL RECORD, October 19, 1918). The British Government made arrangements by which a center for antirabic treatment was established at Plymouth, so as to obviate the transport of all cases to the Pasteur Institute in Paris, and it was believed that the danger was over. Last week, however, cases were reported from one or two directions, notably, two in and near the neighborhood of London, with the result that a strict Muzzling Order has now been enjoined upon the Home Counties, and this may be a preliminary to a general Muzzling Order. A new arrangement has at the same time been made by the Local Government Board, which will enable antirabic treatment to be given in London as well as in Plymouth. The treatment will be given at the Pathological Department of St. Thomas's Hospital, Lambeth, by Colonel Leonard S. Dudgeon, who has received antirabic material prepared at the Pasteur Institute.

The Lancet reports that a regular system of interchange of information has now been established between the medical officers of the Local Government Board, the Department concerned with the

provision of antirabic treatment, and the Board of Agriculture, which is responsible for dealing with all questions relating to rabies in the dog. When, owing to close relation between the two departments, cases are early recognised and promptly treated, the danger should be over; but undoubtedly the outbreak has given considerable reason for wondering whether there are not a certain number of people who place their love of dogs far above their love of their fellow men. It is undoubted that these cases of rabies have their origin in the transport to England from France of infected dogs. There has been considerable canine infection for the last two or three years in France, and there seems no doubt that the English cases have been due to smuggling through quarantine of pet animals which have become infected.

War Neuroses and Psychical Treatment.—The discussion on war neuroses at the special clinical meeting of the British Medical Association, while a valuable one in many ways, was a little remarkable for the absence of all responsible communications concerning the psychical treatment of the condition under consideration. The exponents of hypnotism, suggestion-therapy and psychoanalysis had either not been bidden to the meeting, or were determined to remain silent in an apparently unsympathetic *milieu*. For one reason or another the result was the same, and the impression was produced that the British neurologist has no use for psychical treatment, a very unfortunate impression at this juncture in the case of neurological patients, and one which it was most undesirable to have evidenced in front of a representative group of American workers. But the absence from the debates of any broad psychological outlook might have escaped attention had not it been for a speech by the secretary of the section, a distinguished worker at the National Hospital for Paralysis and Epilepsy, who denounced the possible bad features of psychical treatment when it is left in unscrupulous hands, as though psychoanalysis and hypnotism can only be administered by charlatans. If the idea was to check the activities of psychical treatment the move was a mistaken one—an actual stimulus has been supplied.

An Interesting Exhibition.—In spite of the short time which the manufacturers had at their disposal to select and arrange their material, those who supported the exhibition which accompanied the Special Clinical Meeting of the British Medical Association succeeded in presenting a well-planned collection. Just as the general design of the Special Clinical Meeting was to illustrate the advances made in medicine and surgery during the war, so the trade exhibition proposed to illustrate advances made in the manufacture of surgical instruments, hospital appliances, drug, special foods, etc., which owe their origin to war conditions.

The number of new splints and new bandages was infinite, as might have been expected, but what proved to be of real value was the large assortment of more important apparatus, such as beds, sofas, reclining chairs, hand-chairs, and stretchers. War injuries were the cause of many of these mechanical contrivances, with the result that a large assortment of really ingenious medical furniture has come on the market. In this country, until now, save at one or two very well equipped hospitals, if a surgical bed of a particular pattern was required it had to be specially constructed at considerable expense, time and labour. Now sad but valuable experience has shown that these kinds of appliance follow certain recognised types and a good many articles in accordance with these types are being made and will be ready for use when required. The boon to country practice will be very great.

In the drug section of the exhibition the message which most exhibitors sought to convey was that the manufacture would now be possible in this country and in the United States of all the various therapeutic remedies whose original home was Germany. Boots Pure Drug Company, for example, showed among their British-made chemicals nine substances available in medicine whose supply as far as England is concerned had always been obtained before the war from two or three great German houses. Exactly the same words might be used of the exhibit of Messrs. Burgoyne, Burbridge & Co., a number of whose preparations had not been made in this country previous to 1914. Two of the American firms, with a large array of exhibits, had evidently worked with the deliberate intent of attacking German monopoly. Messrs. Burroughs, Wellcome & Co. are manufacturing and stocking the organic arsenic derivatives used in the treatment of syphilis, before the war made entirely in Germany, while Messrs. Parke, Davis & Co. are specialising in many new glandular products, whose original home was the same enemy country. Therapeutic and pharmaceutical industry has of recent years been more highly developed in the United States than in Great Britain and the condition of the war, while benefiting the pharmacy of both countries will, probably, at first at any rate, have a more marked effect in England, where there is more leeway to make up.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

PARIS, April 12, 1919

Peace Work of the Red Cross.—A conference of the leading authorities in medicine, surgery, bacteriology, hygiene, and sociology met at Cannes, on April 1, to formulate a program of world-wide scope and destined to continue in time of peace, and with the necessary modifications, the work, magnificently humanitarian in purpose and practical in character, that has been accomplished by the various Red Cross organizations during the war.

There is no necessity to describe that work in detail. Its benefits are recognized by all, for they have not been confined solely to combatants. In only too many cases, the sufferings of the civilian population of the battle-swept area would have been immeasurably greater but for the energy, initiative, and self-abnegation of Red Cross workers. In this extension of war relief work, the American Red Cross organization has been the pioneer and has achieved notable results. Under the vigilant and enlightened guidance of Mr. Henry P. Davison, formerly chairman of the War Council of the American Red Cross, now chairman of the Committee of Red Cross Societies,

its services have brought aid and comfort not only to the wounded and sick of the Allied Armies, French, British, Italian, Serbian, American, but also to destitute and suffering civilians.

The purpose of the conference at Cannes is to outline measures necessary to widen still further the field of activity of the Red Cross societies in time of peace, the first step in that direction being the organization of an International Council and Bureau of Hygiene and Public Health which will map out the work to be undertaken in the new war that is just opening, a war against disease. Although the organizations will, it is to be presumed, retain their national character, they are to combine and form what may be called a universal Red Cross Society with its activities coordinated under a central commitee of direction. The importance of this initiative cannot be over estimated. One of the underlying causes of the discontent now prevailing in so many parts of the world is the distress and disease that have been engendered by the war. What the League of Nations may perhaps be in maintaining peace, this union of Red Cross societies aims to be in protecting public health. It places child welfare in the forefront of its aims, and rightly, for unless infancy be safeguarded it is a never-ending task to create satisfactory social conditions. All humanity has a direct interest in the great project which the Red Cross societies, on the initiative of the American organization, are preparing to carry out; its progress will be followed everywhere with sympathetic attention and its success will be hailed with universal thanksgiving.

Lectures on Medical Progress.—At the request of the American Army Medical Corps, the professors of the Paris Faculty of Medicine will give a series of lectures on the progress realized in medicine by French professors. The lectures, which will be public, will be held every Tuesday and Friday at 4 P. M. in the large amphitheater of the Faculté de Médecine. The first lectures, fixed for the 25th and 28th of April, will be given by Professor Ch. Richet, who will speak of the work of Descartes, Lavoisier, Claude Bernard, and Pasteur.

Need of a Health Clause in the League of Nations.—Assuming that the League of Nations will be accepted by the different nations, then the necessity will soon arise for such a League to exercise certain clearly defined functions, which are today associated with every well-organized State. Such functions will be of an International character and will be exercised by the League by virtue of its being of the nature of a super-State. These functions are legislative, judicial, and administrative. Their nature and scope are or will be defined in the League Covenant. Labor and industry also are provided for by proper texts. But what about health? The vital subject that concerns each nation and every individual in it will surely have to be considered. If it is not dealt with in the original draft, it will have to be taken up as a subsequent amendment, involving naturally great delay. This is certainly the most opportune time to consider two of the great issues directly concerning all of mankind—the preservation of health and the prevention of disease.

The time is quite ripe that the question of sanitation and hygiene, both physical and mental, be taken care of, and it has been suggested that the Peace Conference create through the League of Nations an International Bureau similar to the proposed Bureau of Labor. For this purpose an article somewhat similar to the following one could be inserted in the permanent draft of the League of Nations: "The high contracting parties will endeavor to secure and maintain sanitary and hygienic conditions of living for men, women and children, both in their own countries and in all countries to which their commercial and industrial relations extend, and to that end agree to establish as part of the organization of the League a permanent International Bureau of Health."

A health crusade could be started to establish a standard for decent homes to live in and for safeguards of health throughout the world. Such a crusade, if properly conducted by a competent International Health Board, would bring about most beneficial and lasting results. The need will then arise for efficient health organizations in each country. Some countries are fortunate enough to have such health organizations at the present time, others are not. The simple reason for it is that competent local or national health boards depend for their efficiency mainly upon the individual health officers and sanitary engineers, who make up the health organizations in the smaller and larger communities.

Realizing the great need at the present time of such men and women, who would be competent in health matters, I strongly urged in a letter published in the New York *Herald* on January 8, 1919, the establishment by the American people of a large International Institute for Hygiene, Sanitation, and Sanitary Engineering in Paris as a "Victory Memorial" to commemorate the aid brought by the United States to the Allied cause in this war.

Such an institute would turn out efficient health officers and sanitary engineers, who could then go forth into their own communities and put into practice the best and most modern ideas in sanitation and hygiene.

146, Avenue des Champs Elysées.

LETTER FROM GENEVA.

(From Our Own Correspondent.)

Geneva, May 1, 1919.

Blood Changes Induced by a Milk Diet.—Some researches, which have not been published in the medical press, on the influence of an absolute milk diet on the blood in cases of acute nephritis have been carried out at the Laboratory of the Bordeaux Clinics by Lesson. He admits, naturally, that the blood changes noted at the onset of a nephritis, before a milk diet or other treatment has been begun, viz., a decrease in the number of red blood corpuscles and percentage of hemoglobin, a slight leucocytosis, an intense neutrophile polynucleosis and a considerable decrease in the number of lymphocytes, are due to the morbid process itself. During the evolution of an acute nephritis Lesson found that when the albu-

minuria persisted there was a more marked decrease of hemoglobin, a more intense leucocytosis, a still more accentuated diminution of the lymphocytes than at the onset of the renal process, while the number of red blood corpuscles and the proportion of polynuclear neutrophile leucocytes remained about stationary in percentage, the first greatly below, the second very much above, the normal.

On the other hand, Lesson found that an absolute milk diet for one week in a healthy subject did not cause any notable change in the percentage of hemoglobin or in the number of red blood corpuscles, but that it did produce a marked leucocytosis characterized during the first six days by a lymphocytosis and on the seventh and eighth day by a rather high neutrophile polynucleosis combined with a marked diminution of the lymphocytes. This latter hematological change coincided with a state of fatigue and asthenia of extreme degree.

But the anemic condition noted immediately after cessation of the milk diet, and which continued to increase for still another week, has led Lesson to conclude that, in all probability, had the milk diet been continued for a longer period of time the phenomena of anemia would have become manifest during this diet. Therefore, it would seem only logical to admit that in acute nephritis the fall in the red blood corpuscle count and percentage of hemoglobin and lymphocytes on the one hand, and on the other the increase in the number of white cells and proportion of the polynuclear neutrophile leucocytes should be attributed in part to the milk diet and in part to the renal process.

But the changes noted in the blood of patients with acute nephritis while still on an exclusive milk diet, although the albuminuria had disappeared, only partially corroborate this conclusion. In point of fact, at this time the hemoglobin and red blood corpuscles, although being below normal, had a tendency to increase, while the leucocytosis which was still notable, tended to diminish. On this point Lesson's conclusion seems to be confirmed, viz., that one of the factors to which he attributed the blood changes due to acute nephritis having disappeared, these changes must evidently be less.

On the other hand, he noted at the same time that the percentage of polynuclear neutrophile leucocytes and lymphocytes returned within nearly normal limits, and although, perhaps, this phenomenon may be exceptional, Lesson is of the opinion that much reserve is to be maintained on this point until the contrary is proved. He consequently concludes that if, during the evolution of an acute nephritis, during an absolute milk diet of three weeks' to one month's duration, the increase in the number of white cells is more marked than at the onset of the renal process, the explanation is to be found in the fact that the milk diet has added its action to that of the nephritis and thus has contributed its share to this blood change.

Treatment of Graves' Disease.—Dr. G. Masson, working at the University of Geneva on the subject of exophthalmic goiter, has formulated the following conclusions in his recent thesis (Dec. 4, 1918). The disturbance of the thyroid secretion (dysthyroidia) appears to be alone the cause of the production of the symptoms of this affection. The dysthyroid theory is based on clinical data, as well as on experimental, pathological, and therapeutic facts.

The treatment with sera obtained from thyroidectomized animals is that which gives the best results, and this treatment is at the same time logical, but it must be continued for a long period of time. It gives rapid results, but if interrupted the symptoms quickly return. It does not, however, appear to bring about a complete and permanent cure, although so long as it is continued, it assures a functional cure which is often perfect. The lacteal treatment by milk from a thyroidectomized goat gives far better results than any other form of antithyroid treatment. The subjective state of the patient is particularly favorably influenced. The dose of the milk should be from ¾ to 2 liters daily, and it also appears that radiotherapy can be combined with advantage. This treatment is perfectly logical, since it aims at the functional suppression of the pathological gland, while antithyroid treatment neutralizes the toxic secretion only. Surgical treatment should be reserved for those cases in which medical treatment has failed or where the gravity of the condition necessitates urgent action.

Unrepentant Teutons.—The desire proclaimed by Herr Theodore Wolff and publicly professed by other leading men of Germany that the errors of the past should be duly inquired into and the responsibilities not only for the outbreak of the war, but for such misdeeds as the sinking of the *Lusitania*, the ordering of the ruthless submarine campaign, and the deporting of peaceful civilians should be fixed once for all, does not seem so far to have produced much sincere searching of the national conscience.

A specially called meeting of the Berliner medizinische Gesellschaft was held a few weeks ago to consider the possibility of renewing scientific relations—"exchange of scientific thought"—with the learned of the enemy nations. The French Academy of Science and the Surgical Society of Belgium have declared that no such relations could possibly be entertained with any German man of science who had not first publicly declared his disapproval and condemnation of the deeds of which the military authorities had been guilty. A member of the Gesellschaft proposed that the medical body should spontaneously make this declaration. The proposal was negatived, and the matter was referred to a special commission, which reported against any such step. It declared that, although much might be said on the subject, the French military authorities had been equally guilty of inhumane proceedings against German prisoners. After much discussion the society came to the conclusion to take no decision until French medical men consented to examine French misdeeds in the same spirit and took the first step. So there is an end to future exchange of scientific thought with Germany of the present generation, at least so far as the medical body is concerned.

Progress of Medical Science.

New York Medical Journal.

May 10, 1919.

1. Spring Hay Fever: Its Cause, Prevention, and Treatment. William Scheppegrell.
2. The Direct Visual Method in the Treatment of Filiform Strictures of the Urethra. Leo Buerger.
3. Conservatism in the Management of Trauma and Diseases of the Testes. G. Frank Lydston.
4. What Is Neuritis and How Should It Be Treated? William Martin.
5. Meningitis. Hyman I. Goldstein.
6. Syphilis of the Stomach. Difficulties Encountered in Diagnosis. M. Ford Morris.
7. Symptoms in a Case of Brain Abscess. Operation Followed by Recovery. Wesley C. Bowers.
8. The Pathology and Clinical Forms of Cerebral Abscess of Otogenous Origin. Charles Greene Cumston.

4. What Is Neuritis and How Should It Be Treated?—William Martin discusses the term neuritis as it is understood by various authorities and points out that it is not safe to depend upon atrophy in reaching a diagnosis, as this symptom may take place after a few weeks of involvement or may not appear for years. In terminal cases where the reaction of degeneration is present or atrophy so evident that it cannot be mistaken, differential diagnosis can usually be made by means of the *x*-ray and this method is particularly applicable in cases of bursitis where diagnosis is not otherwise possible, and in cases of sacroiliac relaxation and arthritis where the symptoms are so nearly alike. The static machine plays an active part in the diagnosis of neuritis and the writer, believing that many physicians know little or nothing about this apparatus and its use, goes into the matter in detail. The patient is seated upon an insulated platform and he is connected with the apparatus by a wire attached to a flexible metal electrode. This may be of any size selected by the operator, but the usual one is approximately 2 by 4 in. This is placed over the area that is thought to be involved, and the machine started with the poles together, the wire attached to the positive side and the negative grounded. As the poles are separated the current jumps across the spark gap, causing interruptions, which are carried to the patient under the electrode. These interruptions cause alternate contractions and relaxations, and are mechanical in nature. If the nerve under the electrode is at all inflamed the amount of pain produced will be in proportion to the length of the spark. If there is no nerve inflammation there will be no painful response, but merely a contraction effect of the part. This is a positive test of whether there is such a condition present or not, and should always be tried whenever possible. There are cases in which there are areas of pain in parts of the body other than where one would expect to find them; there may be pain in the ball of the foot, due to a sciatic neuritis. Such cases should have the test made over the course of the nerve supplying the part. In case of foot pain the sciatic nerve should be tested, and it will generally respond. Since the pathology of neuritis is the same as that of any other inflammatory condition, accompanied by an exudate, treatment must be directed to the exudate as well as to the muscular spasm. The quantity of the exudate varies with the duration of the condition and in long-standing cases may form adhesions involving the muscular structures; *e.g.* the difficulty of raising the arm in a brachial neuritis. Without treatment, such cases gradually become worse and end in atrophy, and therefore, prompt relief is of the utmost importance. In order to give prompt relief a mechanical method is absolutely necessary and in the static current we have the practical and only means of cure. The author points out that in an acute neuritis in a nervous woman it is better to start with a soothing application, such as radiant light and heat, given by a properly hooded high candle-powered carbon filament lamp, which should be used to the point of producing active hyperemia. Following this, the high frequency current may be applied by the diathermic method to great advantage and without causing pain. The d'Arsonval current is used for this, and is applied by the use of two electrodes of metal of suitable size, properly placed; that is, one over the painful area and the other on a part of the body opposing it, so that the current may pass directly through and heat the tissues to a certain degree, which must be determined for each case. After some days of this treatment the soreness will be greatly diminished and treatment is then given by the static current as already described, the time application being extended according to the requirements of the particular case. As the treatment advances the strength of the current may be increased, as more current can be used without causing pain; this indicates that progress is being made towards a cure. When the wave current is ended, it is usually followed by indirect sparks. These are short, sharp applications made by the use of a special applicator directly to the area involved, and guided by a special electrode. The results are quick, sharp contractions which aid materially in breaking down adhesions. The method of applying these indirect sparks is as follows: The patient remains upon an insulated stand, which is connected with a metal crook or rod to the positive side of the machine, the negative is grounded as with the wave current, but with both poles wide apart. The operator holds the sparking electrode, which is grounded with a second ground chain attached to the water system or a gas pipe, and not to the apparatus. The machine is started slowly, and as the sparking electrode is applied near the surface, a spark jumps across the intervening distance, which produces a profound contraction of the tissues under treatment. The strength of the spark can be modified by decreasing the speed of the machine, or placing the operator's foot upon the insulated stand. In sparking around small joints, such as the knuckles, a spark director held against the part will give the best satisfaction. Martin states that the majority of cases will be amenable to the methods of treatment outlined. The ionic method, however, is also recognized as of great value, particularly in cases associated with arthritis. The practical application of these methods requires a fair knowledge of their physics. Electricity cannot be used empirically if results are desired and, for this reason, this branch of therapy should receive just recognition and be properly taught in all medical colleges.

Journal of the American Medical Association.

May 10, 1919.

1. The Council on Pharmacy and Chemistry, Present and Future. W. A. Puckner.
2. Stone in the Common Duct: With Analysis of Fifty Cases A. Murat Willis.
3. Pneumococcus Meningitis: Treatment by a Specific Antipneumococcus Serum. Lawrence Litchfield.
4. Comparative Prognosis of Tuberculous Lesions of Right and Left Lung: Report of Five Hundred Cases. Louis Mark.
5. A Report of Sixty Cases of Wound Diphtheria. Joe A. Hartsell, with Bacteriologic Appendix by Myron I Morris.
6. An Epidemic of Bronchopneumonia: Roentgenologic Study. Frederick E. Diemer.
7. A Report of Diphtheria at Camp Custer, Mich., from September, 1917, to March, 1919. Wyndham B. Blanton and Charles W. Burhans.
8. Physiology of Respiration in Treatment of War Wounds of Chest and Empyema. John R. Green.

2. Stone in the Common Duct: With Analysis of Fifty Cases.—A. Murat Willis draws attention to the following facts: (1) Stones are present in the common duct in a considerable number of patients suffering from cholelithiasis; in approximately 10 per cent. of the author's cases. (2) A certain number of patients with stone in the common duct do not present symptoms sufficiently suggestive to justify exploration of the duct, and in some of these cases, palpation will fail to disclose the presence of the stone. (3) Even exploration of the duct sometimes fails to reveal the presence of calculi, though the previous and subsequent history of these patients may indicate or prove that stones were actually present. Willis points out that the mortality in common duct cases subjected to operation is variously given at from 6 to 16 per cent. In his series, five patients died, giving a mortality of 10 per cent. In gallbladder cases, exclusive of those showing calculi in the common duct, the mortality was 2 per cent. From these figures it is evident that in cholelithiasis cases operation should be performed before the entrance or formation of the calculus in the common duct. The condition is essentially a surgical problem and medical temporizing is fraught with peril

to the patient. The author gives the history of five fatal cases, from which it is seen that hemorrhage was the striking feature of all. Bleeding was the direct or strongly contributory cause of death in every instance. The most rapidly fatal hemorrhage occurred in those patients in whom, for some cause, an acute exacerbation was superimposed on a chronic jaundice. Although delay and expectant treatment are indicated in some types of abdominal infection, the author believes that this rule cannot be followed in cases of infection with obstruction of the common duct. Acute jaundice is not so potent a factor in producing the hemorrhagic diathesis as chronic jaundice is and the author states that in future, in common duct cases, the appearance of jaundice will be an important factor in his decision for immediate operation.

4. Comparative Prognosis of Tuberculous Lesions of Right and Left Lung. Report of Five Hundred Cases.—Louis Mark states that during the routine examination of patients in the women's service at the Ohio State Sanatorium, he observed that cases with a greater amount of active involvement of the left lung progressed more slowly towards quiescence than those in which the right lung was more involved. Moreover, while doing a large number of necropsies on tuberculous subjects, he repeatedly noticed that in the majority of cases of bilateral tuberculosis the right lung showed considerable involvement at the apex, with a marked tendency towards fibrosis, whereas the left lung was usually heavily infiltrated from apex to base with a thickening of the pleura and very firm pleural adhesions but very little fibrosis of the lung. This seemed to show that the initial lesion had been in the right lung, but the left lung showed the greater amount of active involvement. He also found that in 75 per cent. of pneumothorax cases, the left lung was the one that had to be collapsed. In the far advanced cases discharged from the institution as too sick for the routine, the percentage of left-side cases was greater than of right. From this the author concludes that in this type of case, when the left lung shows the greater amount of involvement, the prognosis of building the person back to working capacity or of bringing the chest to at least a point of quiescence is far less favorable than in right lung cases. This is also true of incipient cases since those with left lung infection make much slower progress than the right-sided cases, though it may not be true to state that a left lung infection will not improve or become quiescent. Patients with left-side involvement, therefore, should be given a longer period of absolute bed care, and exercise, when begun, should be prescribed guardedly and increased slowly. A number of these patients may present a normal or a subnormal temperature with only a slight variation between morning and afternoon and a fairly constant pulse, but on physical examination will show little tendency towards fibrosis, and when exercise is prescribed may stand it very well for a while but will have a return of clinical symptoms (which is the first warning of a possible breakdown) much sooner than a patient with the same amount of involvement of the right lung. The author points out that there are several reasons which may account for the more rapid spread of a tuberculous focus in the left lung than in the right: the left lung is considerably smaller and has but two lobes; the bronchus leading to the left lung forms a more obtuse angle and is much smaller than the right bronchus; there are two fissures on the right and only one on the left. The interlobar clefts fence in the infection and prevent one lobe from becoming infected by the other except through the regular channels along the bronchial tree. This fencing by the interlobar pleura is repeatedly seen on roentgenograms of the chest and also in the sectioning of tuberculous lungs at necropsy. From his observations the author concludes that : (1) The amount of involvement being equal, the prognosis of lesions of the left lung is not as good as of the right. (2) Prognosis of the male cases is better than of the female cases. (3) There is less tendency toward fibrosis in the left than in the right lung. (4) Patients with active tuberculous lesions in the left lung require absolute bed care over a longer period of time than the right-side cases to produce the same results. (5) Rapid gain in weight, especially of the left side cases, does not always mean rapid progress toward quiescence. (6) Artificial pneumothorax of the left lung is more frequent than of the right. (7) The greater number of incipient cases show tuberculosis of the right lung, and the greater number of advanced cases in the left lung. The percentages of right and left lung cases are equal when all stages of the disease are considered.

The Lancet

April 19, 1919.

1. Lumleian Lectures on Cerebrospinal Fever. Delivered before the Royal College of Physicians of London on April 3, 8, and 10, 1919. Sir Humphrey Rolleston. Lecture III.
2. Filarial Infection in Macedonia. Report of Two Cases of Filaria Conjunctivæ (Addario) in Man, with the First Recorded Discovery of the Male Worm. Captain J. Graham Forbes.
3. A Study of the Epidemic Commonly Known as "Spanish Influenza." E. Folley.
4. Gas Gangrene Due to Infection with a New Pathogenic Anaerobe—the *Bacillus Tumefaciens*. Brevet Major W. James Wilson.

4. Gas Gangrene Due to Infection with a New Pathogenic Anaerobe—the Bacillus Tumefaciens.—Brevet Major W. James Wilson reports a case of gas gangrene in which the subcutaneous injection of Weinberg's serum was without effect. At the time of operation 50 c.c. of this serum was given, the dose being made up of 20 c.c. antiperfringens, 10 c.c. antiedematiens, and 20 c.c. antivibrion septique sera; and on the following day 60 c.c. was given, the dose for antiperfringens being increased to 30 c.c. In spite of surgical and serum treatment, gangrene advanced and the patient died at 1 a.m. the next day. At postmortem patient presented a clinical picture of gas gangrene. The failure of the serum in this case was explained by the bacteriological fiindings; neither *B perfringens*, *B. œdematiens*, nor *Vibrion septique* were present in the lesions, but an organism which the author has named the *Bacillus tumefaciens* on account of the rapidity with which it produces a large edematous tumor or swelling, was recovered and proved to be pathogenic to rabbits and guinea pigs. One c.c. of a 48 hours' meat broth culture of this organism was injected subcutaneously and into the muscles of the right thigh of a guinea pig. The animal died within 24 hours. Postmortem examination revealed a large tumor in the right groin, the swelling consisting of a pink jelly-like mass of solid edema; the muscles underneath contained gas and showed hemorrhages. The abdominal wall was reddened both inside and out on the affected side. The *Bacillus tumefaciens* is an actively motile Gram-positive bacillus. In morphological characters it resembles the *Vibrion septique*, but it is easier to cultivate and forms spores, especially in carbohydrate media, with the utmost facility. Like the *Vibrion septique*, it often shows swollen citron forms, long threads, and "granulose" bodies. It is essentially a saccharolytic bacillus and fails to digest either coagulated egg albumen or serum. In litmus milk it produces acid and gas. Clotted casein is not digested and remains red in color—*i.e.* there is no bleaching. Spores were found in milk culture. The deep colonies in 0.1 per cent. glucose agar resemble those of the *Vibrion septique*. In fermenting saccharose, inulin, and glycerine it resembles some strains of *B. Welchii* and differs from *Vibrion septique*, but resembles the latter in fermenting salicin. It is far more active in its action on sugars than the two strains of *B. œdematiens* with which the author has compared it. In meat broth culture the fragments of muscle become pink in color and no digestion occurs. It hemolyses red blood cells. The author has compared this organism with the various bacteria described in war wounds by English, French, German and American bacteriologists and has come to the conclusion that it is a new species. Though it resembles Aschoff's "Gasoedembazillus," there are the following differences: *B. tumefaciens* is actively, the "Gasoedembazillus" feebly, motile; spores are more readily formed by the *B. tumefaciens* both in the animal body and in culture; lesions caused by the "Gasoedembazillus" are characterized by a clear, gelatinous edema, while those produced by the *B. tumefaciens* resemble those of the *Vibrion septique* in being hemorrhagic. The author adds that further study is required to determine the

position of this organism among the pathogenic anaerobes; in the meantime he believes himself to be justified in giving it the name of *Bacillus tumefaciens.*

British Medical Journal.

April 19, 1919.

1. A Lecture on the Physics of the Chest, and Their Relation to Diseases and Injuries of the Thoracic Organs. Lt.-Col. Sir James Barr.
2. War Headache and Its Surgical Treatment. Major L. Bathe Rawling.
3. Influenza Among Poison Gas Workers. Frank Shufflebotham.
4. Antimony in the Treatment of American Leishmaniasis of the Skin. Major George C. Low.
5. Antimony Tartrate in Bilharziosis and Tachycardia. J. B Christopherson.
6. A Note on the Variety and Latency of Organisms on Missiles in the Tissues. Major F. C. Pybus, Captain H. J. Slade, and P. W. C. Laws.
7. Inunction of Creosote in Pneumonia and Influenza. Major J. E. B. Wells.

2. War Headache and Its Surgical Treatment.—Major L. Bathe Rawling attempted surgical treatment of headache first in India, where many severe and persistent cases came under his care. The immediate improvement that followed decompression when all other measures had failed led him to adopt the same treatment with considerable confidence in cases of war headache, which were secondary to gunshot wounds, concussion, fractured base, etc. In the cases operated on in India a marked degree of cerebral edema was found, and in explanation of this the author adopts the hypothesis that, under abnormal conditions the absorptive capacity of the surface cerebral vessels is impaired and the cerebrospinal fluid, though secreted at a normal rate, is not absorbed in direct ratio; it, therefore, accumulates in the subarachnoid spaces, bogs the surface of the brain, and even forces its way into the adventitious subdural space. In regard to cases of war headache he points out that :(1) The more severe headaches are associated with an intact skull (closed box) or with small defects. With large deficiencies headaches are less frequent. (2) Frontal and temporal injuries are more commonly accompanied by headache than injuries in the parietal, occipital, and cerebellar regions. (3) Wounds near the vertex, in relation to the superior longitudinal sinus, are frequently associated with a severe type of headache. (4) The presence of foreign bodies within the skull is commonly accompanied by chronic headache, more especially when the foreign body is situated in relation to the ventricles of the brain. As a rule the headache dates from the moment of recovery of consciousness, either from the injury or from the operation carried out for the injury. The severity of the headache varies very greatly, the "cyclic" form being perhaps the most common, and a possible explanation of this is that the cerebrospinal fluid, by reason of insufficient absorption, slowly increases in quantity, finally arriving at a certain maximum, which coincides with the period of maximum intensity of headache; the increased intracranial pressure results in the opening of various channels by which some excess fluid escapes and relief takes place automatically. In other cases, the pains show little variation in degree, persisting both day and night without intermission. The author has had patients who have put up with this suffering since 1914 and have despaired of cure. Wherever the injury, these headaches tend to become localized to the frontal region, behind the eyes, perhaps more acute on the side injured. Sometimes there is a maximum "bursting" pain over the summit of the vertex, and sometimes the symptoms suggest a spreading cerebritis, ventriculitis, or meningitis. Any mental or bodily exertion, noises, joltings, and especially moving pictures will start these headaches, and they are particularly liable to come on upon awakening or in the evening. Among the symptoms associated with the headaches, the author mentions slowing of pulse rate, with little raising of blood pressure, giddiness, persistent elevation of temperature, insomnia, slow cerebration, anxiety and depression, exaggeration of all reflexes, slight blurring of discs and dimunition of visual fields, fits. Appetite is usually good and bowels natural, except for some constipation; urine is normal. In the majority of cases, Rawling attributes these headaches to cerebral edema. In some few cases, however, no edema has been found at operation—merely a tense dura mater and a brain under pressure. In such cases it would seem that there is a condition of ventricular distension, due probably to interference in the normal channels at the base of the brain, with perhaps some ventricular hypersecretion. In these latter cases true papilledema is more likely to be present and the patient evidences more marked apathy and somnolence. Operative measures are indicated in both conditions. Treatment, the author considers under three heads: Rest, with dietetics and drugs; lumbar puncture, and decompression. Treatment by rest, careful dieting and drugs, though carried out for three months, has proved of no avail, as the headaches have returned as soon as the patient got out of bed; lumbar puncture has also failed, both from the point of view of diagnosis and treatment—sometimes it has produced temporary relief, but in other cases it has been followed by an exacerbation of the pain. Subtemporal decompression, on the other hand, will almost certainly bring about relief or cure within forty-eight hours of the operation without in any way risking the patient's life and well-being. The author urges: (1) That all other measures be given free and fair trial, with a probationary period of about three months, unless urgency prevails; (2) That operation be reserved for the more acute cases, and for those more severe chronic cases where the patient is rendered miserable by reason of headache and associated incapacity; (3) That the operation should be so conducted as to provide adequate decompression effect, and that the trephining should be carried out under cover of the temporal muscle. There should be such removal of bone and such dural incision as shall allow of the escape into the temporal tissues of the excess cerebrospinal fluid, suflicing to lower adequately the intracranial pressure. The patient should be warned of the "new" pains which may develop as the immediate result of the operation, but which will subsequently disappear. The immediate effect of the operation is most marked; headache which may have existed for months or years as a rule completely disappears within twenty-four to forty-eight hours. During the next three weeks or so, the convalescing stage, mild recurrences of the "old" headache may take place, but they are readily controlled by aspirin. It is common, however, for the patient to complain of neuralgic pain in the temporal region, stiffness in the masticatory muscles, and a "thumping" pain in the immediate vicinity of the decompression opening for the few days after the operation. In a few cases where these "new" pains have been unusually severe, there has been some trouble at operation from bleeding, or patient has vomited after the operation. There has also been some tenseness in these cases over the decompression opening which may be due to an effusion of blood or the free escape of cerebrospinal fluid and a too slow absorption thereof. Within three weeks, however, both "new" and "old" pains should have disappeared. The late results have been equally encouraging and real relapse has been rare. A brief summary of twenty cases is appended.

6. A Note on the Variety and Latency of Organisms on Missiles in the Tissues.—Major F. C. Pybus, Capt. H. J. Slade, and P. W. C. Laws have conducted a systematic examination of forty-four specimen of missiles removed from the tissues with the usual surgical precautions and dropped into a sterile tube. The results of their examinations have led them to the following conclusions: (1) That most pyogenic organisms can persist in the tissues for periods up to at least thirty months. (2) That they may at any time give rise to inflammation, and that this is possible in at least 50 per cent. of cases. (3) That prophylactic measures before removal might be useful. (4) That if possible the missile be removed complete in its fibrous tissue capsule. (5) That if such be impossible, careful disinfection of the cavity be carried out.

Wiener medizinische Wochenschrift.

March 1, 1919.

Ozena.—L. Rethi states that the specificity of Perez's cocco-bacillus is rendered probable on account of its affinity for the nasal mucosa, proved by animal experimentation, as well as by the results obtained by vaccino-

therapy. The latter treatment, however, in no way lessens the therapeutic services offered by electrolysis.

The Working Capacity of Subjects with Internal Disease Due to Warfare.—I. Schütz points out that the estimate of working capacity is made by a progressive training of the subject during a stay in hospital and thus can be fixed the amount of work that he can furnish without injury to himself. In renal subjects, the repeated dosage of albumin and the variations in the blood-pressure are excellent guides as to the working tolerance of the subject.

La Presse Médicale.

April 7, 1919.

The Minor Symptoms of Aerophagy.—Leven states that air-swallowing does not receive the attention it merits from the profession, considering its significance in the causation of gastric, intestinal, cardiac, respiratory and other ailments. The principal symptoms of eructation may be inconspicuous or absent, and we often owe our first information as to the presence of the condition to the radioscope. But the author believes that the diagnosis can often be made by the minor signs. At his own hands he finds this means almost absolute for diagnosis. When a suspect presents himself at the clinic he first asks to see his tongue. The latter may be red, moist, and shining—typical for some forms of severe dyspepsia. The students whisper "what a fine tongue," for with them dyspeptics should have a gray, dirty-looking tongue. The author tells them it is a wretched tongue—it is too red, too shiny. It is bathed in saliva. Were it dry it would be a diabetic tongue, but being overmoist it is the tongue of an air-swallower. The normal tongue is very slightly gray or opaline, and just a trifle moist. Should such a patient develop air-swallowing, not only the tongue changes, as stated above, but the lips take on a similar appearance—of redness, moisture, and shining, due evidently to sialorrhea. To make sure that the latter is present, ask to see the patient's pillow or ask him if he drools in his sleep. This he will surely do. The sialorrhea leads to swallowing the saliva. Frequent swallowing causes an irritation in the region of the larynx and these patients, as a rule, find themselves unable to wear tight collars. A third type of symptom is inability to sleep on the left side—sleeping on the right side suggests the ærophage, but is by no means pathognomic. If he sleeps on the left side he suffers perhaps from palpitation, perhaps from false angina pectoris. In regard to belching, the patient oftentimes is aspirating more air when he believes himself forcing it out. This occurs especially when the patient during eructation bends forward his head and rests his chin on his chest. According to Soupault, this position means that air is swallowed and when present it is pathognomic. Mere belching is not indicative of ærophagy.

Hygiea.

February 28, 1919.

Case of Primary Pleural Sarcoma.—Roman relates the case of a man of twenty-two with left-sided malignant growth of the pleura with autopsy finds. The patient first suffered with ordinary pleuritis of exudative type, or, rather, the symptoms suggested that affection. There was a stabbing pain for several weeks immediately beneath the left nipple. At no time had there been any cough. On his first visit to the hospital he appeared to have an exudation in the left pleura of such extent that a thoracentesis was necessary to free the heart and other intrathoracic organs. The fluid was turbid and very bloody and the operation gave no relief. This fact, with absence of cough, led to a suspicion of neoplasm. The fluid quickly reassembled and a cachexia developed with progressive dyspnea, ending in death. The total absence of sputum and cough, and the absence of relief after tapping, led to an exploration of the pleural sac with a trochar, whereupon a firm, uneven mass could be mapped out. Autopsy revealed the presence of a primary pleural sarcoma. The microscopic examination after death showed the form to be a small round cell.

Boletin de la Asociacion Medica de Puerto Rico.

March, 1919.

Pappataci Fever in Puerto Rico.—Barriero informs the reader that this affection exists upon the Island (although we have never encountered the statement before that it occurs anywhere in the New World). It has been seen at least since 1912. There appears no reason why it should not extend to the United States. There has been a good opportunity to compare this malady with the recent outbreak of influenza, and the author institutes a parallel in which twenty-two symptoms are compared in each disease. He has probably drawn in part on the experience of Italy and other countries in which three-day fever occurs. The parallel is surprising and startling, for apparently there is almost no difference between papataci fever and mild influenza, while the totality of difference is essentially the much severer quality of grippe and the fact of sandfly transmission. A close analysis shows that in the sandfly fever bronchial symptoms are less pronounced and constant than in mild influenza, but to offset this fact we must not forget the extrathoracic type of grippe. The pharyngitis of three-day fever is said to be more severe than that of grippe, a statement which will not perhaps hold good save in mild cases of the latter. The ocular reaction and the skin reaction also seem more marked in three-day fever. In the latter the kidneys do not suffer, there is no complicating pneumonia, the patient has no marked prostration, does not look especially ill, and is never out of his head. But some of the symptoms hailed as absent from three-day fever are absent from mild and moderate influenza, and some present in three-day fever have been seen in old pandemics of influenza. Some curious parallelism is seen in the bradycardia present in both affections, in the second rise of temperature, etc. In many cases diagnosis is impossible between the two, from symptoms alone. The rapid diffusion, the grave type of case, the pneumonias, and insect transmission enable us to differentiate.

Il Policlinico.

March 9, 1919.

Streptococcus Pandemicus.—Segale, a director of military laboratories at Genoa, refers to the growing belief in the existence of a filtrable virus as the initial mischief-maker in pandemic grippe. This, in the light of laboratory and other experimental medicine, is sufficient to cause bronchopneumonia. The author has surveyed many experimental researches with virulent filtrates, and the weight of evidence is in favor of a belief in a filtrable virus. He himself has also been active in this field and recently isolated a streptococcus which passed through the filter, yet was active enough to cause a reaction in the nasal mucosæ after direct inoculation. This germ, named by the author *Streptococcus pandemicus*, after prolonged cultivation and filtration through a Chamberland filter, set up a respiratory syndrome in guinea-pigs with the following lesions: congestion, hyperemia, infarcts, ecchymoses, hemorrhages. In another pig there was evidence only of peribronchitis, while in a third case the result was negative. The author continues with an account of other experiments, from which it abundantly appears that at least in the guinea-pig this filtered germ can set up a series of intrathoracic and general phenomena which closely parallel those of grippe. The author now compares his own filtrable germ with those described by American and English authors and concludes that they are identical. He ignores or does not seem aware of other filtrable germs, also cocci, although a study of these might support his thesis.

Syphilis in the French Army.—Simon states that in 1916 there were 9,000 cases of syphilitic chancre in the army. To obtain the total one uses 5 as a multiplier and obtains the figure 45,000 for chancres alone, for the entire course of the war, which may be doubled to include cases which escaped recognition. This total is much less than the estimates of some syphilographers who make the number somewhere between 200,000 and 300,000. Those who were infected before the war are evidently not included.—*La Presse Médicale.*

Society Reports.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

One Hundred and Thirteenth Annual Meeting, Held in Syracuse, May 6, 7, and 8, 1919.

(Special Report to the MEDICAL RECORD.)

(*Continued from page* 849.)

SECTION ON MEDICINE.

First Day—Tuesday, May 6.

THIS was a joint meeting with the Section on Eye, Ear, Nose and Throat.

Encephalitis Lethargica.—Dr. SIMON FLEXNER of New York presented this subject, in dealing with which he made a comparison of the differential points between this disease and poliomyelitis. The anatomical difference was noted; in poliomyelitis it was found that the spinal cord is most affected and sometimes areas in the medulla, but the higher centers of the mid-brain are little or not at all involved. It had been stated that in encephalitis lethargica the spinal cord escaped infection, but this, Dr. Flexner said, had not been his experience; he had noticed involvement of the spinal cord, which, he thought, brought the two diseases more closely together. On the other hand, the extent of involvement of the mid-brain in encephalitis lethargica was out of all proportion to that noted in poliomyelitis. The localization of the disease in certain regions was that which would best account for the symptoms most common in the disease. One early symptom is involvement of the third cranial nerve, with accompanying lesion of the optic thalamus, the origin and direction of which is closely associated with that of the cranial nerve, in such a degree that the affection of both was easily understood. Furthermore, the external stimuli that keep people awake pass through the optic thalamus on the way to the higher brain centers, thus, when this region was blocked it favored the development of stupor and the lethargic state. In regard to infection, poliomyelitis could be communicated to monkeys and induce in them the corresponding clinical signs and pathological lesions which are present in the human being. The speaker quoted one report which was made in Vienna, and was referred to in the French literature of successful communication of encephalitis to a monkey. However, from the description of the so-called "successful transmission" Dr. Flexner said he felt that no real transmission took place, that the material inoculated was not sterile and that the infection of the animal was of the streptococcus type. They had tried a small number of inoculations at the Rockefeller Institute but in no instance had they achieved unequivocal results. He could not say that no one would ever be able to do so, but never with the ease with which poliomyelitis could be induced in that animal. Another difference to be emphasized was that those individuals who had poliomyelitis and who died, died within the first few days, because of the involvement of the spinal cord and the overwhelming of the respiratory centers and death took place from asphyxiation. In encephalitis lethargica, on the other hand, there are few early deaths, but mostly after weeks or months, and the nervous involvement is progressive; a disphagia takes place and it is necessary to feed the patient by tube. A terminal bronchopneumonia usually supervenes. Attempts had been made to cause the disease in monkeys by using the nervous tissue of old cases, but this was difficult, and so materials had been tried of more recent origin, that is, from cases 8 or 9 days old. This was taken out with great precaution as to complete sterility, but thus far there were no successful results from the inoculation. Dr. Flexner then showed lantern slides illustrating the involvement of cellular tissue and of vascular changes in the brain; involvement of the spinal ganglia; of the lateral ventricle with complete wiping out of nervous structure; hemorrhages, both microscopical and macroscopical, the distribution of which differed much from those in poliomyelitis; infiltration of the pia. The question might be asked, Dr. Flexner said, as to how much influence was noted on the cerebrospinal fluid in encephalitis lethargica, that there were certainly increased cells and globulin but much less, however, than in meningitis or in poliomyelitis. There was no doubt that in this encephalitis lethargica there was a proven disease of the central nervous system. It could be considered as an infectious, communicable disease, but to what extent it had been transmitted would not be known until reports had been made and studied to determine which were really cases of the disease and which were not.

Dr. ISRAEL STRAUSS of New York said that Dr. Flexner had given an interesting presentation of the pathology of the lesion. The neurologists had a very definite clinical description of the disease and of its types. Dr. Flexner had dealt thoroughly with the question which had bothered neurologists and pathologists alike, the relation of this disease to poliomyelitis; some writers had even gone so far as to claim that the diseases were identical. Much experience had been gained in Dr. Sachs' wards at Mt. Sinai in which 40 cases of encephalitis lethargica had been studied. They had been able to exclude syphilis and other disease of the central nervous system by the study of the cerebrospinal fluids. In one early case 160 cells were counted, which was far less than one would find in poliomyelitis. Another feature was that in many of the cases there was a history of one, two or three months' previous influenza infection; one case ten days after influenza infection. The British workers, Dr. Strauss said, do not connect the two diseases, but, according to Gibson, there is a filterable virus which is the underlying cause. One point upon which Dr. Flexner had perhaps not laid enough stress was that there were many more hemorrhages in encephalitis lethargica than in poliomyelitis. The aphagia, however, was more prevalent in poliomyelitis than in the other disease. Dr. Strauss said he had studied the brains, though not as yet the cords, of these cases and had encountered the lesion so well described by Dr. Flexner. There was more hemorrhage in the cortex, but without perivascular infiltration. In one case, the report of which was published, an unusual feature was the high temperature; the brain showed marked invasion of the meninges, with punctate hemorrhages. Cultures from the brain gave an aerobic and an anaerobic organism; in one case there was probably streptococcus contamination. A monkey injected intradurally and intracerebrally became ill in three days, but this animal had been used in surgical experiments and was not in tiptop condition. It became weak and lethargic. When killed, a hemolytic lesion was visible at the site of inoculation. Of three other Macacus monkeys injected, one became ill and recovered; two others showed no sign. One animal injected with washings of mucous membrane of a patient became ill and suffered paralysis of the hind legs within 8 days; after 11 days it recovered. The various inoculating preparations were passed through a Berkefeld filter. One animal inoculated developed meningitis and examination showed hemorrhages in the cortex and in the pons. A monkey that had recovered was inoculated with an emulsion very virulent for rabbits, and this animal remained well. A baboon, an animal much more resistant than the Macacus monkey, was inoculated subdurally with the same preparation and became very ill. They could substantiate Dr. Flexner that this disease was not poliomyelitis, but they felt that they had produced a filterable virus which had given lesions similar to those in human beings; it remained to decide what this virus was and its relation to encephalitis.

Dr. ALEXANDER LAMBERT of New York referred to the mask-like appearance and a flattening of the face very similar to that seen in tuberculosis meningitis, which was noted in encephalitis lethargica—a wax-like appearance of the countenance, which was a very striking symptom.

Etiology of the Pneumonias.—Dr. RUFUS IVORY COLE of New York presented this subject. He said that there were objections to employing the term "pneumonia," as pneumonia, even lobar pneumonia, is not a single clinical disease. The word was first used as an anatomical term, and had now come to mean an involvement of the lung, without taking into consideration the parasitic organism implicated. The reaction of the human body to the organism was not the same as that

which took place with the diphtheria bacillus, with which, although there were variations in kind and virulence, the body reaction was identical in all cases. With the pneumonias, the four groups of organisms produced different reactions, therefore in the immune reaction it was necessary to determine the type of organism. The relative frequency of the different types was noted in a study of 700 cases: Of type I there were 35 per cent.; of type II, 30 per cent.; of type III, 10 per cent.; of type IV, 25 per cent. Therefore acute lobar pneumonia could be described as a group of infectious diseases In the pathology the conditions became more complicated; the relation of the bacteria to the pathological lesions had to be determined. Pneumococci were not always found in the lung of lobar pneumonia and that brought confusion into the subject; they could be associated with the bronchopneumonia of children or the terminal bronchopneumonia of adults. Then again the exact relation of the Friedlander bacillus to this lesion was not yet determined; in certain cases they were the only bacteria in the lesion, though sometimes associated with other bacteria. In one case these were in the lung and the circulating blood as early as the fourth day. In three cases out of 144, this organism was the only one present; in these the clinical symptoms differed slightly from the ordinary type. With more frequency the *Staphylococcus aureus* was found as the only organism, and in these cases necrosis of the lung with abscess formation was found. The streptococci and the *B. influenzæ* were long known to be associated. The etiology of the pneumonias could be described as a train of events disrupting the physiological balance of the individual and many features were concerned in this attack. One individual remained healthy; another succumbed to the infection, and the disease could occur without the organism. Pneumococci had been supposed to be normal inhabitants of the human mouth and it was thought that the individual became infected from his own mouth; but study of the subject showed that types I and II were not found in the normal mouth but were only associated with the presence of disease. As little as 1/1000 c.c. injected into the trachea of monkeys produced the disease. Another factor was the variation of virulence. After animal passage the pneumococci became more virulent but after culture in artificial media they became less so. Then both animals and men had a considerable degree of natural immunity to the pneumococci and most persons acquired immunity to the pneumococci in their own neighborhood, but, as was noted in S. Africa and in Panama, the frequent immigration of new laborers to a locality subjected them to infection to which they were not immune. However, when the population became permanent, they quickly acquired an immunity. At San Antonio there were many atypical cases caused by hemolytic streptococci, and although measles cases were rigidly excluded, there was an epidemic of streptococcus lung lesions. This was spread by the fact that the men left the wards still harboring pathogenic bacteria; they were careless about coughing and spitting, and the unusual conditions of crowding and of fatigue increased the spread of the contagion. In regard to the epidemic of the past winter, it was not so difficult to account for it as might be supposed. It was probably due to an infecting agent affecting a susceptible population. This agent might be either a filtrable virus or it might be the *B. influenzæ*. MacCallum had come to the conclusion that the system was first attacked by a filtrable virus which lowered the resistance, and the body then became infected by secondary organisms. There were probably many more lung lesions in the past epidemic than were supposed. The high mortality was due to the high virulence of the organisms, but how much part the *B. influenzæ* played in the epidemic is not clear; possibly it was an important one. In conclusion, Dr. Cole said that the pneumonia in an individual occurred from a combination of circumstances and the epidemic could also be said to arise from a combination of factors. To focus attention on one point to the exclusion of other factors was to ignore the possibility of a complete understanding of the subject.

Treatment of the Pneumonias.—Dr. CHARLES FRANKLIN HOOVER of Cleveland, Ohio, made this presentation, by invitation. The speaker said that a cure for pneumonia might be found, although there was no cure to be had for pneumococcus infection. This view should not be startling to the profession, as they already had similar examples. In the Poynton and Payne infection of the joints, for instance, the synovitis would subside wonderfully with administration of large doses of salicylates, but the patient could have at the same time an endocarditis, a myositis or an endophlebitis, due to the same organism, which were in no way affected by the salicylate dosage. The same thing could be observed in syphilis; gummata of the skin, of the liver, could be cured by dosage of iodide of potash, but this drug did not cure the syphilis. Iodide of potash will restore gumma of the liver but not the syphilis at all, although it was only recently that the medical profession had learned this fact. In regard to pneumonia, in a very large proportion of cases the pneumococci had been recovered; there were the evidences of chill, fever, and isolation of pneumococci from the blood, before observation of the lesion in the lung. Thus, there could be general infection, without the local pathological process. In one patient seen by the speaker a profuse hematemesis which almost exsanguinated him was the first indication of the pneumonic infection. At autopsy a few days later, extensive pneumonic lesions of both lungs were found. In another patient, an old man, a hematuria was the first symptom of the infection. Another of the early evidences of the infection was the icterus. An interpretation of the color of the sputum would be of help here. A "rusty" sputum was simply a sputum colored with the patient's transuded bile, and tinged with blood pigment. After washing the blood from the sputum a clear yellow sputum retained, and if a blood specimen were now taken and freed from red cells, the clear plasma would be found to match the yellow sputum, that is the bilirubinin was found to color the plasma. There was not enough, however, to dialize bile salts in the blood plasma. In this case one was dealing with a genuine hemolytic icterus which was a very early manifestation and the hemorrhages seen were but an expression of a severe hemolysis. These patients generally got over the icteric stage before they came into the hospital. Dr. Hoover said that when he was a medical student there was a phrase in use "bilious pneumonia." It was supposed then that the right lobe of the liver did not completely pump the bile out of the liver, and this statement found its way into many of the text-books, and was accepted as gospel by the students. In regard to immunity, it might not be possible to confer immunity against the pneumococcus, but one had to ask what was the character of the acquired immunity and what was the protective substance. The side-chain theory of Ehrlich had come to be received with as much reverence as the decalogue and it was argued from this that the protective substance must be in the blood plasma and nowhere else. That this protective substance might not lie in the plasma, but in the cells or some other organ, could be shown by the following experiment. Animals had been injected intravenously with a large number of pneumococci, and after this part of the vessels were tied off. It was found that in the freely circulating vessels the organisms were very quickly disposed of, but on opening the tied off vessels, the same quantity of bacteria were found without any change. Therefore it would seem that the bacteriolytic substance was not independent of other cell structures. In the liver the large Kupffer cells had been found to engulf several hundred streptococci, thus it would seem as if the cellular protection of these fixed phagocytes were greater than that of the wandering phagocytes and that they could confer protection upon the animal. The profession were getting away from the idea that there had to be a certain titer between toxin and antitoxin in pneumococcus infection. In the papers to-day no cure had been mentioned, because no drug was known to cure pneumonia. One had to consider other means of treatment. Cyanosis might be a very important factor to consider, and one had to study the reason for it. In pneumonia there might be consolidation of, say, one-fourth of the lung; thus, though circulation continued, one-fourth of the lung had unrespired blood and increased CO_2 content, but by giving a patient oxygen the anoxemia was not compensated; the man was not suffering air hunger, although he had cyanosis on account of the

high CO_2 content. It was necessary to examine this matter, because the medical man only saw what he looked for, unless he looked for elephants, he did not see them. One had to consider that the respiratory membrane was very extensive, and would cover several hundred square yards if spread out, a large area over which to spread a few ounces of blood. In a moist condition of the bronchioles, with surface edema and moisture outside of the air spaces, the giving of oxygen would cause an oxygen foam which would allow the passage of oxygen to the lung after three or four minutes, but in deep edema of the lung, there was no benefit to be derived in giving oxygen at all. It simply did not reach the lung.

Dr. Augustus Wadsworth of Albany said he had been much impressed with Dr. Cole's presentation dealing with the different factors which contribute to the development of pneumonia. He thought that all of them had put too much stress on the inciting agent in the disease and had allowed other factors to fall into the background. The conditions that affected the development of pneumonia acted in two ways: either by the virulence of the exciting agent or by the susceptibility of the person. The virulence varied in the different diseases; in diphtheria there was marked toxic poisoning; in pneumonia there were toxic symptoms, but one had not been able to recognize the poison. Cultural conditions affected the toxicity of the organism. Thus, simple culture in broth increased the virulence in 24 hours, apart from animal passage, so that growth and vegetative powers were important factors. Susceptibility of the individual was also important and this was clearly emphasized in the experimental study of animals' susceptibility to pneumonia. In those that are less susceptible, different types of pneumonia were found. The pneumonia was really the expression of the power of the animal to react to the poison; with slight poisoning, the reaction was slight; with increased toxicity the reaction was increased. The two sides of the balance had to be considered—the virulence on the one hand, the susceptibility on the other. The word resistance was a vague term which could be more clearly expressed by the word susceptibility. The skin, and also the lungs, to a certain extent, formed a barrier to infection; thus it was seen that infection was apt to pass directly from the trachea into the circulation. In regard to the pneumococci and the streptococci, this group of infections was important, but the English writers had noted that influenza was often fatal without pneumonia, and that the severity of the influenza had nothing to do with the pneumonia, because often very slight lesions of the lung were associated with virulent infections. The influenza greatly lowered the resistance of the individual. The symptoms were marked toxemia and prostration and when influenza pneumonia occurred it was characteristic both pathologically and clinically. Pneumococcus infections often developed in the course of streptococcus infections. Dr. Hoover talked about early infection in pneumonia; it was to be presumed that the doctor did not mean that the organisms reached the blood first, but that the organisms reached the blood from the air spaces. As for the protective substances in the plasma (or blood serum), it could be demonstrated in vitro, that organisms put into immune serum at 36° C. would grow, but at 41° C. they were destroyed by hemolysis. Pigeons and chickens with a normal temperature of 41° C. were unsusceptible to infection. Thus temperature was an important factor. In regard to serum treatment, this had been tested out for four years, and the figures showed that the mortality for the treated cases was a little higher than for those not treated, in the rural districts. In the Army, at Camp Wheeler, of 72 cases treated, there was a mortality of 8.2 per cent., nearly as low as the Rockefeller Institute mortality of 7 per cent. Proper serum treatment might be very efficacious. The usual mortality was 20 per cent. The big medical centers gave the best figures in this respect, and serum treatment, if done at all, should be done thoroughly.

Dr. Loewe of Mt. Sinai Hospital, New York, read a short summary of a method to determine the types of pneumococci by blood precipitation tests. This was found superior to and more exact than typing by sputum methods. Only 5 to 10 c.c. of blood were required and the various types, as well as the mixed infections, were more easily determined.

Dr. F. B. Turck of New York said that he was proud that America could boast of Dr. Cole's work in the study of the pneumonias. The pneumonia commission had taken a conservative standpoint. Further investigation into methods of treatment was necessary. The speaker had found that autolysed lung tissue of the same animal was the cause of the lung lesion, and not any organism. Animals had been known to die in a few minutes after the aspiration of this substance into the bronchi. In experiments on cats, the animal's paws were covered with paste made of autolysed lung tissue, and most of the animals died. The secondary invaders were not the cause of the lesion.

Dr. E. Libman of New York said that he had followed up the work Dr. Loewe had mentioned. It had been found that if one put pneumococci in normal serum there was a slight acid reduction. In the serum of a pneumonia patient there was a precipitation and coagulation, and evidently there was something in the serum by which carbohydrates could be broken down and acid formed. The product in the serum of pneumonia cases was found to be specific for the various groups. In regard to the serum treatment of patients, the serum in many cases was not properly given, and it was necessary to have a specially trained man for its proper administration.

Dr. Cole, in conclusion, said that he hoped that Dr. Hoover did not want to say that serum had not protective value. They could not overthrow the fact that immune serum is protective. In regard to serum treatment, it had to be given right, just as quinine had to be given right in the case of malaria, although there was, of course, not much analogy in the two methods. It was hoped that in the country districts in time that immunity might be obtained.

Dr. Hoover, in conclusion, said that he did not refute the fact that the use of serum of an infected animal might be essential, but medical men had come to think that the protective substance was to be found in a certain titer of toxin and antitoxin, but the serum of an immune animal could not protect against anaphylaxis or hemolysis. Another factor to be remembered was this, when one had a specific factor in any disease, the specificity became apparent immediately, but when the specific employed gave rise to such a great amount of scepticism as the use of serum treatment had done, it raised a question as to the real specificity of the agent in question.

Influenza.—Dr. Alexander Lambert of New York presented this subject. As early as 1137 an epidemic was recorded which spread from Eastern to Western Europe. Various epidemics had been noted and in the past century Prof. Theophilus Thompson gave a detailed report of an epidemic which he described as the most extensive and least liable of modification, so much so that it was superior to national habit and impaired the vital energies of the victims so that they suffered an increased liability to other diseases. In 1510 Dr. Thomas Short described a malady called the coqueluche (from the hood which the sick drew over their heads), which came from Africa and ranged over Europe and which was signalized by headache, chills, distress, and cough. Children died of it in some instances. To-day the disease could be described as characterized by headache, pain in the bones, cough, and prostration out of all proportion to the severity of the symptoms, the patient taking a long time to recover from the exhaustion induced by the disease. One point noted was that in the height of the attack young and robust persons suffered, but later in recrudescent stages of the epidemic, older people became victims. One attack apparently did not produce immunity against another, although it was possible that the infection lingered in the sinuses and tended to produce recrudescences which were mistaken for new attacks. The disease was spread from one to another by spraying of infected particles through coughing and spitting; the lachrymal sac was supposed to present a large area for infection and bacteria were found to pass to the nose in five minutes and to the throat in 15 minutes, from this point of origin. Opinions varied much as to the probable relation of the bacillus of Pfeiffer to this disease. Some thought it due to a filterable virus. The organism of

Pfeiffer was found in enormous numbers in influenza cases; it was an anaerobe and not easy to cultivate. Since the technique had been improved, more cases of the bacillus of Pfeiffer had been identified. It was a gram positive coccus, which was able to pass through the Berkfeld filter, and had high resistance, being able to survive a temperature of 56 deg. C. for 30 min. The English workers had cultivated the organism from the blood and exudates, also pleural fluid and cerebrospinal fluid. By Noguchi's cultural method coccoid forms were isolated, probably pleomorphic in character; thus, the germ might be a facultative anaerobe with varying growth, according to whether there were oxygen or not. The different types described might well be different forms of the same organism. A certain amount of immunity seemed to have been produced to this germ. It would appear that the pneumococcus was a secondary invader which entered after the primary organism had destroyed all resistance. In British India alone five millions of people had died within a space of two months from the disease, the natives being particularly susceptible to its ravages. The sodden lung, characteristic of these pneumonias, had been described in the eighteenth century, as a bloody transudate. It was found associated with severe myocardial degeneration, especially in patients of over 60 years of age. In regard to treatment, vaccine, if administered early seemed to provide immunity in the majority of cases. Injections intravenously of 800 millions of typhoid bacilli had been given, which were followed by a typical protein reaction, a sharp rise in temperature and improvement. Salicylates could be given to relieve the distressing pains in the bones, but the antepyretic coal tar preparations seemed to be contraindicated. Persistent spraying of the pharynx tended to prevent the spread of the disease downwards from the pharynx. The absence of physical signs in extensive bilateral pneumonia was a marked feature of these cases; slightly diminished breathing, with a few râles and harsh breath sounds were, as a rule, all that were heard in these cases and must satisfy the most exacting as a guide to differentiate these pneumonic lesions.

The Aural Complications.—Dr. Edward Bradford Dench of New York made this presentation. He said that in an epidemic it was difficult to obtain data as to special organs. Medical men were under an unusual amount of work and they were not trained to determine complications of special organs. In St. Luke's Hospital, in the period of time from Sept. 1, 1918, to March 31, 1919, there were 30 cases of middle ear involvement of which 2.7 per cent needed mastoid operation. This was slightly less than the number of cases for the preceding year. It was essential that cases of middle ear involvement should be recognized early. Temperature should be noted in infants, and pain and temperature in adults. The physician, however, should not attach too much importance to slight changes, as, with many infections, a spontaneous subsidence was noted. In many cases with mild congestion of the drum membrane, the drum had been unwisely opened, laying it open to chances of infection. It was only necessary to do this in cases of acute pain. During the epidemic the infecting organisms noted in the ear had been usually the streptococcus or the pneumococcus, no hemolytic streptococci had been noted, however. In ten mastoid cases in children under 8 years of age the pneumonia was of the bronchial type, and it was difficult to determine whether the temperature was due to the chest or the ear. It was difficult to employ general anaesthesia for the mastoid operation in these cases. One case was fatal, in which a late meningitis developed after operation. An early operation would have saved the patient. The general practitioner should be on the alert for complicating aural lesions, as early involvement of the middle ear was always a danger signal.

Dr. Roby of Rochester, N. Y., said that he had listened to some remarks about intravenous injection. He had found this to be a very dangerous procedure in many cases; where successful, it was most brilliant, but one ran a great risk. He had seen one patient who ran a temperature of 109 after the injection; she died two hours later. On the other hand he had seen a case of influenza with a persistent temperature that really looked like a four weeks typhoid. The temperature was 105 and after an intravenous injection it came down to normal by the next day.

Dr. F. B. Turck of New York said that Dr. Lambert had brought out the point that there was very little evidence of infection in the extensive pneumonic infection. In experimental animals it was found that there was congestion of the lungs, that it was in the lungs that the first reaction took place. The transmission in these cases had been found to be due to hand-to-hand transmission, rather than to coughing and spraying.

Dr. J. F. McCaw of Watertown, N. Y., said that the cases of otitis he had seen were those that went on to convalescence without radical interference. The hemorrhagic type occurred at the height of the epidemic and was more severe than the type that followed the epidemic. In one patient there was pus in the kidney and hyaline degeneration, when this was cleared up one might hope to clear up the ear condition.

Dr. Charles of Queens said that he hoped to hear about vaccine treatment. He had had very satisfactory results with autogenous vaccines of *B. influenzæ* and of *Streptococcus hemolyticus* the temperature of the patients had been brought to normal in a very short time with alleviation of the symptoms.

Second Day—Wednesday, May 7.

Dr. Malcolm Sumner Woodbury of Clifton Springs in the Chair.

The Present Conception of the Significance of Cardiac Phenomena.—Dr. Allen Arthur Jones of Buffalo, N. Y., made this presentation. He stated that the older writers had a large knowledge, not only of valvular disorders, but also of the rôle of the myocardium, and thus they were able to lay down sound principles of treatment in cardiac disorders. There remained, however, the large field of pathology and clinical behavior to be understood. Studies of physiology of the heart brought out the importance of the nodes, and of the excitability and contractility of the heart. Later, the use of instruments of precision, such as the sphygmograph, introduced the study of arterial tension and the volume of the pulse. This instrument paved the way for the polygraph and the sphygmomanometer which registered arterial pressure. The development of blood pressure studies emphasized the difference of pressure in the arm and the leg, which, in aortic insufficiency, might be as much as 130 mg. in the leg as compared with 60 in the arm. Studies showed that in five out of ten cases no diastolic pressure could be read in the leg, whereas in the arm a pressure of 60 to 80 mg. was recorded. Later the electrocardiograph, with the tracings of the cardiac cycle and heart murmurs had led the way to a deeper understanding of the physiological and pathological cardiac phenomena. Post mortem studies had corroborated the knowledge gained clinically, and had afforded data of the first order. The clinical and pathological conferences as advocated by Thayer and others had done much to add to the understanding of cardiac disease as the autopsy studies had explained the bedside observations. In regard to various forms of cardiac pathology, Dr. Jones said that pathological bradycardia indicated disease of the auriculoventricular bundle, perhaps with sclerotic changes in the bundle which were not syphilitic in origin. The Adams-Stokes syndrome and heart block, although studied, were not yet fully understood. The arterialization block was an interference of the auricular impulse coming through the main bundle. The seriousness of the complex would be understood when it was stated that of 112 patients, 69 per cent. died within 12 months. In paroxysmal tachycardia, the heart was under the influence of a new focus of contraction, removed from the normal pace-maker. This pathology was associated with endocardial and myocardial phenomena and with pulmonary and renal disease. Sometimes, however, it occurred solely through disturbance of the neuromuscular mechanism. Auricular flutter should be differentiated from paroxysmal tachycardia. The treatment consisted in giving digitalis or strophanthus in large doses, which would change the pathology into auricular fibrillation. MacKenzie, in his studies on dilated heart, had stated that in the broken rhythm

the impulse was disturbed in the auricular-ventricular node and the ventricular contraction would precede the auricular by one-tenth of a second. As regards etiology, the rôle of focal infection in cardiac disease was fully appreciated at the present time and the cardiac condition often cleared up upon its removal. Acute articular rheumatism, gonorrhea, and septicemia were known to be associated with cardiac conditions. The present war had tended to throw much light on the behavior of the heart and circulatory apparatus under varying conditions of stress. Enthusiasts were put upon their mettle to explain conditions, and many mistakes were naturally made, but men were kept under test observations to determine the circulatory data in different individuals. There was established, in reality, a nation-wide heart clinic and many things were learned. Hearts with murmur could be made into new hearts, capable of enduring heavy work. Four things, however, were essential: first, endocarditis must have ceased; second, the myocardium must be intact; third, the heart must not be subjected to focal infection, or intoxication such as syphilis or thyroid hypertrophy; fourth, it must be of normal size. In myocarditis or aortic insufficiency the heart was sure to break down under strain. In cases of atypical hyperthyroidism many men were rejected, and many other men broke down; it was proved that the thyroid heart would not endure strain. This type was seen in thin, young individuals, with more or less marked gastroptosis; the arteries appeared tense, but the blood pressure was low; and the heart commenced to pound on moderate excitement. This type represented the neurocirculatory asthenic, and the men were poor subjects for first line service. They were apt to present dizziness and mental confusion under stress. The treatment of this class was: first, by removal of focal infections; second, relief of gastrointestinal stasis (an important element in these cases). Careful and sympathetic training under an experienced medical officer was a prime essential, as judgment and technical knowledge were necessary to appreciate the condition and estimate the limitations of these subjects. In serious cardiac lesions the treatment called for complete rest, and the Carrel diet (800 c.c. of milk in 24 hours); also the Eggleston method of quick digitalization was of much value. The dosage was .145 c.c. per pound of body weight. This, however, was not a safe procedure unless the patient could be kept under constant observation, which practically limited such therapy to hospital practice; 0.5 mg. doses of strophanthin could also be given under the same conditions.

"Analysis of Cardiac Conditions in 66,575 Drafted Men Examined at Camp Gordon, Georgia."—Major ANDREW MACFARLANE of Albany, N. Y., read this paper. He said that in the army camps the thing that struck the doctor was that conditions were to be dealt with by wholesale—by thousands and by tens of thousands. It was a question of speed; things *had to be done.* A year ago the country was in the terrors of war and the necessity was to get men to the front, no matter at what cost. Conditions were obviously unsatisfactory for a thoroughly satisfactory examination of the patient. The motto of the army was "To hell with science; we want speed." Thus an enormous number of young men between twenty and thirty years of age, and from all sections of the country, were examined, and the statistics gleaned would show more or less interesting facts. 373 men were immediately discharged for marked cardiovascular lesions. Statistics showed similarity of figures for all the States, excepting Iowa, in which the men presented one-half the physical disability of the men in other States, and averaged the best physical types of the men examined. Of the cardiovascular lesions discovered 86 cases were of mitral insufficiency; 24 of mitral stenosis; 26 of aortic insufficiency; 1 of aortic stenosis; 34 of myocarditis; 56 of hypertrophy with hypertension; 5 of hypertrophy without hypertension; 76 of persistent tachycardia; and 49 of irritable heart (neurocirculatory asthenia); 1 case of adhesive pericarditis; 1 of aortitis; 1 of brachial aneurysm; 1 case of marked anemia with anemic heart. An interesting point was that two cases of dextrocardia were noted—one in general examination and one was remarked because of a right varicocele which drew attention to the fact. The ratio was three cases of dextrocardia to 100,000 persons. The cases were not rejected. Cases of mitral regurgitation without hypertrophy were accepted when there was no accentuation of the second pulmonic sound. Cases of myocarditis with history of severe infection and poor sounds were found very poor subjects. A systolic pressure of less than 150 was considered hypertrophy without hypertension. The conditions under which the men arrived were not ideal for accurate examination. The long journey, the crowded cars, the often injudicious eating and drinking with hospitable friends before they left home, made the detection of a true tachycardia difficult. Fifteen to eighteen hundred recruits had to be handled daily. The preliminary examination was made in a large, noisy room. The upper room, where the special tests were made, was also noisy, and the sounds of cars, drilling, and bands playing had to be disregarded by the medical men. Examinations had to be concluded the same day. Each examiner had to look over 250 men and no accessory aids to diagnosis were possible. The precordium and vessels of the neck were examined and a reauscultation after exercise was done. Three-tenths of the men examined were referred to the special examiner, and one-sixth of these latter were declared to be unfit for military duty. In spite of the noise and confusion it was surprising to what proficiency the examiners attained and it was found that of those who were passed only a very small number broke down, although the subsequent training took place in the hot weather, in Georgia, the three months' course was crowded into six weeks, and the men were driven from early morning to late at night. In regard to types of lesions diagnosed, they included mitral insufficiency, mitral stenosis, and hypertrophies. The mitral stenosis cases were in poorly developed men, in whom a definite presystolic murmur was noted after exercise. The double mitral lesion, sometimes seen, made this more striking. Aortic insufficiency cases usually gave a history of heavy work; syphilis was noted in 30 per cent. of these cases, with a definite diastolic basal murmur in every case; there was also marked hypertrophy of the heart. Of 26 men between 21 and 25 years of age, 19 were discharged. The myocarditis cases responded poorly to exercise. The hypertrophy and hypertension cases showed a high blood pressure, although the ratio was normal. It was necessary to distinguish the irritable heart cases from persistent tachycardia. In the irritable hearts, the history of syphilis was infrequent. There were noted marked cyanosis, cold hands and feet, tremor, marked tachycardia, apical thrills, accentuation of the second pulmonic sounds, often high pulse pressure. In the simple persistent tachycardia cases, on the other hand, nervousness and cyanosis were not noted, nor were tremors felt; thrills were rare; and the blood and pulse pressure were less than in irritable heart. It was interesting to note the percentages of failure in diagnosis both in the preliminary diagnosis and in that made by the referees: these approximated 1 mistake per 2,000 men—that is, about 100 cases broke down. These included 13 mitral insufficiencies; 8 mitral stenoses; 1 double mitral stenosis; 4 aortic insufficiencies; 20 cases of myocarditis; 4 irritable hearts; and 5 tachycardias. The referees failed to find lesions in 18 out of 2,288 cases referred to them—that is, they failed in one out of 126 cases. If the cases of myocarditis (which the Government ruled should be accepted) were omitted, then the cardiovascular board could be held responsible for 13 failures in diagnosis among 67,565 cases examined.

Dr. WILLIAM D. ALSEVER of Syracuse, N. Y., opened the discussion. He said that it had given him great pleasure to listen to Dr. MacFarlane's admirable paper. He had also been glad to hear Dr. Jones lay emphasis on the use of diet in heart disease; this was one of the best forms of treatment and the profession should make use of it more than they did. Another point was the use of digitalis; he spoke of the method of estimating the dosage which should produce digitalization in the individual. The tincture of digitalis could be given intravenously, and half the dose could be given by mouth. This method would be found as satisfactory as any tried before. The question of murmurs was of great interest. At the meet-

ing of the Climatological and Clinical Association two years ago there was a great deal of discussion on the subject of differentiation and aortic murmurs. It was thought that a soldier who had a murmur should not be sent to active service. Later on, Dr. Alsever said, it had been his privilege to serve in France and he had come to know that the sound of a systolic murmur was not a thing of special importance in estimating the fitness of a man for service—that is, it had no value by itself without other physical signs. MacKenzie had laid down a rule which stated that if on careful examination of a case of heart disease, only one sign could be found, and there was nothing else to corroborate it, the sign could be disregarded. So that, instead of condemning the patient with systolic murmur to a life of invalidism, one could allow him normal exertion. Cases of aortic regurgitation and mitral stenosis would break down inevitably under strain. In one case a soldier, supposedly suffering from "shell shock," was pronounced sound by the neurologists. He, however, applied for a medical examination and it was found that what had been called "shell shock" was in reality aortic regurgitation. The recumbent posture would be found of value in some cases, especially in mitral stenosis, as an aid to diagnosing the condition. The functional murmurs were then best heard. There was one exception to this rule and that was in cases of irritable heart—the neurocirculatory asthenics. These cases of handicap were a real problem. They had been called "effort syndrome," but perhaps "excitation syndrome" would be the better term. It was a mistake to emphasize the heart side of this problem, because sometimes treatment of abdominal ptosis would relieve the condition, and that was clearly not heart disease. All one could say with certainty was that the body easily tired. Some observers believed that hyperthyroidism played a part, because of the rapid pulse and sweating, but as goiter was lacking this did not entirely account for the state. Other workers believed that the trouble was in the endocrinal glands other than the thyroid. Lewis in England had done a great deal of work on the effort syndrome cases, but had not found out anything definite. The causes might be various: either constitutional defects or acute infections, such as tonsillitis, trench fever, pneumonia. Gassed cases behaved very much as cases of acute infection. A bronchitis developed, but there seemed to be a more acutely intoxicating factor. With an excess of CO_2 in the blood, breathlessness was hastened, because it was stimulated by acids. The acid reaction of the blood varied very greatly with exercise and the blood was unable to accommodate itself to the changing acid conditions. Acidosis played some sort of a rôle in these cases. The English workers had reported polycythemia and claimed that the disturbance was in the red blood cell numbers. These subjects as a whole responded poorly to exercise, they did not improve very fast, and it was noted that in effort syndrome the subject could only hold the breath for a short time—about ten seconds, instead of 40 or 50 as in normal men. In the gassed cases, many of which were pitiful, a careful study was needed. They were kept in bed at first, but orders came along to give them exercise. After exercise of half a mile many dropped out from exhaustion and pain in the chest, all the symptoms of effort syndrome. Since his return, Dr. Alsever said, he had had the hearts of these men *x*-rayed and found enlargement of the heart, where there was no suggestion of heart defect before. It could be concluded then that gas did some damage to the circulatory apparatus and much exercise was a mistake.

Dr. JENKINS of Albany, N. Y., said that at autopsy they had an opportunity of judging the pathology in many of these cases. In 100 autopsies he had seen two cases in which the condition of the tricuspid valve had been overlooked. In one case, a young athlete, the man had taken a high jump, after which he fell down in convulsion and died. Autopsy showed a persistent thymus which consisted of two lobes with an isthmus and another lobe. The other case was of right ventricular rupture. This case also had persistent thymus.

Dr. L. F. BISHOP of New York said that he was greatly interested in Dr. Jones' paper, which had covered the subject of modern cardiology in a short time. It would be difficult to discuss such a valuable paper, so that he preferred to present something that might be of value to the general practitioner. In heart practice the electrocardiogram was used as a routine measure, but, in his experience, very few of the profession had made any attempt to understand the electrocardiogram. The reason was clear. It was hard at the start to work out any explanation of what it meant. There was nothing to be found in the textbooks which would give the matter simply. Dr. Bishop had therefore worked out for himself a simple interpretation, because he said he had gone before many medical societies and shown what he considered very beautiful pictures, and had handed them round, but that they did not receive the attention they deserved. The men did not understand what they meant. These tracings were simply an autograph of the heart beat which was transmitted along the wire. The waves were named P, Q, R, S, T. P, R and T were the principal waves and represented the current generated by the contraction work of the heart. The auricle was a soft structure which received the blood under no particular pressure, and when the heart contracted in diastole the blood was pushed into the ventricle. Thus P denoted auricular contraction and work. In the next step the ventricle had been filled with blood, and the heart was ready to do its real work of circulating the blood. The illustration of a man falling flat on the water was given to show that fluid does not immediately yield to pressure, and in the contraction of the heart on the amount of blood in it, the fluid did not yield immediately, but the heart had to contract on it before squeezing it into the circulation. This was the R wave. The T wave was the work of the heart squeezing the blood into the circulation. Thus:

P=contraction of the auricle.
R=contraction of the ventricle.
T=work of the ventricle.

The waves Q and S were not of importance, being probably reflexes from the other waves. This would give a starting point from which to commence an intelligent reading of the electrocardiogram.

Dr. L. T. LEWALD of New York said that the observations of cases of dextrocardia were very interesting. He had been examining cases for ten years and had personally seen 19 cases. The examination of recruits with the fluoroscopic *x*-ray brought the percentage of cases up. Compared with the population of the world every one in Syracuse would have dextrocardia. It would seem as if many cases had gone unrecognized in the past. It was interesting to note that one case had been detected by a right-sided spermatocele. Probably there was complete transposition. The exact study of the size of the heart had become more general. The soldier's heart was found to be larger than the civilian heart. Dr. LeWald said he had been making studies on aviators' hearts at the Mineola Camp. It was a question whether the heart dilated when the aviator ascended 30,000 feet. It was believed that it did in a large percentage of cases. Studies were made on three men by *x*-ray observations. These were made by means of a low pressure tank in which an exhaust of the oxygen simulated the conditions of high altitude. The whole problem was one of diminished oxygen supply. In order to take the *x*-ray, a window was cut out of the tank and replaced by an aluminum sheet, 5/16 of an inch thick. Satisfactory radiographs were made through this window at a distance of 80 inches from the plate. Care was taken to have the ray strike a certain portion of the spine and thoracic vertebræ and to take the pictures in the diastolic phase of the heart. Another point was to get rid of the effect of respiration on the size of the heart, noting carefully whether the examination was during inspiration or expiration. In many cases the patient was in a fainting condition. The heart was taken during expiration. The movement of the heart was about 2 c.m. It was difficult to measure exactly the lower border of the heart, although an excellent radiograph could be obtained of the apex. It was necessary to have the subject drink mineral water to bring a gas bubble into the stomach.

Dr. ARTHUR A. JONES, in closing the discussion, said that he was grateful to Dr. MacFarlane for his extremely valuable contribution. In the cases of neurocirculatory asthenia noted, Dr. MacFarlane had found high blood pressure. Dr. Jones said that in his own paper he had stated the blood pressure as low, and these seemed contradictory observations, but if the subjects were studied under varying conditions—that is, under the tension of military examination, and also under quiescent and relaxed surroundings, the difference in blood pressure would be accounted for. These patients reacted enormously to the slightest stimulation, the blood pressure rising 40 points in a few minutes. The blood pressure could be called unstable rather than persistently high. This excessive reaction gave rise to a persistent teasing of the circulatory apparatus and they easily developed a cardiofibrosis. Dr. Alsever's remarks upon the work of Lewis, and upon his own work in England, were interesting. The question of acidosis played a large part in cardiovascular and renal disease and it might be that one should consider more carefully its relation to these cases. Dr. Jenkins had reported most interesting cases of status lymphaticus. Personally, the speaker said he could not disconnect a right-sided myocardial lesion from the status lymphaticus, yet there was no actual scientific explanation of that. Dr. Bishop did well to call the attention of the members to the reading of the electrocardiogram. These tracings were difficult to appreciate, but they were as nothing as compared with the difficulties of the polygraph. It was surprising to hear from Drs. LeWald and MacFarlane of the number of cases of dextrocardia. It would seem that one should be on the lookout for them. Most practitioners had examined many cases by physical and by *x*-ray methods without having discovered one of them. In conclusion Dr. Jones said he felt that Dr. LeWald was doing such splendid research work on the size of the heart that he felt his own contribution had been very small in comparison.

Dr. ANDREW MACFARLANE of Albany, in closing, said that he had been in such haste to cover his subject that possibly he conveyed a wrong impression. He had not meant to say that in neurocirculatory asthenia the blood pressure was high, but that it was high in comparison to that associated with paroxysmal tachycardia. There was marked debility of the pulse blood pressure. One felt, in a great many ways, that the war had stopped a little too soon. The soldiers would have been glad to have it last longer. At Camp Gordon Dr. MacFarlane said he had just got a good laboratory in full swing and had begun to make blood chemical examinations. They found the blood of the neurocirculatory asthenic to be apparently increased in the content of sugar, urea, and creatinin. There was nothing unusual in these subjects, but Uncle Sam demanded 100 per cent. men and these men did not measure up to the mark; when it came to going over the top they were substandard. In civil life they were not remarked, they chose easy jobs, drove a wagon or ran errands, but in the army they had to go from 5 in the morning to 11 at night and they fell down. They were the kind of whom the mother said "he has outgrown his strength," but the Government could not pay attention to that. One had to look, however, for the underlying cause and find why a lad outgrew his strength and what was the reason for the substandard. It was pathetic to see the number of men thrown out by examination and unable to take their place among the others as American citizens. More trouble and humiliation were suffered by those who were willing and who were found unfit, than by those who tried to evade the draft. There was a great possibility for the medical profession to carry out some scheme of prevention in these cases, without waiting till war came to find out thousands of defects occurring in young men under thirty years of age.

A Program for the Development of Internal Medicine in New York State.—Dr. AUGUSTUS WADSWORTH of the State Board of Health of Albany, N. Y., made this presentation. He said in the preparation of this paper he had probably gained more than the members of the society would. A careful study of the subject of how the laboratory might be of service to the State was an education. Preventive medicine had been greatly enlarged in scope and, aided by the science of bacteriology, had reached out in various directions, which affected the modern social organization, such as sanitation, cleanliness, removal of nuisances, care of water supply, disposal of sewage, methods of protection, and development of laboratory facilities. The Department of Health protected the citizen by doing for him what he could not do for himself. His food and drink were safeguarded; his waste disposed of; and precautions were taken to protect him from communicable disease. Infectious diseases formed but a comparatively small part of preventable human ailments; the diseases of adult life, constitutional disorders, occupational disorders, psychic disturbances, structural deformities were all, to a certain extent, preventable, and this fact was fully recognized by public health officials. Various attempts were being made on all sides to improve conditions that affect health and happiness, and there was a demand for new adjustments of social organizations. Education perhaps was the first essential towards improvement. It was difficult to enforce sanitary regulations that the people did not understand, and so the educational work of health departments became indispensable. Both the profession and the laity were alive to the necessity of preventional methods; the School of Hygiene at Johns Hopkins and the School of Industrial Hygiene at Harvard were striking examples of professional interest. Social welfare work showed the awakening of the public conscience, and health insurance was an attempt in the same direction, although, as framed in England and Germany, it was subject to abuse, and the more competent physicians were not chosen to give advice. It was simply lodge practice perpetuated, and was not what its name connoted. This system of "sick benefits" (as it really was) had no effect on mortality or morbidity, and was simply a fetich which appealed to the misinformed public conscience. Legislators in this country would do well to see the dangers of this practice. Industrial medicine was on a different footing, as here were employed well trained physicians, nurses, and laboratory experts. The scope of these organizations might be extended with the cooperation of the department of health and the efficiency would be increased as the organization developed. Industrial medicine had received unqualified support from every quarter, its only drawback was that it did not apply to employees of small concerns, and there was no way of reaching all the people except by developing the health department. Unfortunately in New York State the efforts at expansion of the health department had met with the discouragement of the profession. The purpose was misunderstood. Dr. Biggs had proposed to establish centers to put laboratory facilities at the service of physicians, but doctors thought they were to be supplanted and so opposed the scheme, the result being that without such aid many communities would soon be without physicians. The establishment of such laboratories throughout the State would standardize the methods of diagnosis and meet the problems of preventive medicine in each district. Cooperation with institutions and hospitals and with industrial medicine would tend to increase the efficiency of every physician of the State. Signs that this conception of welfare work was being broadened were evident in the appearance of columns on industrial hygiene in the medical journals and at least one magazine devoted to industrial hygiene. These were stirring times and every one was on the alert, and sometimes apprehensively so. The medical profession, especially those engaged in public health service, legislators social workers and those who mould public opinion, should be ready to meet the emergency.

Dr. CHARLES STOCKTON of Buffalo said that he would have liked very much to have had a few hours in which to consider the subject and correlate his ideas before attempting to discuss it. Many of the subjects which Dr. Wadsworth had suggested were growing in various parts of the State and of the nation at large, and Dr. Wadsworth was but forecasting the movement which was bound to take place for the betterment of the study and practice of medicine under the guidance and control of the State authori-

ties. They had learned through the work of the draft boards and the medical advisory boards of the necessity of some such coordination in the attempt to reach numbers of people who were drifting into wrong channels. All who had been engaged in such work felt that they had learned many lessons and that the matter should be dealt with and brought to some real concrete result along lines such as Dr. Wadsworth had dealt with in his paper. Whether the work would have to be done entirely under State control would have to be studied, but at present it would appear that nothing better had been thought of than the plan that the State Board of Health should control the activities. The matter was of the utmost importance and great future developments could be expected from Dr. Wadsworth's suggestions.

Dr. L. F. Bishop of New York said that this matter of the relation of medicine to the social fabric was a difficult question. He felt that Dr. Wadsworth's paper had been most enlightening. No doubt there was a great deal to be learned from industrial medicine. In the past winter at the Academy of Medicine there had been much discussion on the treatment of influenza. There was no standard of therapy. Some urged keeping the patient warm, some believed in opening the window and freezing the patient. The speaker himself advocated a certain line of treatment. Afterwards a man came and sat down beside him, an ordinary man of no particular distinction, and began to talk. He said he was the medical director of an industrial organization and had charge of 100,000 employees, and had several subordinate doctors under him. The firm had just issued a circular on the treatment of influenza, which was along the lines that Dr. Bishop indicated. There was an instance in which a standard method of treatment could be applied to 100,000 employees, and it was this man's duty to find the best means of carrying it out. The State Health Department would have a wonderful field of usefulness if it would standardize measures to be applied in emergencies. The thing that would appeal to the public most would be the money value of the idea. Insurance companies and industrial organizations had saved hundreds of thousands of dollars by taking care of the workers. This fact had to be brought home to the public in order to popularize it.

Dr. T. H. Allen of New York asked if Dr. Wadsworth condemned health insurance.

Dr. M. S. Woodbury of Clifton Springs (chairman), said the speaker did and he hoped that Dr. Wadsworth would emphasize this fact.

Dr. Andrew MacFarlane of Albany said that as a result of the war all of the medical officers had felt that they should give part of their time to the nation and to the world. An idea had occurred to him personally, which might lead to something. Sickness was an expensive thing, especially to the poor man. Perhaps the net earnings of a family were $25 a week. When sickness came they had to call in a doctor to whom they could only afford to pay one dollar for a call. The fact was that they got one dollar's worth of service, when perhaps they needed five, ten, or twenty dollars' worth of service. Many country physicians had no opportunity to keep up with the modern laboratory methods; if he had the opportunity, through the State Board of Health, of calling on an expert for help and advice he himself would be improved in his efficiency and the family would get the needed advice without any tendency to pauperize them. This plan would be better for the patient and better for the medical practitioner.

Dr. Kidder of Oswego, N. Y., said that every physician should think very seriously of the ideas presented that day. About 40 per cent. of drafted men had been rejected and more sorrow and grief had been caused by exclusion from service than any other factor. One hundred and fifty years ago many people did not know how to read. To-day the need of education for everybody was realized and an admirable school system was taken as a matter of course. To-day the public were unconscious of the fact that a few years later they would be demanding the privileges of health for their sons and daughters, just as a few years ago they had demanded those of education. The fact that health insurance would obstruct rather than further that development was one of the greatest arguments that could be offered against it.

Dr. Wadsworth, in closing the discussion, said that as yet no health insurance had been put into operation that had been found satisfactory; whether any way could be devised in the future by which it could be made of value he did not know. As developed in England and Germany it was a signal failure. It had not provided what it proposed to provide and thus had been merely masquerading as a public benefit. He felt that Dr. Stockton had used the word "control" more than was perhaps advisable. There was little gained by attempts to control the people, unless they were educated to a clear understanding of the purpose of the work. This was more particularly true in infectious diseases, where regulation and control were so important. In the future of preventive medicine, control would be of even less importance, but development along the lines of practical service to physicians, of cooperation of State and local service, would be the most effective means of approaching these problems. Another question would be the development of federal health service in cooperation with State service. The federal service could supplement many departments of health which were not fully organized, but at present federal officials had to be more or less invited to do work in the various States, so that it had yet to be worked out how these two forces could cooperate to the best advantage in the future.

(To be continued.)

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Irish Ethno-Botany and the Evolution of Medicine in Ireland. By M. F. Moloney. 96 pages. Published by Messrs. M. H. Gill & Son, Ltd., Dublin, Ireland.

Pye's Surgical Handicraft. Edited and largely rewritten by W. H. Clayton-Greene. 616 pages. Illustrated. Price, $6.00. Published by William Wood & Co., New York.

The Oxford Medicine Advance Pages. Edited by H. A. Christian and Sir J. Mackenzie. 236 pages. Illustrated. Published by Oxford University Press, New York.

University of Iowa Studies in Medicine. 141 pages. illustrated. Price, 40 cents. Published by The University, Iowa City.

A Study of the Mental Life of the Child. By Dr. H. Von Hug-Hellmuth. 154 pages. Price, $2.00. Published by Nervous and Mental Disease Publishing Company, Washington.

The Blind. By Harry Best, Ph.D. 740 pages. Price, $4.00. Published by the Macmillan Company, New York.

Medical War Manual No. 8, Military Surgery of the Ear, Nose and Throat. By Hanau W. Loeb. 176 pages. Price, $1.25. Published by Lea & Febiger, Philadelphia.

The Nurse's Text-Book Series, Bacteria and Protozoa. By Herbert Fox, M.D. 211 pages. Illustrated. Price, $1.75. Published by Lea & Febiger, Philadelphia.

Human Infection Carriers. By Charles E. Simon, B.A., M.D. 245 pages. Price, $2.25. Published by Lea & Febiger, Philadelphia.

Orthopædic Surgery. By Royal Whitman, M.D., M.R.C.S. Eng., F.A.C.S. 882 pages. Illustrated. Price, $7.00. Published by Lea & Febiger, Philadelphia.

Practical Therapeutics. By Hobart Amory Hare, M.D., B.Sc. 944 pages. Illustrated. Price, $5.50. Published by Lea & Febiger, Philadelphia.

The After-Treatment of Wounds and Injuries. By R. C. Elmslie, M.S., F.R.C.S. Price, $4.00. 319 pages. Illustrated. Published by P. Blakiston's Son & Co., Philadelphia, Pa.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 95, No. 22.
Whole No. 2534.

NEW YORK, MAY 31, 1919.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

LOBAR PNEUMONIA.

A YEAR'S EXPERIENCE IN THE PRESBYTERIAN HOSPITAL WITH SPECIAL REFERENCE TO THE USE OF ANTIPNEUMOCOCCUS SERUM.*

BY T. STUART HART, M.A., M.D.,

NEW YORK.

VISITING PHYSICIAN TO THE PRESBYTERIAN HOSPITAL.

DURING the year ending July, 1918, there were discharged from the adult medical service of the Presbyterian Hospital with the diagnosis of *lobar pneumania*, 121 individuals. Preceding this period the plan had been formulated by the medical staff to make a careful study of the use of antipneumococcus serum in accordance with the methods introduced by Dr. Rufus Cole of the Rockefeller Institute. The first essential for such a procedure was the organization of the bacteriological department in such a manner that studies of the blood and sputum of all patients suffering from pneumonia should be carefully made and promptly reported. Such an organization was effected under the direction of Dr. W. W. Palmer and whatever value the studies may have is due to the energy and efficiency of the laboratories and the enthusiastic cooperation of the resident staff. Only those cases are included in this report in which the pneumonia was regarded as the primary disease, complicating and terminal pneumonias have been excluded.

TABLE I.

Group.	No. of Cases.	Identified by		
		Blood Culture.	Sputum.	Autopsy.
I	33	19	31	..
II	15	9	14	..
II, atypical	15	3	14	1
III	10	4	9	1
IV	23	3	23	..
Total groups	96	38	91	2
Miscellaneous	25	2	14	..
Total	121	40	105	2

In every case at least one blood culture was taken; in a number of cases as many as eight or nine cultures were studied. There was a total of 239 cultures taken in the 121 cases. A positive blood culture was obtained in 40 cases. The sputum was studied in every case in which a suitable specimen could be secured. On several occasions the classification was determined only by post-mortem cultures. As a result of these examinations the cases were classified in the following groups: (Table I.) The miscellaneous group included those showing as the predominant organism—*B. influenza* (4 cases), *B. mucosus capsulatus* (2 cases), *Staphylococcus aureus* (1 case), *Streptococcus hæmolyticus* (5 cases), and others in which for various reasons the predominant organism was not satisfactorily identified (12 cases).

*Read before the New York Society of Internal Medicine.

TABLE II.—MORTALITY.

Group.	No. of Cases.	Recovered.	Fatal.
I	33*	24	8
II	30	17	13
III	10	4	6
IV	23	16	7
Miscellaneous	25	18	7
Total	121	79	41

*One case left hospital—outcome unknown.

Mortality.—In Table II will be found the outcome in the cases of this series. The patients were admitted to the hospital in all stages of the disease, many in a moribund condition, others had serious complications which accounted for the fatal termination. No attempt had been made to segregate those presenting these serious features, except in those treated with serum which will be discussed later.

TABLE III.

Group.	Cases Showing Positive Blood Culture.				Fatal Cases.		
	Total.	Died.	Recovered.	Unknown.	Total.	Positive Culture	Negative† Culture
I	19	6	12	1	8	6	2
II	12	9	3	..	13	9	4
III	4	4	0	..	6*	4	1
IV	3	2	1	..	7	2	5
Total	38	21	16	1	34	21	12
Miscellaneous	2	2	0	..	7	2	5
Total	40	23	16	1	41	23	17

*One case no culture made.
†In 14 of these cases only one attempt at a blood culture was made.

The relative mortality in the several groups follows much the same order as that reported by Dr. Cole. The very high mortality in those in which the pneumococcus III is the predominant organism is particularly noticeable. The finding of organisms in the blood stream would seem to indicate a severe course and a high mortality. Positive cultures were obtained in 40 cases. The clinical impres-

sion of the course of these cases classified them as follows: Severe 32, medium 5, and mild 3. Of these 40 cases 23 died, 16 recovered, and the outcome of one case is unknown, as the patient was removed from the hospital before the termination of the disease, and lost sight of. Of the 41 fatal cases 23 showed a positive blood culture, from the remainder no growth was secured from the blood stream; in one of these no culture was taken and in 14 only a single culture. It is possible that repeated examinations might have increased the number of positive findings. An analysis by groups of the outcome of these showing a bacteriemia is shown in Table III.

Group I.—Our observations were made on 33 cases. The intention was to treat every case with serum as soon as it was definitely decided that it belonged to this group, without regard to the day of the disease or the apparent severity. Under these conditions 31 cases received one or more intravenous injections of serum. One case died before the grouping was definitely settled, another had so far recovered when her group was determined that there was no object in serum administration.

Our method of administration followed as exactly as possible the rules laid down by the Rockefeller investigators.* From every patient showing on admission physical signs of pneumonia a blood culture was immediately secured and when possible a specimen of sputum. At the same time the sensitiveness to foreign proteid was determined by the intradermal injection of 0.02 c.c. of sterile horse serum diluted with 9 parts of normal salt solution. If the patient showed signs of sensitization he was desensitized by subcutaneous injections of serum in the usual manner. As a result of these precautions two patients were found highly sensitive to horse serum; they were desensitized and showed no further reactions at the time of the administration of the therapeutic doses.

A positive diagnosis of the group was obtained in 8 hours in several cases; in others it was delayed by the impossibility of obtaining a suitable specimen of sputum. This made it possible to administer serum to six cases within 12 hours after admission and to 19 cases within 24 hours after admission. The remainder of the group received their initial dose of serum more than 24 hours after admission.

Dosage.—An initial dose of 90 or 100 c.c. of serum was given. If at succeeding eight hour periods the temperature remained above 102° a like amount of serum was administered. A single dose of 100 c.c. was given in two cases and serum was then discontinued on account of the fall in temperature. In four instances a total amount of 1,000 c.c. was given to each patient; in three of these it was then discontinued on account of the fall in temperature. These patients recovered. The fourth patient showed no benefit and the administration was therefore stopped; he died some days later. The serum employed was for the most part furnished us through the courtesy of the Rockefeller Institute. In a few instances serum provided by the New York Board of Health was used.

*Avery, Chickering, Cole & Dochez: "Acute Lobar Pneumonia," Monographs of the Rockefeller Institute for Medical Research, No. 7, 1917.

Reactions.—Early reactions occurred in 15 cases immediately following the first dose of serum; of these 7 were very insignificant, consisting of a few urticarial wheals with a mild degree of accelerated breathing; in 8 cases the symptoms were more pronounced extensive urticaria, dyspnea, cyanosis, acceleration of the pulse, sometimes cough, vomiting, and headache. In none of these were the manifestations alarming, and they were at once relieved by the administration of adrenalin.

Thermal reactions with rise in temperature with or without a chill were noted in 6 instances. These followed the administration of the first dose of serum in 4 cases; in one case after the fifth dose, in another after the seventh dose.

Late reactions appeared in all but two cases who lived long enough to allow these to develop. They were classified as mild 10, medium 6, severe 9. These reactions usually appeared on the sixth or seventh day after the initial therapeutic injection of serum. In one instance the onset was on the third day, and in another case on the eleventh day after the first dose of serum. The duration of the symptoms of the "serum sickness" was very variable; in some it was terminated in two days; in several disturbances were evident for a full three weeks. A glance at the tabulation of these cases (Tables V and VI) indicates at once that there was no definite relation between the amount of serum administered and the severity of the reaction; several cases receiving 1,000 c.c. of serum showed only the mildest reactions, while severe reactions were often encountered in those who received very few doses.

A mild reaction often consisted of a few patches of urticaria and a moderate enlargement of the superficial lymph nodes. In the severe reactions there was pronounced and prolonged urticaria often with extensive erythema, fever, marked enlargement of the lymph nodes, a moderate eosinophilia, subcutaneous edema and inflammation of the joints. In several instances the patient's condition simulated an attack of acute rheumatic fever. The joints of all of the extremities were swollen, hot, red, and exquisitely sensitive to the slightest touch or movement. Some of these patients appeared very ill for a few days, but all made a complete recovery. Two cases showed as the most distinctive feature of their reaction a general scarlatiniform erythema covering the whole body, head, trunk, and extremities. Both of these subsequently exhibited a coarse desquamation during which the skin was shed in large flakes.

A type of reaction which caused us considerable concern and which was seen in a number of patients consisted of prolonged, irregular fever reaching 101° or 102° and lasting for one to three weeks, several of these presented physical signs suggestive of fluid in the pleura. The probability of empyema in these cases seemed very strong and they were repeatedly examined with the *x*-ray and often explored with a needle, but subsequently cleared up, leaving us to conclude that the serum reaction alone accounted for the fever. While patients with severe reactions with arthritis and prolonged fever often appeared to be very ill they all sooner or later cleared up and there appears to be no danger to life in any of these cases of serum sickness.

Sterilization of the Blood.—One of the strongest

arguments for the use of antipneumococcus serum has been its experimentally demonstrated power to render sterile the blood stream of animals infected with the pneumococcus. It seems therefore of value to examine the fragments of clinical evidence which our small group of cases presents to obtain if possible some light on the effect of serum on the bacteriemia.

Positive blood cultures were secured in 19 of the 33 cases comprising Group 1. In 13 cases a sufficient number of cultures were taken to allow us to formulate our impressions in regard to the effect of serum in sterilizing the blood. In five instances the blood which had showed a growth just before the administration of serum became sterile after the first or second dose and remained sterile thereafter. Of these cases two deserve special mention. No. 37075 entered the hospital on the 5th day of his disease, showing an involvement of the whole right lung. The admission blood cultures showed 154 colonies to 1 c.c. of blood. The blood cultures taken a few hours after the first dose of serum showed no growth and this was confirmed by four subsequent cultures. No. 37461 showed perhaps the most extraordinary improvement in this respect. The initial culture showed 3 colonies to 1 c.c. of blood; 24 hours later the culture taken just before the first administration of serum showed 940 colonies. Four subsequent blood cultures following the administration of serum showed a blood stream absolutely sterile. Evidence of this kind appears to be very striking. On the other hand the power of the tissues to develop a spontaneous immunity must not be forgotten. In three instances in which the admission culture gave a positive growth of pneumococci, the second culture taken just before the administration of serum showed a sterile blood and no further growth could be secured during the course of the disease. All three cases recovered. None of these cases showed, however, the high bacterial content which was found in the two cases already cited. The highest of these cases showed only 10 colonies to 1 c.c. of blood.

In this connection mention should be made of several other cases which were somewhat irregular in their manifestations. No. 36661 showed a positive growth from the blood before and after the first dose of serum. Following the second dose of serum the blood stream became sterile; 7 days later an empyema was discovered and pneumococcus I was recovered from the pleural exudate. At this time the blood stream again showed a growth. This case terminated fatally. No. 37013 entered the hospital on the 5th day of his disease with consolidation of the right upper and middle lobes. A positive culture was obtained from the blood. He was given 3 intravenous injections of serum. The blood became sterile and recovery seemed assured. Temperature was normal for 9 days. It then began to rise and the physical signs pointed to a reinfection of the lung at the site of the initial lesion. At this time the blood again showed the presence of pneumococci and this continued in spite of the administration of serum until death, which occurred 5 days later. At the post mortem there was found an acute pneumococcus endocarditis. No. 36934 showed in his admission culture on the 5th day of his disease 33 colonies to 1 c.c. of blood. In spite of the administration of 1,000 c.c. of serum the temperature never became normal and repeated blood cultures showed pneumococcus present up to the time of his death, which occurred on the 19th day of his disease. The post mortem showed an acute pneumococcus endocarditis with fresh vegetations of the mitral valve. No. 37109 was admitted on the 10th day of her disease with consolidation of the left lower lobe. The initial blood culture showed 31 colonies to 1 c.c. of blood, and in spite of the administration of 1,000 c.c. of serum the temperature never became normal and the blood continued to show pneumococci in considerable numbers up to the time at which she left the hospital against advice, which was 26 days after her admission. While she was in the hospital she developed a distinct systolic murmur and it was suspected that she might have an acute endocarditis. The patient could not be traced and the outcome is unknown, but one would fear a fatal issue.

While the evidence here presented is decidedly fragmentary it seems to us to indicate that the administration of serum affords a definite aid to nature's effort to sterilize the blood stream. The failures which are recorded are very instructive. In each case there was a localized focus of infection which continued to furnish pneumococci to the blood stream. In one instance this was an empyema; in three others an acute endocarditis was present, and in two of these, which were examined post-mortem, there were found on the heart valves fresh vegetations containing pneumococci.

Table IV.—Day of Disease.

Number Cases.	Received First Serum.	Terminating by	
		Crisis.	Lysis Began.
2	2nd day	3, 4	.....
2	3rd day	3	4
8	4th day	4, 5	4 [2], 5 [4]
4	5th day	6 [2], 7	5
4	6th day	6, 7	6, 7
2	7th day	7	7
1	8th day	11	.....

Figures indicate day of disease. Figures in brackets number of cases.

Course.—There was clinical or post-mortem evidence of the involvement of more than one lobe in all but one of the fatal cases. In those that recovered 6 showed physical signs of consolidation of two or more lobes. The general clinical impression classified the severity of the course of the cases which recovered and which received serum as follows: Mild 8; medium 7; severe 8. Table IV shows the progress of this same group of cases and the manner of defervescence.

One should be extremely cautious in drawing conclusions as to the effect of serum in modifying the course, from such figures as the above table presents without a corresponding group of controls in which serum had not been employed. Such a series we cannot present. We may say, however, that the apparent improvement associated with the administration of serum is most marked in those who received it early in the course of the disease. Furthermore the termination by crisis on or before the fifth day in 5 cases and a gradual fall of tempera-

TABLE V.—LOBAR PNEUMONIA, GROUP I, TREATED WITH SERUM—RECOVERED.

Case No. Sex. Age.	Lobe and Extension.	Blood Culture.	Serum. First Dose Day of Disease.	Serum. Total Amount c.c.	Serum. Reaction. Early.	Serum. Reaction. Late.	Day of Termination by. Crisis.	Day of Termination by. Lysis.	Course	Improvement Following Serum.	Complications.	Comments.
35298 F. 16	L.L.	0	4	200	0	0	5	...	+	Prompt.	0	Apparently very beneficial.
35878 M. 18	L.L.	+	5	400	+	+	...	5-7	++	Gradual after first dose.	Otitis media from pus.	Only one blood culture taken.
36153 M. 14	R.L.	+	4	395	0	−	5	...	++	Prompt after second dose.	0	Blood sterile after second serum.
36552 M. 23	R.L. R.M. R.U.	0	5	550	+	++	7	...	++	No very evident benefit.	0	Later some question as to correct grouping.
36786 F. 55	L.U.	0	7	190	0	++	...	7-9	−	Gradual improvement not striking.	Empyema of maxillary sinus.	
36839 M. 24	R.L. L.L.	+	4	600	−	−	...	4-7	−	Gradual after first dose.	0	Blood sterile before first dose of serum.
36873 M. 58	R.L.	0	5	300	+	++	6	...	−	Gradual.	0	Prolonged fever probably due to "serum disease."
36887 M. 10	L.L. R.L.	0	7	100	0	−	7	...	−	Prompt.	0	Serum given late and crisis might have been expected without serum.
36963 M. 22	R.U.	+	6	600	0	+	...	7-10	++	Gradual after third dose.	0	Blood sterile after 2 doses serum. Treatment appeared beneficial.
37066 M. 47	R.U. L.L.	+	6	100	+	−	6	...	++	Prompt after one dose.	0	Striking difference on 6th day after one dose serum.
37075 M. 60	R.U. R.L.	+	6	400	−	++	...	6-8	+	Gradual after first dose.	Chronic cardiac valvular disease. Aneurism of aorta.	First blood culture showed 154 colonies to 1 c.c., 2nd culture taken after first serum was sterile.
37078 M. 17	L.L.	0	6	400	0	++	7	...	+	Gradual after second dose.	0	
37446 M. 27	R.L. L.L.	+	5	400	0	−	6	...	++	Gradual after first dose.	0	Blood sterile before serum was given.
37461 M. 28	L.L.	+	8	1000	+	−	11	...	+	After eighth serum.	0	Second blood culture showed 940 colonies to 1 c.c. Became sterile after first dose of serum.
37563 M. 18	L.L.	+	2	300	0	+	3	...	+	Prompt after second dose.	Pyorrhoea alveolaries.	Blood sterile before serum was given. Early treatment and prompt response.
37580 F. 22	L.L.	0	3	300	+	−	3	...	−	Prompt after second dose.	0	Early treatment and prompt response.
37587 M. 23	R.L.	0	4	200	+	++	4	...	−	Prompt.	0	Temperature began to fall before serum was given.
37654 M. 23	R.L.	+	4	1000	0	++	...	5-10	++	Gradual.	0	Blood sterile after first dose of serum. Symptoms and signs improved very slowly.
37681 M. 17	L.L.	0	4	550	−	++	...	5-7	+	Gradual after third dose.	0	Appeared very ill at first, but improvement very marked after third serum.
37717 F. 32	L.L.	+	4	400	−	+	...	4-7	−	Gradual after first dose.	0	Blood sterile after 2 doses serum.
37755 M. 37	L.L.	0	2	500	−	+	4	...	−	Gradual after third dose.	0	Mild course and early crisis.
38041 M. 24	L.U.	0	3	1000	−	−	...	4-10	++	Gradual, slow.	0	Progressive improvement after serum, but very gradual.
38081 F. 22	L.L.	0	4	680	−	−	...	4-7	+	Gradual after third dose.	0	

−Indicates mild. +Indicates medium. ++Indicates severe.

ture beginning on or before the fifth day is certainly very impressive. The extraordinary and prompt improvement which occurred following the administration of serum in several instances cannot be duplicated in our clinical experience with lobar pneumonia.

Fatal Cases Treated With Serum.—Throughout this paper we have studiously avoided the recording of our results in percentages. We have done this since we believe that conclusions based on the statistics of such a small number of cases are very misleading. The position is reinforced when we examine individually the 7 cases of Group 1, which were treated with serum and terminated fatally.

Reference to Table VI will indicate the serious nature of the complications in these cases and em-

Table VI.—Lobar Pneumonia, Group I, Treated with Serum—Died.

Case No. Sex. Age.	Lobe and Extension.	Blood Culture.	Serum.				Death, Day of Disease.	Effect of Serum.	Complications.	Comments.	Post Mortem.
			Day of Disease, First Dose.	Total Amount.	Reactions. Early.	Reactions. Late.					
36326 M. 35	R.L. L.L.	+	5	180	0	..	5	0	Pericarditis.	Very ill on admission. Death 22 hours after admission.	0
36661 M. 44	L.L.	+	4	600	0	..	12	Apparently somewhat improved.	Empyema operation.	Not very ill at first, rapidly worse with empyema. I recovered from pus.	0
36934 M. 55	R.U. L.L.	+	7	1000	0	−	19	0	Acute pneumococcus endocarditis. Abscess of lung. Chronic pancreatitis.	Admitted late very ill. Blood never sterile. Admission culture showed 35 colonies to 1 c.c.	+
37013 M. 39	R.U. R.M.	+	7	500	0	+	32	At first favorable.	Pneumococcus meningitis and endocarditis. Syphilitic aortitis. Chronic valvular disease.	On admission not very ill. Blood promptly became sterile and temp. normal on 9th day of disease. Ten days later, a reinfection with fresh consolidation. Blood again showed pneumococcus I. Death 14 days after reinfection. Serum, 300 c.c. in first attack 200 c.c. in second I recovered from spinal fluid.	+
37498 M. 37	R.L.	+	5	200	0	..	6	0	Suppurative, pericarditis proved by exploration.	Very ill on admission. Admission blood culture showed 68 colonies to 1 c.c.	0
37567 M. 41	L.L. R.L.	0 (I from sputum)	6	400	+	++	28	Apparently favorable.	Meningitis.	Crisis on 7th day, after second serum. Temp. normal 5 days, then meningeal symptoms developed. Spinal fluid sterile. Day before death haemolytic streptococcus grown from blood.	0
37780 F. 27	R.L. R.M.	+	4	490	0	..	6	0	0	Very ill on admission. Blood showed 6 colonies to 1 c.c. No culture after administration of serum.	0

−Indicates mild. +Indicates medium. ++Indicates severe.

phasizes the limitations of serum in combating focal lesions.

Two cases each admitted on the fifth day of the disease, each extremely ill, each with a complicating pericarditis, died within 24 hours after admission. Each of these patients received two doses of serum, but without apparent effect.

Case 36661 received his first serum on the fourth day of his disease. After the second dose the blood stream apparently became sterile. On the 10th day of the disease the blood again showed a growth of pneumococci, empyema appeared, and a rib was resected. He died on the 12th day of his disease.

Case 37567 received his first serum on the sixth day of his disease. He apparently did well and the crisis occurred on the seventh day. After five days of normal temperature, then signs of meningitis developed, from which he died on the 28th day of his disease. The day before death a hemolytic streptococcus was recovered from the blood. In this case the pneumococcus was probably not the cause of the meningitis.

Two other fatal cases (36934 and 37013) have already been cited in discussing the effect of serum in sterilizing the blood stream. It was pointed out that in both instances the difficulty in securing a sterile blood was due to the fact that fresh vegetations on the heart valves were continuously supplying pneumococci to the blood. One of these cases was further complicated by an abscess of the lung, the other by a meningitis. From the spinal fluid the pneumococcus was recovered in pure culture.

It is evident that in nearly every case of this series death was due to some lesion other than the pneumonia. The administration of serum appeared to have little or no influence on these complications when once established. Would the earlier administration of serum have prevented the development of these complications? Our present evidence gives us no answer to this question.

Résumé.—1. A positive blood culture in lobar pneumonia is usually an indication that one may expect a severe course.

2. It is rare for a patient who has received serum to escape a subsequent "serum illness." This may be mild or severe, but bears no relationship to the amount of serum given. Serum illness in these cases does not endanger life.

3. Antipneumococcus serum is a distinct aid to nature's effort to sterilize the blood stream.

4 When serum fails to sterilize the blood an acute pneumococcus endocarditis should be considered as a possible cause. This was present in three of our cases.

160 West Fifty-ninth Street.

Hereditary Immunity Against Rabies.—Remlinger denies the existence of this laboratory phenomenon in the rabbit. In an artificially refractory female he found that the offspring could all be inoculated successfully under the dura and showed no immunity in inoculations elsewhere. Such immunity as does develop is so slight and so irregular as to be negligible.—*Gazette des hôpitaux.*

IDEALISM IN RHINOPLASTIC SURGERY.

By WILLIAM WESLEY CARTER, A.M., M.D., F.A.C.S.,

NEW YORK.

THE idealist is a star-gazer, and his is a fixed star, it is individual, it is personal. The vision of others may be directed toward the same star, but the line of vision is always from a different angle, and individual efforts to attain to this ideal differ as widely as material objects differ from each other physically and otherwise in the realm of the material. When one presumes, therefore, to discuss idealism in any field of effort his views must be accepted as individual and as acquired by contemplating the object of his ambition from his own point of view, *his angle*. Writers upon either medical or surgical subjects are frequently so strongly imbued with the idea that something new in the way of treatment or technique must be advanced, in order to justify the effort, that the good, practical, tried out, firmly established principles, upon which we rely in our daily practice and upon which our patients are dependent for relief, are so disregarded or camouflaged, to use an up to date and very expressive term, by the novelties introduced under these compelling circumstances that one must be safeguarded by a wide clinical experience, a well developed sense of discrimination and an unusual amount of common sense in order not to be diverted from paths, the comparative safety and approximate efficiency of which are known. Attention is called to this matter, not in a spirit of criticism directed toward those who are responsible for this condition of affairs, for we recognize that the fault lies in the uncontrolled enthusiasm and zeal of progressive, aggressive members of the profession who are trying their best to reduce the practice of medicine and surgery to as near an exact science as the nature of this work will admit. But we would call attention to the fact that if we are to avoid many of the mistakes that are made in our desire to increase the scope and efficiency of our efforts and incidentally to spread the knowledge of our existence, we must keep constantly in our mind, and be guided in our efforts by the physiological laws which govern all of the functions of the human body and control the delicate metabolic and nutritional changes which occur in the tissues, and realize that these laws are fundamental, are established by Nature, and are not to be tampered with, modified, or ignored by any man no matter how learned and self-confident he may be. To none do the above remarks apply more forcibly than to the metropolitan practitioners and to those who enjoy the educational, laboratory, and clinical advantages to be found only in our large centers of population. There rests upon these men a heavy moral responsibility to fellow practitioners less advantageously placed in smaller places all over the country. This responsibility cannot be shirked, it must be faced and its paramount importance must be realized, especially by those whose observations find an outlet through literary channels.

It is natural and proper that the opinions of those who are so situated that they can command a large amount of clinical material should be respected; on the other hand this confidence should be held by those in whom it is reposed as a sacred trust the violation of which may indirectly cause untold expense, suffering and disappointment, especially among the thousands of patients of the extraurban physicians who have relied upon the accuracy of the clinical observations made by those of us who are supposed to have passed judgment upon our recommendations only after reliable clinical tests have been applied. There are often exploited in our medical journals methods of medical and surgical treatment the practical value of which has not been proved clinically, and the splendid results recorded have not in many instances been subjected to the most important ordeal of all, the impartial test of time. For this reason when I was chairman of the Laryngological Section of the New York Academy of Medicine, I had printed on the program of each meeting the following notice: "Patients presented before this section may be recalled at a subsequent meeting by notifying the Secretary."

Let us apply the above observations to the branch of rhinological surgery having to do with that class of depressed nasal deformities due to the destruction of the bony and cartilaginous framework and commonly known as saddle-back nose. I have devoted many years of careful study to this subject, striving to perfect a method for reconstructing these organs in a physiological manner. I began this work nearly fifteen years ago, my attention being directed to these patients chiefly by the fact that up to this time little or nothing had been done to relieve these unfortunates and certainly no method had been devised which was based upon scientific principles, which complied with the physiology of the human body and which produced permanently satisfactory results. The mechanical conditions met with in this class of deformities may be compared to a roof without supporting rafters. In this deformity there is a definite deficiency, due to disease or injury, in the rigid framework material; the latter is just as important and essential to the construction and support of a nasal bridge as it is to the roof of a house. Therefore deformities of this class cannot possibly be corrected without supplying this deficiency; this is a basic requirement. For many years past various operators, some of them possessing the highest degree of skill, have from time to time attempted to supply this deficiency and support the nasal bridge by introducing various foreign materials shaped to suit the deformity, such as guttapercha, celluloid, etc. Invariably these materials sloughed out and the deformity was worse than it was before the operation and the prospects for ultimately correcting it by rational means were immeasurably reduced. And why should this not be the result? Even a cursory review of the physiology of the situation will answer the question. We grant that almost any foreign body, chemically neutral to the tissues and fluids of the body, can be made to heal in, provided that it is aseptically introduced and it will remain indefinitely provided that the patient maintains a condition of perfect health, that he does not grow

old, and his tissues do not undergo the natural atrophy of advancing age, and provided that the foreign body has no resistance to overcome, in other words that it accomplishes nothing. These postulates are self-evident and must be accepted; their acceptance means an admission that nasal deformities cannot be corrected permanently by the introduction into the tissues of foreign material of any kind. If the foreign material is introduced skillfully it will reduce the deformity and it may remain in the tissues long enough for photographs to be taken showing the wonders performed, but, alas! history will repeat itself, it will surely slough out. At those points where the material, whether it be rubber, celluloid, or what not, exerts pressure in lifting up the sunken bridge, there is a thin layer of tissue in immediate contact with the material which is deprived of its blood supply, there is, therefore, a progressive necrosis going on at this point, the overlying tissues become thinner and thinner until the foreign body is expelled. Truly Nature abhors the presence in the living tissues of a foreign body, whether that body be artificially introduced or whether it be some part of the body, bone or flesh that has ceased to live. On the other hand I have shown by a large number of cases operated upon over a period of nearly fifteen years that an autogenous bone and cartilage transplant properly introduced fulfils perfectly the indications in these cases and that it lives and grows. *X*-ray examinations, which have been made at intervals in some of my oldest cases, show that the growth of the bone is regulated by the functional demands of the part—there is no overgrowth in any of my cases. In many instances it is necessary to supplement the bone transplantation by shifting the tissues subcutaneously and occasionally by turning flaps.

We may refer to the procedure I have here outlined as being strictly a physiological method for correcting nasal deformities of this class, for only tissues normal to the body are used, their vitality is unimpaired, and not only the shape and proportions but the normal structure of the nose is reestablished. If the ideal in surgery, namely the restoration to normal of an abnormal part can be secured by only one method, and this method has been thoroughly tested on a large number of cases and the results secured have been submitted to the most impartial of all tests, that of time, then what ground is there for the exploitation of the theory that these results can be accomplished by the introduction of foreign bodies into the tissues, a procedure which it is well known is against the physiological laws which govern the vital processes in the body.

In conclusion I will say in the light of the experience I have gained in operating upon large numbers of these patients that there is no method comparable to that of bone transplantation in the class of cases under discussion, but this must be supplemented in many instances by the shifting of the tissues subcutaneously in order to fill in irregularities and perfect the basic results secured by the implantation of bone.

In regard to the permanency of the results, I may add that the present condition of my oldest cases, those of twelve years standing, shows that this method has stood the test of time, for the correction remains as it was immediately after the operation.

69 West Fiftieth Street.

THE ETIOLOGY OF THROMBO-ANGIITIS OBLITERANS.

By WILLY MEYER, M.D.,

NEW YORK.

ATTENDING SURGEON TO THE LENOX HILL AND POST-GRADUATE HOSPITALS.

Further study and observation of patients suffering from so-called thrombo-angiitis obliterans have gradually led me to the conviction that this trouble is a systemic disease and not, as Buerger believes, a primary affection of the blood vessels.

There seems to be *just one* etiological factor responsible for the characteristic syndrome: claudication, pains, gangrene, and this I believe to be: tobacco-smoke poisoning.

While it is true that this factor also influences the blood vessels, still their pathological changes appear to me secondary, and therefore not the original cause of the phenomena.

The combined effects of the nicotine, pyridine, cyanic hydrogen, carbon monoxide, and other poisons contained in the smoke of tobacco are responsible, I believe, for all the characteristic clinical manifestations of the disease. The onset of these symptoms heralds the complete saturation of the patient's system with tobacco-smoke poisons.

In other words, I consider the so-called thrombo-angiitis obliterans the final stage of cigarette-smoke poisoning in a certain type of individuals under certain well-defined conditions.

I had intended to discuss these views in detail in a paper to be read before the coming meeting of the American Medical Association, but have been informed by the Program Committee that it has been decided to devote the entire meeting of the Surgical Section to War Surgery.

While there will, no doubt, be a chance to present the paper in the fall, the principal deduction from the above stated conclusions, if correct, is perhaps of sufficient practical value to warrant its publication at this time.

The male Hebrew immigrants from the southeastern part of Europe, who are the principal sufferers from this disease, should be advised to *quit smoking!*—not merely reduce it, but stop it entirely. Even so, there is at the present stage of our knowledge hardly a cure for the majority of these cases. Once the system has become thoroughly saturated with the toxic agents, mere abstinence no longer avails. The cure of the trouble for the present should be, so to speak, rather prophylactic. The young men of the class of people in question should be warned in good season—at home, in school, from the pulpit—of the deleterious effects and serious consequences to them of the excessive use of cigarettes. Otherwise, many of them may find themselves incapacitated for work at a comparatively young age, and unable to earn a living—a pretty high price to pay for an acquired taste!

700 Madison Avenue.

A CASE OF ATYPICAL MALE SEX ENSEMBLE.

By ARTHUR STEIN, M.D., F.A.C.S.,

NEW YORK.

ASSOCIATE GYNECOLOGIST, LENOX HILL AND HARLEM HOSPITALS.

MALFORMATIONS of the sex apparatus in which both the male and female sex glands are present are very rare and the few available observations concern the histological demonstration of testicular and ovarian tissue rather than the existence of bisexual functionating glands. More common abnormal sex conditions formerly described as "pseudo-hermaphroditism" represent either an atypical male sex ensemble or an atypical female sex ensemble, a term

FIG. 1.—Full view of subject.

recently suggested by Hart as an improvement on the older and not strictly correct designation.

In the cases of atypical male sex ensemble the presence of a more or less normal vulva is simulated by penoscrotal hypospadias with more or less rudimentary development of the hypospadic penis. The new-born child in many such cases is unhesitatingly considered a girl. As a rule there is hypospadias of the penis alone, sometimes with partial division of the scrotum, the upper half of which contains the urethral orifice. In other cases the scrotum is completely divided. Sometimes the borders of the split penile urethra simulate rudimentary labia minora. The apparent clitoris may be enlarged, but is occasionally rudimentary as compared to its normal size. In exceptional cases the penis may present a normal structure while the scrotum is alone divided in its lower portion, where a vaginal opening is occasionally demonstrable.

A case of atypical male sex ensemble recently came under our observation, and although not an example of the most unusual variety, appears sufficiently interesting to justify its publication:

E. M.—Came to the Harlem Hospital of New York City with the following history: Thirty-one years of age. She was born and brought up in Finland and has never menstruated. Her occupation has been that of a servant; for the past three years she has been employed in the same family as cook. She knows that there is something wrong with her genitals and the desire to marry is now bringing her to the hospital in order that she may be made a normal woman. Although she has never menstruated, she thinks that she has pains in the lower abdomen every four weeks. She states that she has never been attracted to women, but only to men, and desires to marry the butler employed in the same household. The patient has always had sexual feelings toward men, although she claims that on erection the penis is about 1½ inches long. At the end of the orgasm an emission rarely occurs.

Two and a half years ago the patient was operated upon for appendicitis at the Harlem Hospital by Dr. Luckett. Through an enlarged incision it was shown that no uterus, tubes, or ovaries were present. In fact, no female genitals whatever. The pelvis was that of a normal male. (No mention was made of seminal vesicles.)

Family History.—Mother an unusually large woman; father also very large. Parents had twelve children; eight are living. One brother abnormally built, penis being very small. One abnormally built sister. Cannot describe her sexual abnormality.

General Description.—Height, 5 feet 6 inches. Voice that of a female contralto. General appearance that of a strong, well-built woman. The bones of the head are well developed and very pronounced, as in the Mongolian type. Pomum Adami not pronounced. The hands and arms are extremely long and large and are partly covered with hair. The thorax is entirely male in type. The breasts are perfectly flat as in the male. Legs are covered with hair as in the male. No adipose tissue is present as would be expected in the female. All the muscles of the arms and legs are well developed. The hair line of the pubis is that of a female.

Pelvic Measurements.	*Pelvic Outlet Measurements.*
Dist. Interspinal, 28 cm.	
Dist. Intercristal, 29 cm.	Dist. Antero-post., 4 cm.
Dist. Trochanter, 32.5 cm.	Dist. Transverse, 5.5 cm.
Dist. Ext. Conjugate, 20 cm.	Height of Perineum, 9.5 cm.

Local Examination.—In the region of the left external inguinal ring there is a slight protuberance which on examination proves to be a mass about the size and shape of an olive, movable into the left "labium majus." The mass is somewhat tender on pressure. The right "labium majus" is much larger than normally and contains an olive-shaped mass which is movable and which is somewhat larger than the left tumor. The surfaces are those of a normal testicle and epididymis, and the spermatic cord can be easily felt. In place of the clitoris there is an organ which in its entire make-up resembles a penis of the new-born type. At rest it is 4 cm. long (1½ inches). The prepuce is well formed. The glans penis shows no opening. The urethral opening, however, is to be found at the root of the penis on its posterior surface as a very small pinhead-like opening. No vagina is present; in its place the perineum is found to stretch from anus to root of penis, forming a firm raphé between the two "labia." Upon rectal examination no prostate was found.

Diagnosis.—A typical male sex ensemble (pseudo-hermaphrodite of male type).
Rudimentary penis.
Hypospadias.
Undescended testicle on left side.

Descended testicle on right side.
No internal female genitals present (as shown in previous laparotomy).
Absence of prostate gland.

In this case it was not considered advisable to perform any operation either of forming a vagina or fixing

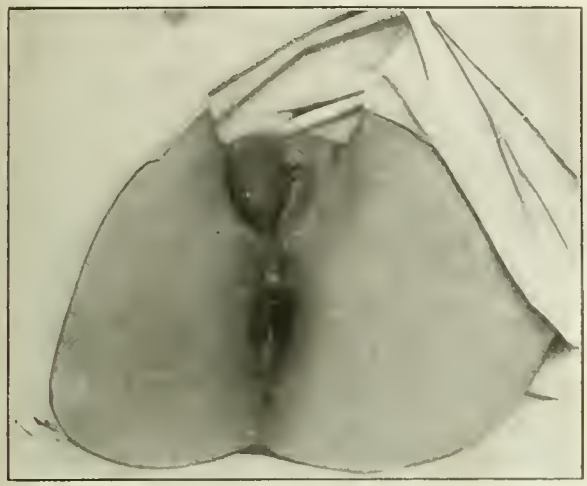


Fig. 2.—Showing the olive-shaped body in the left labium majus.

the testicle on the left side, as the patient felt perfectly well and only her desire to lead a woman's life brought her to our attention.

A case resembling ours in many details was described by König in 1907 in a letter addressed to Neugebauer. It concerned a servant girl of twenty-five years who had never menstruated and finally consulted a gynecologist to learn the reason. She was told that she had not the right to become a wife, but objected on account of her engagement to a young man who was determined to marry her. Another gynecological examination later on showed the case to be one of true atypical male sex ensemble. On the basis of various considerations it was decided to leave the patient in ignorance as to her real sex, for she would have been unable to earn a living as a man, whereas she managed very well as a woman.

Another representative of this group observed by Neugebauer was a cook of twenty-six years who fully dressed appeared like a well-sized, full-bosomed and long-haired woman with feminine features. She had no mammary glands, however, their presence being merely simulated by the abundant subcutaneous fat which was distributed over the entire body. The voice was deep, but not decidedly masculine. The pubic hair was scanty and of feminine type. The shoulders were broader than the pelvis. On separating the thighs the picture of penoscrotal hypospadias was revealed. An operation was performed and showed left-sided cryptorchidism. There was neither a uterus nor a vagina. The prostate gland was likewise absent. In this instance the subject, apparently a woman, was officially declared to be a male in conformity with her physical constitution.

Still another case, also reported by Neugebauer, was that of a girl twenty-one years of age who had never menstruated and who had been jilted by her fiancé when he was informed that the marriage would be childless on account of her abnormal sex apparatus. The girl demanded an operation in order to be made a normal woman and insisted that she would sooner die than remain unmarried. Her breasts were female and decidedly large. The shoulders were broader than the pelvis. The pubic hair was of the male type. On separation of the thighs and labia a small penis was exposed and palpation readily demonstrated a testicle with epididymis and spermatic cord on each side. There also seemed to be a rudimentary vagina, but no uterus or prostate was found on rectal examination, which, however, plainly revealed the presence of the two vasa deferentia.

A case of atypical sex ensemble reported by Goltman in Canada concerned a supposed male subject of 28 years who was described and pictured as of magnificent muscular and skeleton proportions; in the nude condition especially he could easily have passed as a woman. Description: "The face is absolutely beardless; no hair in the axillæ or any other part of the body excepting the scalp and the few comprising the mons veneris. The skin over the entire body is soft and white like a woman's. . . . His voice is high-pitched, soft, and musical. . . . There are two well developed mammary glands; the nipples are prominent, capable of erection and surrounded by well marked areola with papillæ devoid of hair. The pubic region is covered with a small amount of feminine hair and below it in the erect position are seen three prominences, imperforate penis, 1½ inches long, capable of semi-erection; right testicle; left testicle. In the lithotomy position the scrotum is seen to be divided. She urinates in the squatting position. Examination per rectum reveals absence of prostate gland, absence of uterus and ovaries. The pelvis and thighs are of the masculine order, but not markedly so, and the pubis is cushioned with adipose tissue." The sex was doubtful in the opinion of the observer, who was inclined to class this subject as being of the neuter sex until postmortem evidence proved differently. In the light of recent political developments it is amusing to note the parting shaft with which Goltman concludes his article in the words: "It has never voted."

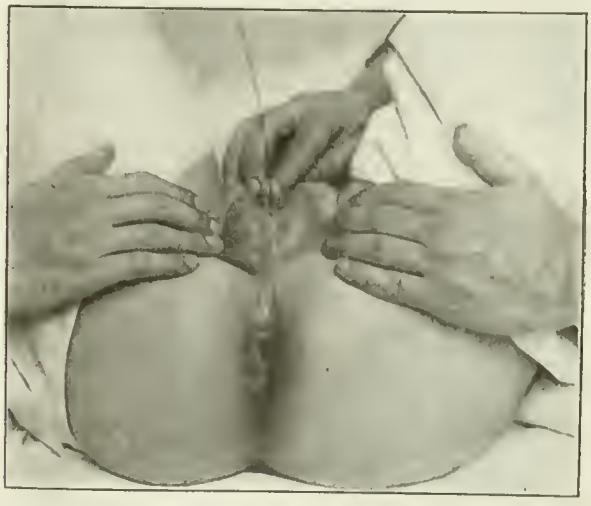


Fig. 3.—Showing a catheter in the urethra.

A case of atypical female sex ensemble in a boy of eleven years showing unusual accentuation of the secondary sex characteristics of the male was recently reported by Quinby from the Brady Uro-

logical Institute of the Johns Hopkins Hospital. An operation was performed in order to correct the hypospadice condition and to search for the supposed testicles, but no trace of the spermatic cord could be discovered in the inguinal canal. On entering the abdomen, however, the operator found an infantile uterus with tubes and ovaries of normal appearance. These findings in conjunction with the result of microscopical examination plainly showed that this patient belonged to the type of atypical female ensemble.

Walther's observation of a boy 19 years of age is probably unique because characterized by the combination of the distinctive features of *both sexes* in the same individual with perfect parallel development of the two halves of the external genital apparatus according to the two types, as well as perfect development of the external apparatus according to the male type.

Here at the present state of our embryological and morphological knowledge the various malformations representing atypical sex conditions are fairly well understood, although it still remains an open question why in one case the sex glands will develop in the male and in another in the female direction. It is equally unsettled why in other cases the development is arrested at such a rudimentary stage that the genitals acquire no definite sex characteristics.

The psychic sex attitude of these individuals is extremely variable, from practically normal to absent, or perverse and homosexual. Although from one viewpoint the sex of an individual is decided by the anatomical character of the sex gland, the development of the psychosexual center is given an extremely wide scope through education, example, and suggestion, so that as a rule the psychosexual sensation of atypical persons are largely dependent upon their early environment. In the author's case, for instance, the patient's bringing up as a girl was probably chiefly responsible for the real or imaginary experiencing of female sexual desire for the male, namely, homosexual manifestations. Presumably, as in many cases of this kind, the psychosexual susceptibility was more or less dulled and absent, the intended matrimonial venture being essentially one based on purely commercial considerations.

BIBLIOGRAPHY.

Allen, F. C.: "Case of Hermaphroditism," *Annals of Surgery*, Vol. LXIII, 1916, p. 758.

Goltman, M.: "A Case of False Hermaphroditism" *American Journal of Obstetrics*, Vol. XXXVI, 1897, p. 209.

Hart, D. B.: "On Some Points in Regard to the Condition of the Human Male and Female, Usually Termed Hermaphroditism and Pseudo-hermaphroditism," *International Clinics*, 1915, 25 S. IV p. 135; *Edinburgh Medical Journal*, XIV, 1915, p. 410.

Howard, W. L.: "Opposite Sex Twins in One Body (A Female with the Primary Sex Organs of the Male)," *New York Medical Journal*, Vol. CII, 1915 p. 843.

Neugebauer, F. L.: "Hermaphroditismus beim Menschen," Leipsic, 1908.

Shufeldt, R. W.: "Hermaphroditism in the Human Species," *Alienist and Neurologist*, Vol. XXXVII, 1916, p. 268.

Walther, O.: "Un cas d'hermaphroditisme," *Bulletin et Mémoires de la Soc. de Chir.*, Tome 42, 1916 p. 382.

48 East Seventy-fourth Street.

Medical and Surgical Lessons of the War.

WAR LESIONS OF PERIPHERAL NERVES.

By J. LE FLEMING BURROW, M.B. (Edin.); M.R.C.P. (Lond.).

Leeds, England.

Captain R. A. M. C. (T. F.) Officer in Charge of the Neurological Department, Second Northern General Hospital, Leeds.

Introductory.—This paper is based upon the experience gained from over 15,000 routine investigations of war injuries to the nervous system during the years 1914-1915 and 1917-1919. The work has been carried out in the Second Northern General Hospital, Leeds; to the administrator of which, Lt. Col. Littlewood, I express grateful thanks for permission to publish this paper. The work of the hospital has been made possible only by the full cooperation of the medical and surgical staff, and by the loyal team work of assistants in the special departments. To my surgical colleagues especially, I am most deeply indebted; without their help my particular work could not have been done. The photographic records were made possible by the help of the Medical Research Committee.

The work of my department consists in the routine examination and recording of all cases where nerve injury is suspected. An opinion is expressed upon each case as to diagnosis and progress while under observation. The department is also jointly responsible with the surgeon for the after-treatment of the patient when nerve suture has been performed. It has been found a convenient working arrangement for the Neurological Department to prescribe and control the electrical treatment, etc.; in this way multiple control of a patient is obviated.

The surgical aspect of all cases is entirely in the hands of surgical colleagues. Treatment is decided upon after a consultation between officers of the surgical and neurological departments. One morning in each week is set apart for a meeting of the officers from all the departments of the hospital. At these meetings cases of special difficulty or interest are fully discussed, and advice from each department, if necessary, is available.

The following paper is intended to be a short, practical guide to the subject of nerve lesions in the light of our increased experience gained during the war. A detailed discussion of the facts which have come to light during research upon the motor and sensory functions of nerves is beyond the scope of the present article.

Anatomical and Pathological Types of Lesion.—A. Direct injury of a nerve trunk by a metal fragment may result in:

1. Complete division of the nerve.
2. Total division of a few bundles only in the nerve.
3. Injury to the sheath of the nerve, and its nutrient vessels and nervi nervorum.
4. Bruising and hemorrhage between the nerve bundles within the perineurium.

B. Indirect injury of nerves may result from:

1. Displaced fragments of bone, where there is a splintered fracture.

2. Pressure from without, due to organization into fibrous tissue of large blood clots, callus, etc.
3. Fibrosis and repair processes, following intense sepsis which has invaded the nerve from the neighbouring tissues.

CLINICAL AND PATHOLOGICAL RESULTS OF THE VARIOUS TYPES OF INJURY.—A. *Direct Injury of a Nerve Trunk.*

1. *Complete Division:* Direct and total division of a nerve trunk, and especially of a large nerve, such as the sciatic, by a bullet, is rare. If a bullet passes through a medium sized nerve, complete loss of function usually results at once. Many nerve bundles are directly divided and the others are bruised to such an extent that they cease to conduct impulses for a time.

Surgical exposure of the damaged nerve a few weeks later enables one to make out a dense fibrous swelling in the centre of the nerve trunk, and at each side of this a few fibers enter the young vascular scar tissue and become lost there. These latter fibres probably correspond to the bruised fibres, now entwined with scar tissue, while the central area marks the spot where the bundles have been cut across during the passage of the bullet.

The clean cut nerve wounds result almost exclusively from high velocity rifle and machine gun bullets. Shrapnel shell wounds and metal fragments cause much more laceration, and ultimately heal with dense fibrosis. Where the nerve has been completely divided and its ends are found separated by an interval, one sees that there is a bulbous swelling upon each end of the cut nerve. The swelling upon the proximal end is larger and usually softer to the touch than that attached to the peripheral cut end, which feels hard and compact. The signs and symptoms associated with this complete nerve division are discussed later in these pages.

2. *Total Division of a Few Fibers Only in a Nerve:* A glancing wound of a nerve trunk may make a clean cut at one side of the nerve only. In this case a few fibres are anatomically interrupted, those near are bruised and lose their conductivity, while those most distant may still conduct almost normally in a few days, or it may be, in a week.

Pathologically such a lesion usually results in the development of the commonly described "lateral neuroma". The appearance at the repair operation will vary according to the amount of the preceding suppuration, or the comparative absence of such sepsis. Young vascular fibrous tissue will be spread widely round the site of the injury after a few weeks of sepsis. In cases where the wounds heal quickly a sharply defined lateral swelling on the nerve will mark the track of the bullet. This swelling consists of fibrous tissue, varicose nerve fibrils, and the remains of the degenerated fibers cut at the moment of the injury.

On the uninjured side of the nerve, strands of healthy fibers will be seen passing over the swelling into the peripheral end to pass in the ordinary way to their distribution. It is almost needless to say that the changes found will vary much according to the interval which has elapsed between the date of injury and that of the operation to expose the nerve. The signs and symptoms of the incomplete lesions follow in later pages.

3. *Injury to the Sheath of a Nerve:* The injury to the coverings of nerve tissue proper, with outpouring of blood into the nerve, and subsequent fibrous transformation, is one of the most fruitful sources from which spring cases of "nerve concussion", less serious "partial lesions", and those distressing cases clinically called "Causalgia". The pathological changes may be little evident to the naked eye when the nerve is exposed at the operation.

The fibrous tissue is very limited in amount, and may merely lead to a diffuse local thickening and sclerosis in the nerve. On opening the sheath a few strands of young fibrous tissue will be seen to enter the nerve bundles, separating them, and causing a certain amount of torsion in their course. The local thickening in the sheath may be circumscribed and large enough to suggest the presence of a lateral traumatic fibroneuroma.

Clinically, in the early days after such an injury, there is usually some loss of function in the affected nerve.

For a few days the patient often notices a curious neuralgic pain, like a bruise, in the sensory distribution; there may be lack of motor power in the muscles supplied by the nearest efferent fibers. A week or two later this pain fades away and a "numbness" is left. The numb area is found to be hypoesthetic to all forms of sensory stimulation.

The further clinical history seems to depend upon whether there is much or little fibrous tissue developed at the site of the injury. If little fibrosis occur in the repair process, then the functions of the nerve, both afferent and efferent, are gradually restored.

In some cases fibrosis leads to the production of a syndrome of nerve irritation. The symptoms appear from the tenth to the fourteenth day after the injury, and may become gradually worse or gradually better, according to the severity of the damage at the site of the injury.

The clinical features of the syndrome of irritation are discussed amongst the clinical types.

4. *Bruising of Nerve Trunks:* The effusion of blood into the nerve bundles of a nerve trunk results from the passage of a bullet through tissues intimately associated with that structure. Damage may also result from such violence as the blow delivered by a man with a clubbed rifle, by the fall of sandbags, or other violence applied as a result of shell bursts. The carrying of heavy ammunition boxes on the shoulder has often caused bruising of the upper trunks of the brachial plexus, as the soldier stumbles over rough ground.

Clinically these cases come to us after shell explosions, etc., as cases of "nerve concussion". The damage may be so small that the symptoms pass away in a few days, and the soldier resumes duty.

A certain number of these cases do not clear up, and after a day or two of radiating pain, described as like a "deep bruise", along the nerves affected, there results a stage of "numbness".

The latter stage may pass into the clinical type known as a "partial lesion" of nerve, according to the number and distribution of the fibres damaged. On the other hand, in some nerves especially, such as the inner cord of the brachial plexus, the median nerve of the arm, or the internal popliteal division of the sciatic, a typical "causalgia" syndrome re-

sults. This syndrome is so striking that it is described fully in a separate section.

It should be emphasized that the "partial lesion" which results from intraneural hemorrhage is the commonest type of lesion to result in "causalgia" The burning pain is usually first noticed about ten days after the reception of the injury, and from that time it grows more intense. The exact pathological features of the early stages of this type of injury have not been much noticed.

I have been able to pick out a few cases sent back from casualty clearing stations with notes stating that there was bruising with hemorrhage into nerve sheaths, where the later result was "causalgia", or an irritation syndrome of less severity. Microscopically we are able to demonstrate intraneural fibrosis to quite a marked extent, where, to the naked eye, the nerve appeared very little changed at the operation.

B. *Indirect Injury to Nerve Trunks.*

1. *By Displaced Fragments of Bone:* Laceration of a nerve by fragments of bone and other material, displaced during the passage of a projectile through the tissues, is very common.

The nerves to be frequently damaged in this way are the musculospiral nerve in the arm, and the external popliteal nerve at the neck of the fibula. These nerves suffer quite commonly, being partly or totally torn through at the same time that the bone is smashed. The appearances presented some months later, when the sepsis has so thoroughly cleared up that the nerve repair operation may be safely done, differ very little from those in other cases of complete nerve division.

The cut ends of the nerve may be found widely separated; they are frequently embedded in bone or dense scar tissue. There are the usual "bulbs": the central end terminates in the usual club-shaped swelling, while the distal end of the nerve presents a smaller, harder swelling. The clinical picture is, of course, that of complete loss of both afferent and efferent functions.

2. *Pressure on a Nerve from without:* Constriction of nerves by masses of callus or by organizing tissue following a large concealed hemorrhage, is also a common occurrence among war injuries.

Clinically there may be distinguished three phases in the process. The early signs are those found with bruising or other partial lesion. Next comes a more prolonged stage of irritation pressure. The second stage gradually leads to a third, which is characterized by gradual and progressive loss of function unless the pressure be relieved. The third phase is due to Wallerian degeneration in the nerve fibres, and will show all the signs and symptoms of a complete nerve division in severe cases where the pressure has lasted for a long time. The simple cases of pressure due to the use of crutches are easily recognized and call for no further comment.

3. *Fibrosis Following Intense Suppuration—"Ischemic Paralysis":* There is a type of nerve lesion which is apt to follow upon the healing of wounds where much diffuse suppuration has occurred. This type is perhaps one of the most difficult of all lesions, as regards both diagnosis and treatment. During the acute stage the limb affected gives the surgeon much anxious thought. The urgent questions which arise at this time are whether the limb can be saved, or must the affected part be sacrified to save the patient's life.

Undoubtedly injuries to main blood vessels and important nerves must be recognized in order to come to a decision. The type of nerve injury in the acute stage falls into the background of the picture if it be short of complete division. A complete examination is impossible and undesirable when the patient moans with pain if the limb is moved. The testing of voluntary movements is difficult when pain attends on every movement, and protective reflexes are strongly in evidence.

Electrodiagnosis, unless essential to help the surgeon in a decision for or against early amputation, should not be attempted. Sensory investigations are futile in the presence of severe pain.

Clearly all the cases that are thoroughly investigated will be those in which some recovery has taken place, and all the acute symptoms have subsided. We are left with a clinical picture difficult enough to analyze. There are signs and symptoms which may be due to vascular causes, and some which are undoubtedly due to lesions of nerves. In considering the future of such a patient one must know how much is reparable nerve damage, and how much is due to "traumatic contracture" following vascular injury and repair after suppuration. In a word the diagnosis may be to distinguish what is sometimes called "ischemic paralysis" from nerve injury. The diagnosis is often complicated by the fact that both conditions are present in the same case, and the problem is to find out which has the greater share in the production of the signs and symptoms under consideration.

The appearance of the affected limb will vary according to the severity of the lesion. There is always a deformed attitude, some contracture in one or more groups of muscles. The skin in traumatic contracture is atrophic, and it may be that gangrene of the most peripheral parts has occurred.

The muscles affected are wasted and feel like soft coarse-grained wood. The arteries pulsate feebly, or perhaps no pulse is palpable. There is an irregular sensory loss of glove or stocking distribution in these ischemic cases.

The differential diagnosis is considered under the section devoted to that part of the subject.

Pathologically one has few opportunities to study the changes in the nerve trunks of the chronic cases. One or two nerves examined have shown the usual features of Wallerian degeneration which has probably followed local necrosis at the site of the suppuration, or has resulted during the later stages of the repair fibrosis.

NOTES UPON DIAGNOSIS.—*General Remarks:* The accurate diagnosis of the site and extent of the nerve injury, and the gauging of progress by regeneration are so important that many seemingly needless details must be considered before the desired information is available. A reliable examination technique is essential for accurate diagnosis.

So much has been written and is still appearing, which seems to be conflicting, that some standard method of examining and recording these cases is obviously necessary.

Briefly, the chief mistakes that observers make in examining nerve injuries are, firstly, that they examine limbs, especially, which are so cold and cyanosed as to be unfit for an accurate examination, either electrical or sensory.

Secondly, when testing voluntary movements the observer may be misled by mimic movements. These are performed by healthy muscles not usually associated with certain joint movements. When the usual muscles are paralysed the patient learns to overcome his disability by putting into action a muscle, or group, which takes little part when the principal muscles are healthy. For example, flexion at the elbow is performed by the pronator radii teres when the whole of the biceps group, the extensor group, and the supinator longus (brachioradialis) are paralysed. Slight flexion at the wrist is carried out by the extensor ossis metacarpi pollicis when there is complete median and ulnar paralysis. Extension of the phalanges of the fingers by the dorsal interossei is possible when the long extensor group is paralyzed. There are many examples of these mimic movements which in my experience have explained many a supposed early recovery of motor power a few weeks after nerve suture.

Lastly, although this by no means exhausts the list, there is careless sensory examination. The most common errors arise from the employment of too coarse stimuli in testing superficial sensibility. In nerves such as the musculospiral in the arm, or the external popliteal in the leg, where each nerve has no exclusive area to supply with deep sensibility, a moderately coarse touch is felt quite well through the agency of the deep sensory mechanism, even though the nerve be completely divided. The observer almost unconsciously stimulates much too vigorously in an effort to get a positive response from the patient.

Some sensory loss is always demonstrable in complete lesions of the musculospiral and external popliteal nerves, in spite of statements which appear to the contrary. If sufficiently vigorous stimulation be used the patient gives a positive answer because deep sensation is supplied from the ulnar, median and musculocutaneous nerves under the area of skin supplied by the radial with superficial sensation. In the case of the radial also there is a good deal of overlap which varies with each patient within certain limits. In order to avoid tiresome reasoning in the plea for definite technique, the foregoing examples of likely pitfalls must suffice.

The following method of examination has been practised at a very busy General Hospital, over fifteen thousand examinations in the last four and a half years. There was one break of fourteen months, when the observer was in Egypt on other military service. It is not claimed that this method of examination is the best, or in any detail perfect. The best recommendation is that it is practical, and this for a busy department; and also that it avoids the chief pitfalls that beset the path of neurological diagnosis. That others may wish to profit by our experience must be the excuse for giving full details. The essential preliminaries should include short notes, preferably tabulated to avoid undue verbosity upon the following:

1. The nature of the injury, *i.e.* whether bullet or crush, etc.
2. The posture of the patient at the moment when he was injured.
3. Immediate effects, such as pain, paralysis, etc.
4. After-history, which must include details of surgical treatment following the injury.

The injured part should next be carefully scrutinised and notes made under the following headings:

(*a*) Position of wounds and scars.
(*b*) Attitude of the limb as compared to that of the healthy side.
(*c*) Contractures.
(*d*) Mobility of ankylosis of joints.
(*e*) Muscular atrophy, its distribution in relation to nerve supply or joint control. (It should be remembered that muscular atrophy after complete section of nerve is not apparent for a few weeks.)
(*f*) The appearance of the skin with special reference as to the distribution of trophic changes, such as "branny skin", due to delayed desquamation of epidermis, ulcers or blebs.
(*g*) Hairs—their general arrangement, regular or irregular, "goose skin," etc.
(*h*) Vasomotor—color of the skin, edema, etc.
(*i*) Sudomotor—dryness or hyperidrosis.
(*j*) The nails—color, shape, brittleness, and striations.

It should be recalled that mere immobility in splints will give rise to the appearance of delayed shedding of the epidermis and changes in the nails. This was demonstrated by Head and Sherren and has been repeatedly confirmed by all observers.

The next part of the systematic examination may be headed "Palpation". The observer's hand will gently explore the following:

(*a*) Region of scars to estimate the induration, fibrous nodules, or neuromata in nerves superficially situated.
(*b*) Nerve trunks near the scars. The fingers should gently press upon the nerve peripheral to the site of injury while the patient is asked to describe the nature of any sensation caused. Where any regeneration is taking place, the patient may state that gentle pressure, or light taps, over the nerve cause a sensation of "pins and needles", "tingling", "a cold water sensation", or merely a "bursting feeling" referred peripherally to the skin area, which that nerve usually supplies with sensory fibres. The exact peripheral limit on the nerve at which such paresthesia can be so elicited is important, as was pointed out by Trotter and Davies in 1909, and during the war by Tinel. This percussion paresthesia obtained over regenerating peripheral nerves is now often called "Tinel's sign".
(*c*) The joints should next be gently moved in a passive way to demonstrate stiffness, ankylosis, etc., in order to prepare the way for attempts at active movements by the patient.
(*d*) Voluntary movements of each muscle group by the patient should be watched and it is best to observe the tendons one by one so

that mimicry by surrounding healthy muscles shall not mislead the observer. It is useful to place the limb in a "neutral position", so that the weak muscles are not called upon to raise a heavy hand or foot against the force of gravity; or, conversely, are not allowed to have gravity to greatly assist in a movement.

(*e*) Deep palpation of muscles will give an estimate of their tone, or of possible fibrosis. Pain on pressure or pinching of muscle is elicited in most irritative lesions of a mixed nerve.

(*f*) Direct percussion of muscle bellies may be practised to observe the nature of the response called forth by mechanical stimulation. Sluggish contractions of comparatively large amplitude, slowly rising and gradually subsiding, are found in muscle where electrical examination will give the classical "reaction of degeneration". It should be noticed, however, that such slow contractions of even larger amplitude occur also in certain conditions associated with hypothermia classified by Babinski and Froment as "physiopathie" or "reflex contractures". The muscles of a leg or arm examined after prolonged exposure to cold will also give a sluggish contraction of much smaller amplitude if percussed sharply. The tendon responses are not very important in cases of peripheral nerve injury, but should be examined for additional information if necessary.

Sensory Investigation.—A careful examination of the sensory functions should be carried out next in a quiet room upon an untired patient. The objects of this examination are:

1. To confirm and localise a lesion as either in peripheral nerve, parent trunk or spinal nerve root.

2. To estimate the gravity of the lesion, for examination of the sensory function, carefully carried out, is always more reliable than that of the motor functions for this purpose.

3. To obtain an exact record, charted in all details, to form a starting point from which future progress will be judged. It may be stated here that, after vasomotor function, the earliest regeneration signs in divided nerves will come from the reappearance of sensory functions.

There are a few most important details which must be attended to if the sensory examination is to be a reliable guide to progress. The most neglected precaution is that the part to be examined must be thoroughly warmed to body temperature at least. Another essential, now well recognised amongst neurologists, is some measurable or standard stimulus for all investigation of sensory functions.

We must use standardised stimuli so that observations made at regular intervals of weeks or months will be exactly comparable.

Lastly, a careful system of charting, usually by life-size photographs or by diagrams, is necessary for permanent records. With every precaution adopted there are still difficulties created by the patient's varying abilities to discriminate and describe the qualitative changes from the normal sensibility.

Sensory Functions to Be Investigated in Routine Work. 1. Light Touch: This is the function most easily deranged qualitatively and quantitatively by any nerve injury.

The superficial appendages of the skin, especially hairs, are intimately connected with appreciation of light touch, although the deeper structures join with the hairs normally to form a compound sensation of touch and pressure.

It should be our aim, in testing light touch sensibility never to deform the skin so that the sense of pressure is invoked to complicate the sensations felt by the patient. For all practical purposes it is unnecessary to shave the skin before these examinations if the above-mentioned facts be kept in mind. The shaving of an area of skin where sensory regeneration is advanced may cause so much persistent tingling sensation to be felt by the patient that accurate observation may be impossible for some hours afterwards.

Light touch may be usefully tested by light stroking with a camel's hair brush. Most of the hairs should be removed so that the tests will be carried out with a small wisp of about a dozen hairs. If the brush be used carefully so that the hairs sweep the surface at an acute angle, and with little or no bending during contact, reliable results are obtained.

The use of calibrated hairs after the method of von Frey, is more accurate, but the method takes too long for any but specially selected research cases. Cotton wool wisps are unsatisfactory. The area of complete anesthesia to light touch should be marked on the skin and charted later.

The area of qualitative change will be marked out next. This latter area usually takes the form of hypoesthesia and is wider than the area of complete tactile anesthesia.

2. Sensation to Pin-Prick: Pin-prick is often used as the test for pain sensations. The stimulus is really a compound one and gives rise to a sensation of sharpness and another of pressure.

In the complete nerve lesions the sensation of sharpness will be found to be abolished over a wide area as a rule, usually outside the area of anesthesia to light touch with a brush.

A sensation of blunt pressure, and it may be of painful pressure, is felt by the patient usually a little distance before the limit of anesthesia to light touch is reached. For the purpose of testing pin-prick sensation the use of an instrument such as the spring algesiometer devised by Head and Holmes, or other algesiometer, is necessary.

Head's algesiometer consists of a needle mounted on a spring, the pressure of which can be adjusted. A standard stimulus is thus obtained and the figure at which the spring is set is charted for comparison with future readings.

3. Deep Sensibility: Bones and joints are endowed with sensation to vibration, movement, etc.

The subcutaneous tissues, muscles, etc., are sensible to pressure and pain, even in the absence of sensation to light touch and pain in the more superficial structures.

4. Pressure Sensations: Pressure sensation may be roughly tested by pressing deeply into the skin

with the blunt end of a pencil. This may be all that is required to complete the evidence pointing to a total loss of sensory functions in a peripheral nerve.

More exact methods to obtain the threshold value of the stimulus required to excite deep sensation are necessary to gauge progress during regeneration. Some form of algometer capable of exerting measurable grades of pressure is desirable. The instrument should have a contact point which is equipped with a blunted guard about a millimeter in diameter. Graded pressure is then obtained by the addition of small metal weights.

The algometer of Head and Holmes is a useful instrument although its weight range is small for work on the leg and foot. The algometer is used for noting and measuring the threshold stimulus, and it may also be used for allowing the patient to discriminate between varying pressures on the same unit area.

5. Localization: The localization by the patient of the spot stimulated is conveniently observed during the examination of sensations to light touch, pin-prick, etc.

The patient indicates on a life-size diagram, or photograph, the exact spot where he feels the touch, pin-prick, etc.

The foregoing tests are all that are essential from a diagnosis point of view when peripheral nerves only are damaged. It is unwise to tire the patient, or the investigator, by making too long an examination.

Perception fatigue of the patient, or too much routine for the observer, lead to the compilation of careless records. Where there is reason to believe that the injury or the disease may affect spinal nerve roots, or the cord itself, some further sensory tests are made.

6. Thermal Sensibility: Strictly comparable records of a patient's sensations to heat and cold are difficult to obtain.

The varying temperature of the patient's skin makes a sound technique a laborious business. The skin cannot be adapted to heat or cold without materially altering the sensations that the patient will experience when the thermal tests are applied. Certainly it is wise to examine all these patients in a warm room, and in winter there is little objection to a preliminary warming of an arm or leg to body temperature in a hot-air chamber, or in warm water.

For the actual tests the writer has used small nickel-silver test-tubes which taper to a blunt end measuring exactly one square millimeter. The tubes are fitted with corks through which project centigrade thermometers. Goldscheider's pointed solid metal cylinders, or a moderately thick copper wire, will be found useful for minute observations upon the distribution of the hot and cold spots on an area of skin. In complete injuries of peripheral nerves the sensation of heat is abolished and is slow to return.

Cold sensations are obtained by the use of other stimuli than thermal excitation. Mere pressure on a regenerating nerve will often call forth a remark from the patient that he feels a sensation like very cold water in the area anesthetic to all but deep sensation.

Our work during the last four years has led to the conclusion that pain sensations and sensations evoked by extremes in temperature are intimately bound together. Trotter and Davies suggested that very hot or very cold stimuli give rise to compound sensations of a thermal and painful nature. Our independent opinion was arrived at before the work of Trotter and Davies was known to us, and is largely in agreement with their observations.

For purely thermal stimuli it is necessary to use temperatures not very remote from the ordinary skin temperatures. In lesions of peripheral nerves the area of the thermanesthesia corresponds more or less irregularly to the area of loss to pin-prick, and then outside this area there is a wide area of thermohypoesthesia, where active heat and cold spots seem to be spread out more sparsely than on the healthy side. The value of thermal stimuli is well known in the diagnosis of such injuries to the lateral column of the spinal cord as will give a Brown-Séquard syndrome.

The accompanying diagram (Fig. 1) shows the distribution of the sensory disturbance in such a case.

There will be on the same side as the damage atrophic paralysis at the site of injury, while the muscles below will be weak and spastic, with increased tendon jerks. The sensory changes in this limb are not striking, but in the apparently sound limb there is profound loss to heat, to cold, and to painful stimuli.

Such a patient once told the writer that in getting into a hot bath he always tried the temperature with the weak leg as the other was unreliable, and had at first led him to enter a bath much too hot for him. This man had a rifle bullet in his spinal canal, and did not know that he had been wounded. Apparently he was immediately buried by the fall of a dugout, and when he came under my observation he was being treated for "shell shock."

7. Weber's Test: The recognition of two blunted points of a compass, applied simultaneously to the skin in the long axis of a limb, is a function associated largely with deep skin sensations of pressure. The subsequent path follows that of deep sensation from the joints and musles into the posterior columns of the cord.

8. Vibration Sense in Bones, etc.: The bones are normally sensitive to the vibrations of a large tuning fork except when deep sensation is abolished, or when the posterior columns of the cord or root ganglion cells are injured or diseased. This latter statement is in contradiction to the current view that the lateral columns conduct vibration sense.

Difficulty in estimating pallanesthesia will result from "overflow vibrations" to neighboring joints. The handle end of the tuning fork should be placed on the bone at right angles to its long axis for the best results.

9. Discriminating Sensibility: Discriminating sensibility is relatively unimportant for the diagnosis of peripheral nerve lesions. The size and shape of common every day objects should be distinguished by the patient's unaided skin sensations. Such objects as matches, coins, a pencil, etc., are placed in the man's hand and he rolls each in turn

between his fingers if the lesion permit of this.

The discrimination of textures such as silk, cotton, wool, india rubber, etc., is also tested. This further examination is more important for cerebral sensory lesions than for peripheral nerves. In lesions of peripheral nerves there is no doubt that discriminating sensibility is the last function to be restored, largely because it requires perfect sensory impressions from the peripheral skin.

The Electrical Examination.—The skin must be thoroughly warm and moist so that the resistance to the electrical current will be as low as possible. For the examination we require a rapidly interrupted current of short duration which will appeal to the nerve and nerve-muscle, and a slowly interrupted constant current, a stimulus of relatively long duration, which will stimulate the muscle directly even though the nerve be degenerated.

It matters little how these currents are obtained and measured. A set of condensers with capacities

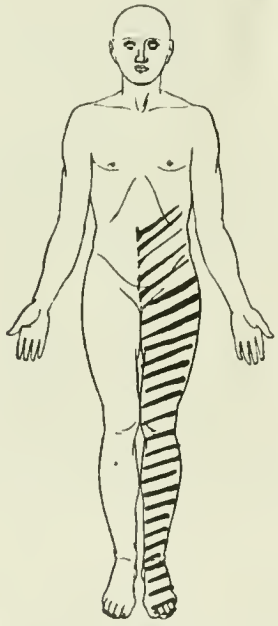


FIG. 1.—Diagram showing the distribution of sensory disturbances. Right leg: Spastic reflexes and Babinski's sign present; loss of joint and muscle sense. Left leg: Normal motor functions; thermanesthesia, analgesia.

varying from .025 microfarad to about 4 microfarads may be used from a constant current supply of steady voltage. The small condensers supply the current of short duration, while the large condensers take a longer time to discharge and supply the long duration stimulus. The Lewis Jones condenser set is used by many observers and proves quite a convenient method of testing in electrodiagnosis.

The advantages claimed for the condenser method are that it is painless, and that an exactly measurable electrical stimulus is used. In practice we have found the method to be disappointing. Exactly measurable electrical stimuli, applied through such variable resistance as is set up by the human skin, lose much of their value.

The electrodiagnostic methods which rely on averages or upon the character of the muscular contractions prove to be more valuable than those which aim at exact readings.

The following apparatus will be found to fulfill all requrements for nerve-muscle testing:

1. A short medical induction coil with a good interrupter to give stimuli at the rate of about one hundred per second. The current from the secondary is employed.

2. Some means for varying the strength of the current. The best arrangement is the movable secondary on a "sledge," after the suggestion of Du Bois Raymond.

3. Electrodes, one large and one small. The smaller is mounted on a wooden handle to which is fitted a "make and break" key. A clockwork metronome with mercury dip may replace the key if desired.

4. A constant current circuit to which is fitted a shunt resistance rheostat so that the amount of current in the patient's circuit may be varied. A milliampèremeter should be attached to this.

5. A "pole reverser" switch, which changes the direction of the current flow in the external circuit, completes the apparatus.

Where there is a constant current of low voltage available it is a great convenience to work both the galvanic and the faradic apparatus from this, and have them mounted on the same switchboard. Most instrument makers supply this combined switchboard, which answers all purposes.

Method of Testing.—Faradic Test: The connecting wires are attached to the terminals of the secondary coil and to the electrodes. The large electrode covered with lint is dipped in warm tap water, and placed at the root of the affected limb, or strapped by a rubber strap to a part of the patient's surface where bones are well covered by the soft parts.

The small, or "active electrode," is placed upon the "motor points" of each of the muscles in turn, and lastly upon the nerve trunk. The tendons or muscles are closely watched for evidence of contraction, and the character of each contraction is carefully noted.

If all the muscles supplied by a nerve react to faradïsm a week after the injury one may definitely exclude a total lesion of that nerve.

Hysterical or "pithiatic" cases, "functional" cases as a whole, cases of "physiopathic" or "reflex" contracture, cases of malingering, and also organic damage to the upper motor neuron in the brain or cord, are all associated with a positive reaction to faradic stimulation. In total lesions of peripheral nerves, where recovery is advanced, voluntary motor power usually, though not invariably, returns before a positive response to faradism can be obtained.

Character of Muscular Contractions: A brisk twitch with moderate amplitude occurs in the healthy state.

One observes slow sluggish contractions of small amplitude in cold limbs, disuse atrophy following prolonged splinting, and in some recovering total lesions of nerves.

There is increased excitability with large amplitude and usually a quick response in cases of "reflex" contracture, and in some functional cases.

There is no muscular response whatever when a total lesion of the nerve supply is present.

Galvanic Test: The "make" and "break" key

work by hand provides what we may call the stimulus of infinite duration, at least so far as nerve excitability is concerned.

The electrodes are placed as before, and, if the combined switchboard is being used, all that will be necessary is to lock the switch leading to the galvanic circuit.

The small electrode is first made the cathode, and the amount of current which will just produce a contraction on closing the circuit is used. The current is then broken and the pole-reverser swung over so that the active electrode now becomes the anode. The observations are repeated and the character of the muscle contractions noted. We may recall that under normal conditions in a perfectly warm limb a brisk contraction will occur under the cathode at each closure of the circuit when a weak current is used. A smaller contraction, though equally brisk, will occur when the anode is used over the same muscle.

When the muscle is deprived of its nerve supply completely, and time has been allowed for Wallerian degeneration to occur in all the nerve fibres, the character of the muscle response changes. The changes are, briefly, an increased amplitude of contraction with a slowly rising, slowly subsiding response. The contraction starts from the neighborhood of the electrode, and spreads in both directions along the muscle in a curious sluggish, vermicular manner. Such a contraction obtained in a perfectly warm limb is quite characteristic of denervation of the muscle. The variable polar changes with increased excitability to the anode, are less important though the whole described picture forms the classical "reaction of degeneration."

A full discussion of all the changes which occur in the excitability and conductivity of nerve is out of place here. Much important work has been published lately by Lapicque, Keith, Lucas, Adrian, and others upon nerve conduction, and in their papers workers upon this subject will find much guidance.

The purpose of this paper will be better served by emphasis on main types rather than by a lengthy account of injuries to individual nerves. The idea throughout is to give a clear picture of diagnosis which will indicate a definite line of treatment at the earliest possible moment.

FIG. 2.—A case of complete lesion of the ulnar nerve, the picture shows the contracture which takes place occasionally in the muscles supplied by this nerve.

COMPLETE LOSS OF FUNCTION IN A NERVE TRUNK.—*Signs and Symptoms.*—Attitude: There is complete flaccid paralysis in the affected muscles, and, after an interval, atrophy in these, with possible contracture due to the unopposed action of their opponents. In neglected cases there may be shortening due to fibrosis in the paralyzed group so that the contracture alters.

Joints: Arthritic changes occur, and with contracture there is alteration in joint axes, and in supporting ligaments. There is never bony ankylosis.

FIG. 3.—Showing contracture in the muscles supplied by the median nerve, which is completely divided in this case.

Muscles: The paralysis falls upon a certain group or groups. The atrophy is related to nerve supply and not to joint control, as in arthritic muscular atrophy. The muscles are flaccid and show increased mechanical excitability when percussed directly.

The response to tapping is slow and vermicular rather than the sharp contraction which occurs in health.

Tendon reflexes are abolished.

Deep palpation of muscle is not uncomfortable.

Skin: The skin is dry and scaly, very quickly a "branny" appearance is noticed.

Vasomotor Blush: *The color of the skin is usually altered to a reddish blush* over an area corresponding closely to the skin distribution of the affected nerve. In cold weather this area is swollen, cyanosed, and liable to chilblains.

Hairs: The hairs are irregular, and suggest the appearance of a cornfield after a heavy rainstorm.

FIG. 4.—Showing trophic disturbance in a case of ulnar and median lesion. The delayed shedding of the epidermis is well seen.

"Goose-skin" reflexes are absent over the skin area supplied by the nerve affected.

Nails: The nails quickly alter their color and elasticity. They become brittle, dry, curved, and ridged. The epithelium is heaped up under the

nails, so that the ends of the fingers suggest a horse's hoof in marked cases.

Palpation of Nerve: The observer's fingers may be able to detect a slight swelling at the site of the injury on the nerve, if it be superficially placed. If the nodule be gently compressed the patient may state that he feels an unpleasant shock or pain running down the limb toward the known skin supply of the nerve. Palpation below the site of injury, and even firm percussion, causes no sensation other than the local feeling of a slight tap to the skin. There is no Tinel's sign.

Sensory: There is complete loss to light touch over the skin area supplied, and outside this there is a large zone of hypoesthesia. Certain nerves, such as the musculospiral in the arm and the external popliteal division of the sciatic, vary much more in these areas of sensory loss than nerves which have an area to supply with all forms of sensation, including deep sensibility. This is readily explained by the variable "overlap" possible where one or more nerves send fibers into a given area. Pin-prick sensation is lost over an area almost as large as the loss to light touch, and when it is appreciated it is not the normal sensation of sharpness. The sensation of sharpness is not elicited until the algesiometer is working well outside the area of total loss to light touch.

Thermanesthesia closely corresponds in its distribution to that of loss of the sensation of sharpness, unless very cold stimuli be used. Very low temperatures do not provide purely thermal tests, and should not be used for routine examination of thermesthesia.

Deep Sensibility: The area of loss of deep sensation, *i. e.* joint sense, muscle sense, deep pressure, pressure pain, and vibration sense, varies with each nerve. In a total lesion of the median above the wrist there is loss of deep sensation in the two terminal phalanges of the index and middle fingers. The terminal phalanx of the thumb may be also involved. A total ulnar nerve lesion above the wrist produces deep sensory loss only in the terminal phalanx of the little finger, though the second phalanx and its joint are also frequently involved. A total lesion of the median and ulnar nerves together gives loss of deep sensibility over the two terminal phalanges of all the fingers, the whole of the little finger, and a variable area of the ulnar margin of the hand on its dorsal and ventral surfaces. Sometimes the thumb-nail pulp and about an inch of the palmar surface of the thumb are insensitive to all stimulation.

A total lesion of the internal popliteal division of the sciatic produces complete deep sensory loss over the smallest toe, and the terminal phalanx of the fourth toe. Quite frequently the deep loss extends to the terminal phalanges of all the three outer toes and the adjacent plantar surface of the foot on its outer side. There is no total loss of deep sensation when the external popliteal nerve is divided alone. If the whole sciatic nerve be divided the deep sensory loss is very extensive.

The whole of the sole of the foot, except a half-moon-shaped area on its inner side, is insensitive to all stimulation. There is complete deep loss over the toes, metatarsals, and external malleolus. The tarsal bones are usually insensitive to vibrations, though the ankle joint retains some sensibility. There is a zone between the area of total loss and that of normal sensation where the subject feels deep sensations in a modified and reduced manner.

The above facts have been verified by analysis of many records of total lesions, and prove most reliable in the diagnosis of such lesions.

Electrodiagnosis: Electrical examination a few weeks after the injury usually gives a complete and classical R. D. If the responses are brisk to the galvanic current, and all the other functions are abolished, the case is probably one of complete division, nevertheless. A slight and persistent briskness in the galvanic response *usually* means that a few healthy, though possibly unimportant, nerve fibers remain peripheral to the injury. Microscopic examination of nerve tissue removed at the operation has proved that this test is superior to the naked eye inspection of the nerve to decide the presence of a few healthy nerve fibers in an injured nerve.

Indications for Treatment.—A clinical picture of total lesion, which remains without a sign of regeneration for twelve weeks after the injury, should be surgically repaired at once, if possible. Surgical considerations will lead to delay where bone sepsis and prolonged suppuration in the soft parts have been present.

The surgical repair of nerves and the technique to be employed by the surgeon have been fully dealt with by others, and nothing will be added here except to note that the gloomy outlook upon autogenous nerve grafting operations will have to be abandoned.

Cases where a six-inch gap in the median nerve of the arm has been bridged by a length of internal cutaneous, have shown a slow but sure return of function. Muscles formerly paralyzed are now working quite well, and sensory restoration has been even more complete. The end results are not yet obtained, progress still continues, although the operations were performed over two years ago.

After-treatment.—If a well-equipped massage and electrotherapeutic department is available, with a carefully trained staff, there is nothing more important than an early return to treatment in this department after nerve suture.

The surgeon will direct what splints are to be worn, and will also state in general terms what movements are to be attempted in the early days after the operation.

Where possible the splints should be removed daily for gentle massage and passive movements of the peripheral joints to prevent stiffness. The whole object of both massage and electrical treatment is to keep up the nutrition of all tissues artificially until a healthy blood supply and normal movements are restored.

The most perfect recovery of nerve will be a poor practical result to a man who works with his hands if all the joints are stiff and his fingers permanently deformed by contracture. The electrical treatment for a fortnight after operation should be confined to applications of medical diathermy locally to the affected limb. The constant current is also useful in the early days after nerve repair. Both these agents merely improve the local circulation. As soon as possible the early treatment should be accompanied

or replaced by the use of interrupted galvanism, which is carefully applied to each paralyzed muscle separately. In this way all the powerless muscles are exercised artificially for a short time each day.

The use of bath electrodes in which a whole limb is immersed is to be deprecated; it leads to careless treatment, in which the healthy muscles are excited, rather than those that most require attention. The most attractive rhythmical interrupters do not overcome the disadvantages in the use of the bath electrode for this type of case.

As soon as a flicker of voluntary power occurs in a group of muscles electrical treatment should be stopped and active exercises to reeducate the muscle movements instituted.

Much persistent incoordination after nerve suture is due to want of careful reeducation of muscles. During the paralysis all sensory and motor impulses are stopped. The patient learns to do without his paralyzed group by educating other muscles to take on their work to some extent. Careful reeducation of recovering muscular power forms a very essential part of the after-treatment of all nerve lesions.

Reeducation is best carried out in a gymnasium, and various exercises will be planned in the form of a game to prevent the treatment from becoming a dull routine drill. In the later stages, scientifically arranged exercises in a curative workshop are the best of all. The patients are most keen and interested when doing productive work in a workshop.

INCOMPLETE LESIONS.—*Signs and Symptoms.*—(*a*) The early signs and symptoms in the first ten to fourteen days after the injury may be those of the complete lesion, except that reaction of degeneration cannot be relied upon so early. In partial lesion, however, there is more pain and a deep "bruised feeling," which the patient describes as felt under the skin distribution of the injured nerve. There is never the complete loss of deep sensibility that occurs in the complete lesion.

(*b*) After the second week, when, presumably, all local bruising and edema at the site of injury have cleared up, the signs and symptoms become definite. The vasomotor and trophic disorders are mild, or even absent.

The paralysis may be limited to a few muscles or a whole group supplied by a nerve; or there may be merely a transient paresis of all the muscles. The electrical responses may show a complete abolition of faradic excitability in one or more muscles of the group without the sluggish galvanic responses associated with R. D. When one or two muscles only remain permanently paralyzed it is exceptional to obtain the classical R. D. contraction with polar reversal. The presence of a few conducting nerve fibrils in an injured nerve is quite enough to give modified electrical responses which are short of R. D.

The sensory changes are characterized by the retention of deep sensibility, and more or less severe interference with the other sensory functions. There is usually a wide area of hypoesthesia to light touch, and, it may be, complete tactile anesthesia. The pin-prick sensation is much diminished, as a rule, though there may be irregular areas where unusual pain and sharpness are felt by the patient.

Indications for Treatment.—All "partial lesions" should be most carefully examined and charted at the first examination so that their progress may be regularly noted.

Regeneration signs appear in a few weeks, and

FIG. 5.—A case of irritation syndrome in the median nerve. The hatched area in the palm was the seat of hyperalgesia to all forms of stimulation.

if these progress steadily the patient may be expected to recover by the use of massage, electrical and reeducation treatments.

In some cases the signs and symptoms remain stationary after the first few weeks. There has evidently been a complete lesion in a few nerve fibers only, and the associated muscles and sensory apparatus fail to improve. Where progress is arrested in this way for two months, or where retrogression has occurred, surgical intervention is then indicated.

The healthy motor fibers will be picked out, when the nerve is exposed at the operation, by the application of a small sterile electrode and the use of a weak faradic current.

The after-treatment is the same as for the complete lesion.

THE SYNDROME OF IRRITATION.—It should be made clear at once that the cases which show irri-

FIG. 6.—The same as illustrated in Fig. 5, showing the dorsal distribution.

tative phenomena are all cases of partial lesion. The main causal factor in the production of the pain and other symptoms which constitute this syndrome is fibrosis in the nerve trunk.

We never see severe irritative phenomena earlier than the tenth to the fourteenth day after the injury. The symptoms and signs will vary according to the amount of destruction caused at the site of the injury. Where there is little destruction, as in cases of simple hemorrhage into the nerve and later fibrosis, we find little or no motor paralysis, though the patient may complain of the most intense pain. To these terrible cases Weir Mitchell gave the name "causalgia," to indicate the "burning pain" which most of these patients describe. The reader cannot do better than consult Weir Mitchell's monograph for the now classical description of these cases.

The clinical details which he described as occurring in the wounded of the Civil War, in 1863, have been repeated on a larger scale during the World War of 1914-18. Our experience and investigations all go to prove that the whole picture results from an irritation set up in the central end of an injured portion of the nerve. Painful impulses travel to the central nervous system and efferent impulses provide the rest of the picture in vasomotor, sudomotor, obscure "trophic," and other details.

There is never complete solution of nerve continuity in these cases. There have been many other theories put forward of late years to explain the symptoms of causalgia, such as associated vascular lesions, injury of sympathetic fibers, and so on. None of these theories has stood the test of experience. Weir Mitchell comes very near the truth of the whole matter when he states: "Further study led us to suspect that the irritation of a nerve at the point of the wound might give rise to changes in the circulation and nutrition of parts in its distribution, and that these alterations might be themselves of a pain-producing nature."

Indeed, all the signs and symptoms of "causalgia," and the less painful though closely allied forms of irritative lesion, can be explained by modified afferent impulses and efferent reaction to these.

The clinical picture of true causalgia is quite easy to recognize. The patient complains bitterly of pain. It is usually a median or internal popliteal nerve that is affected. The palm or the sole continually burns and feels as though it must burst with pain. Warmth and dryness cause the patient much misery, whereas cold, and certainly moisture, relieve the pain a little. For this reason the patient will carry a moist handkerchief continually in the affected hand, and may even carry one on the sound side—another suggestive fact to prove the reflex influence in these cases. Sleep is difficult to obtain, and patients may ask for amputation or threaten suicide.

There are motor paresis and slight contracture. Sensory examination is almost impossible because pain makes an analysis of sensory impressions out of the question. The skin in early cases shows a pink flush, and the fingers become conical. There may be small, scattered, pinhead vesicles under the skin. Later the skin becomes glossy and atrophic. Large blebs, such as result from superficial burns, appear at intervals. Patients have repeatedly watched these blisters rise in an hour or two; the writer has confirmed this. There is no question of trauma in the production of these trophic blisters; they occur upon a hand carefully wrapped in a flannel glove all day; a hand too painful to use, or even to swing at the side when walking.

Mentally these patients become wrecks. One of the cases (see Figure 8) was diagnosed by an experienced colleague as "congenitally imbecile." The patient was subsequently cured, and so changed in appearance that the physician thought he was another patient.

Fig. 7.—A case of severe "causalgia" in a female patient. The lesion was due to gouty deposit in the nerve. The trophic blisters were actually observed as they were forming. They are purely trophic, not traumatic.

Fig. 8.—The appearance of the palm in a case of severe "causalgia," in a man thought to be mentally defective. The trophic changes and contracture are well shown.

Less Pronounced Types than Causalgia.—There are varying grades of severity, from causalgia to cases where pain is mentioned by the patient only upon questioning him closely. These cases all have

varying degrees of motor and sensory loss with contracture. The picture will entirely depend upon the amount of destruction caused at the site of the injury.

The general signs are those of a partial lesion with an unusual amount of semicontracture in the affected muscles. There is pain when the muscles are gently pinched by the observer, and particularly when one presses on a nerve trunk. This elicited pain may not be of a burning character, but like "a sharp knife stab" or a "deep, painful bruise."

The discomfort present during the later stages of regeneration must be carefully distinguished from the pain of irritation syndrome.

During the knitting together of young scar tissue, compression symptoms are caused; these may include pain severe enough to be classed with the syndrome of irritation.

The increasing density of the fibrosis often results in gradual motor paralysis and increased sensory loss, when the pain may cease.

Prognosis.—We have many times found that severe cases of minor causalgia clear up in a few weeks, slowly, without active intervention at the site of injury.

When the pain and other features do not show any sign of amelioration in eight weeks we advise surgical intervention. Surgical treatment may be indicated much earlier in the most severe cases, where the relief of pain is the most urgent necessity.

When there are signs of increasing compression on the nerve, shown by decreasing muscular power and loss of sensory functions, then operation is at once advisable.

Indications for Treatment.—The safest and best surgical procedure for all severe causalgia is excision of the affected portion of the nerve, followed by end-to-end suture, or nerve graft if the gap be a large one. This may seem too drastic when the local condition of the nerve, as seen at operation, looks so good. It is not too drastic when one knows that failure to cure the condition will lead to a uselessly painful, contractured extremity, if not to death of the patient by suicide. For the less severe cases, and especially where there is very evident local fibrosis, a partial operation is done and the nerve replaced in a new muscle bed, if possible, to prevent subsequent fibrosis. Other procedures, such as injection of alcohol, have been found to be comparatively useless, as well as uncontrollable and clumsy in their action. Too much is hoped from chemistry when alcohol is injected, and not enough is attempted by really delicate workmanship. Injections aim at the treatment of the symptoms, when we ought to search for and treat the cause of the symptoms in order to cure the patient.

Signs and Symptoms of Regeneration.—It must be understood that the signs of a recovering lesion and the date they appear vary very much with the nerve affected. There are general indications which are, however, common to all recovering lesions, and with these we now deal. Regeneration of nerve fibers proper takes place from the cut end attached to the central nervous system.

We have never found any cases of phenomenally early recovery after complete division, nor any proof that regeneration occurs in the peripheral cut end.

Preparatory changes do occur in the cut end, but the actual nerve fibers must grow slowly from the proximal end into the peripheral channels prepared to receive them.

Regeneration is quicker in summer, slower in winter, and may occur in small spurts, although, on the whole, it is a regular growth.

Early Signs.—The first signs noticed after nerve suture are of a vasomotor nature. The skin becomes a more healthy color, so that we can no longer guess the area of anesthesia from the color of the skin. The vasomotor recovery occurs too early for actual downgrowth to have occurred; it will be noticed within a month of nerve suture. In long nerves like the sciatic it may be eight to twelve weeks before the color of the skin changes.

The Skin.—Changes soon occur in the skin after the vasomotor recovery. There is a more normal desquamation, and the nails become less dry and brittle. Trophic burns or sores quickly heal.

Nerve Trunk Sensibility.—The next change is one of altered sensibility elicited when the nerve is gently pressed upon, or tapped, just below the suture line. On mechanical stimulation the patient describes a "tingle" or "pins and needles" sensation, referred to the skin distribution of the nerve. This

Fig. 9.—A case of complete lesion of the median and ulnar nerves. The picture was taken several weeks after repair of the nerves, and it will be noticed that the skin is already assuming a normal appearance.

sign, fully described by Tinel, appears very early after nerve repair; usually, in four to eight weeks it is unmistakable. If regeneration is proceeding normally the sign is obtainable at lower levels on the nerve at every monthly examination. When recovery is arrested by scar formation the level at which the "pins and needles" sensation can be elicited remains the same for several weeks. All cases in which the sign remains stationary should be carefully examined in case the arrest of progress is due to some serious mishap in either general health, or local conditions at the site of suture.

A Tinel's sign must be carefully distinguished from the pain caused by pressing a nerve where an irritation syndrome is present. In the former the sensations are referred to the periphery, while in the latter the local pain is the feature emphasized, while the referred sensation is hardly noticed.

Deep Sensation.—The next functions to reappear are the deep sensations. Joint sense and sensibility to deep pressure appear first. The sensation is much changed from the normal. It is indefinite, and of a diffuse tingling quality. There is an exaggerated feeling of discomfort when deep pressure is made over an area formerly the seat of deep anesthesia. Muscle sense appears later, and is below normal for many months, as is the exact localiza-

tion of pressure. The exact date at which one may expect the restoration of deep sensation varies greatly. In the ulnar nerve the earliest recovery was thirty days after suture at the wrist, and the most delayed reappearance was two hundred and twenty-four days, after suture in the upper arm. These figures are obtained by analysis of over 400 cases of ulnar nerve injury. After the return of the deep sensations it is but a short step to the recovery of the skin sensations to coarse stimulation.

Pin prick is felt first, though as a blunt sensation, and then the coarser grades of "touch pressure."

It is interesting to note that touch which is just short of deforming the skin will be appreciated as a curious "pins and needles" feeling first in the highest part of the former area of anesthesia. As a rule, the part nearest the central nervous system regains sensation before peripheral parts. The regeneration soon becomes patchy, and light touch is appreciated as a "numb sensation." The patients state that the quality of light touch is very little altered from the normal side, except that it is indistinct, irregularly felt, and "numb." The tingling "pins and needles" feeling persists for months after the return of voluntary motor power. The average time from the date of repair to the reappearance of hypoesthesia to light touch in the median and ulnar skin areas was seven months.

Sudomotor.—Sweating is restored with sensibility to coarse stimulation, such as pin prick and coarser grades of touch.

Motor.—The return of voluntary power will largely depend upon local conditions and the nerve affected. In all the cases that we have watched the highest muscles of a group regain their power first after complete lesions, and then successively the lower muscles. After suture, including favorable and unfavorable cases, the averages are:

(*a*) Ulnar suture in the upper arm is followed by voluntary power in the flexor carpi ulnaris in six months, and voluntary contraction of the intrinsic muscles of the hand in fifteen months.

(*b*) Median suture in the upper arm is followed by power in the median flexors of the wrist in five months, and in the abductor and opponens pollicis in eighteen months.

The averages are very much the same in the case of the sciatic nerve and its branches.

There is no precision in the time intervals between repair and recovery. The whole process is, as one might expect, largely an individual matter, although nerves repaired soon after injury recover more quickly than those where delay has been unavoidable.

That a nerve has not been repaired reasonably soon after the injury is usually due to some unfavorable local condition which of itself will probably influence the speed of the regeneration process.

Pilomotor.—The pilomotor functions are still imperfect when there is good movement in the deeper muscles. The pilomotor apparatus does not seem to recover until discrimination of the various skin sensations is well performed by the patient.

Discriminating Sensibility.—Perfect discrimination between the various forms of skin stimuli is the last function to recover. In our cases complete total recovery of this function is comparatively rare yet. Active restoration of sensation still proceeds in cases where the nerves were repaired in the winter of 1914-15.

Thermal Sensibility.—Thermal sensations are unreliable as evidence of the progress of regeneration; they are therefore considered last. In the early stages of regeneration it is quite common to find that the patient experiences some "icy cold" sensations to other stimuli than thermal or painful ones. Heat as a pure thermal sensation is abolished in the complete lesion, and reappears long after cold can be appreciated by the restored sensory apparatus.

Conditions Which Simulate Peripheral Nerve Injury.—1. *Traumatic Contracture* (sometimes called "Volkmann's Ischemic Paralysis")—This condition in its early stages, and much more frequently in its later phases, may be confused with a purely nervous lesion.

Fig. 10.—A case of "traumatic contracture" following upon vascular lesions and intense suppuration. The superficial gangrene of the skin and contracture of the fingers are obvious.

A consideration of the nature of the injury helps greatly in the making of a diagnosis.

The patient has often sustained damage to the main blood vessels at the root of a limb. Hemorrhage has led to the ligature of large vessels in order to save the patient's life. After a transient pallor and numbness of the whole peripheral part of the limb there succeeds a period of edema and intense pain. The bloated appearance of the part, its powerlessness, and pain are the main features at this stage.

These symptoms are also found in many extensive septic inflammatory conditions, especially in those which spread deeply amongst the tissues after battle injuries.

The later stages of the "ischemic" cases are characterized by a shrunken contractured state of a hand or foot with atrophic skin, and perhaps patchy superficial gangrene of the fingers and toes.

The trophic changes are a most marked feature. The muscles feel hard, wooden, and atrophic, and have lost their properties as muscle. The mechan-

ical and electrical excitability is lost in the most pronounced cases, and seriously reduced in all.

The sensory loss is of a glove or stocking type, quite unlike that due to nerve lesions.

There is much pain often of a referred nature. The nerve trunks may be painful to pressure higher up the limb. There is an exaggeration of deep pressure pain. Less characteristic forms are sometimes difficult to distinguish from the true irritation syndrome of nerve. The vascular lesions will give valuable help in diagnosis, as well as the distribution of the sensory loss.

2. *Organic Paralyses of the Upper Motor Neuron Type.*—This type of case, especially where it is due to some spinal lesion such as hemorrhage around the cord, or a Brown-Séquard syndrome, may at times simulate peripheral nerve injury. The history and nature of the injury, the state of the reflexes, the distribution of sensory change, and the character of the electrical responses, will serve to make a correct diagnosis an easy matter.

3. *Poliomyelitis, Acute Infective Polyneuritis, etc.*—The above diseases are distinguished by the history of the lesion and by the electrical reactions. The extent of the sensory loss will serve to distinguish the lesion as in the anterior horn of the cord, nerve roots, nerve trunks, or individual peripheral nerves.

4. *Pithiatic (Hysterical) Paralysis or Contracture.*—These cases are surprisingly frequent after trivial injuries. Many patients are men who do not show the exaggerated emotional state so commonly found in civil practice. The deformity is usually a striking one, and is usually an exaggerated picture of some paralytic deformity.

Unusual and often paradoxical attitudes are a feature of many cases. A man may be unable to use his leg to walk and yet the muscles are thrown into vigorous action when tested with the patient lying on his back (astasia abasia). Above all, the contractures and paralyses vary from day to day and may alter even during the examination. The reflexes are never materially altered in these cases, and the vasomotor disturbance never exceeds a slight coldness and cyanosis from disuse.

There are no trophic disturbances unless the patient deliberately manufactures these by burning

Fig. 11.—A typical case of "physiopathic contracture" affecting the hand. The case was slowly cured by reeducation and thermal baths.

his fingers and so forth. The electrical reactions show little but quantitative change from the normal state. Finally, the symptoms clear up in a few minutes, or hours, under treatment by persuasion and manipulation.

5. *Physiopathic Contracture* (Reflex Paralysis of Babinski and Froment, "Acromyotonus" of Sicard).—This condition is described apart from cases of undoubted hysteria because of some characteristic features which it possesses. It is much

Fig. 12.—Same case as shown in Fig. 11, dorsal aspect.

debated at present whether it is a clinical entity allied to the reflex paresis and atrophy described years ago by Charcot, or whether it is purely pithiatic in origin. Babinski and Froment, with others, hold that these physiopathic cases are something more than hysteria, while Roussy and L'Hermitte, as well as many observers in this country state that the whole of the symptoms can be explained on the grounds of hysteria and disuse.

The chief features of these reflex contractures are as follows:

(*a*) The initial injury is trivial, a skin wound or crush without fracture.

(*b*) The affected part is cold, cyanosed, and may be markedly edematous.

(*c*) The paralysis is not as a rule absolute. There is a spastic contracture of one group of muscles with weakness and atrophy of their antagonists. In the foot the commonest type is the club foot associated with atrophy of the peronei. There is a spastic tibialis anticus as well as a sustained contracture of the plantar flexor group.

The combination is thus quite unlike organic injury of the external popliteal nerve, where all of the anterior group are paralyzed together.

In the upper extremity an exaggerated form of drop wrist with contracture of the flexor group is found. The thumb and fingers are adducted, the

Fig. 13.—A case of "drop wrist" associated with vasomotor disturbance. Cured by faradism and reeducation.

latter overlap one another like the tiles of a roof —the commonly called "main d' accoucheur." Sometimes contracture with the hand in strong dorsiflexion on the wrist is seen, an unusual type in pure hysteria.

(*d*) The muscles are hyperexcitable to mechanical stimulation and respond by a sluggish contraction of large amplitude, especially where the limb is cold. Electrical excitability varies with vasomotor changes. There is usually changed excitability to faradism, and larger contractions are obtained than on the healthy side; there is never R. D.

(*e*) The reflexes are variable.

(*f*) Sensory loss is little more than can be accounted for by hypothermia of the skin.

(*g*) There is resistance to treatment by unaided suggestion, as contrasted with pure hysteria.

(*h*) The contracture does not disappear until the patient is deeply under a general anesthetic.

Some cases of physiopathic contracture take months to cure even by intensive methods of re-education. These more serious cases are noticed to be those with the most marked vasomotor changes.

6. *Paresis and Muscular Atrophy Associated with Joint Lesions.*—These cases are at once distinguished by the distribution of the amyotrophy. The wasting affects all the muscles which are used in movements of the affected joint, or joints. There is no R. D. or evidence of sensory loss.

7. *Contractures Associated with Painful Scars, etc.*—In this case the patient finds a certain movement painful because there is dragging upon a scar. He gradually assumes the position which is most comfortable for him and this may persist long after the original painful condition has been cured.

8. *Contractures due to Direct Injury to Muscle and Tendons.*—This type of deformity commonly follows upon large lacerated shell wounds. Masses of muscle may be shot away, or removed surgically because of gas gangrene. In less grave damage the healing process creates fibrous adhesions between the supporting tissues and muscle or tendon, thus hampering muscle activity.

One result of fibrosis in muscle is a deformity of joint axis due to unequal pull of synergic groups. A wound in the muscles of the calf of the leg will produce a "drop foot" by shortening of the muscles during scar consolidation. A glance at the local condition is enough for the diagnosis of this form of "drop foot." Testing by faradic current is useful to distinguish divided or adherent muscle or tendon from true paralysis.

9. *Purely Functional Cases Due to Bad Muscle Habit,* or *Incoordination of Muscles formerly Paralyzed.*—These form a large ill-defined group associated with various local causes. The faradic test quickly proves the absence of organic paralysis in the affected motor apparatus.

10. *Chronic Tetanus.*—One meets with rare cases of chronic tetanus which might be mistaken for hysteria or "reflex contracture." In these cases there are definite painful local spasms which are provoked by manipulation, etc. There is usually some degree of tonic spasm in the muscles of the jaw which is persistent even when the other local spasms relax. This fact is in direct contrast to the variable spasm of hysteria. The tendon jerks and the faradic excitability are exaggerated.

Differential Diagnosis.—Before any rational plan of treatment can be applied in a case of suspected nerve injury we should be in possession of the following information:

1. The anatomical position of the lesion.

2. Whether wholly organic in nature, wholly "functional," pithiatic (hysterical), "reflex" (physiopathic), or a combined functional-organic lesion.

3. The exact mechanism which is acting to produce any of the above conditions. The characteristic features of each type of lesion have been sufficiently outlined to enable all the above essential facts to be collected. It remains then, to form an idea as to what the future progress is likely to be, so that appropriate treatment can be adopted.

General Outline of Treatment.—The treatment adopted will be either surgical repair of the nerve, or simply suitable splinting combined with physiotherapy and electrical treatment. This latter course is adopted so long as the nerve is making satisfactory progress in regeneration by natural growth and repair.

In any case, after repair of nerves an early return to the electrical department, and next to warm baths and massage is desirable. We do not believe that massage or electrical treatment hastens the downgrowth of nerve fibers directly. The massage, movements, and electrical treatment are merely to keep up the local nutrition and improve the circulation of blood in a part where there is vasomotor paralysis.

Heat.—Head and others have noticed that cold winter weather retards regeneration of peripheral nerves. We have repeatedly noticed that cases treated without special attention to warmth recover more slowly than cases carefully clothed and subjected to artificial warmth. A warm equable climate would seem the best for regeneration after nerve injury. We have used warm water, both still and in "swirl baths."

Hot-air cabinets heated by electricity are good. This form of heat is easily regulated. A novelty of the 2nd Northern General Hospital is the warm bath of liquid paraffin wax. These baths are heated by electricity and kept at certain steady temperatures. There are baths containing wax which becomes liquid at a comparatively low temperature and others in which wax of higher melting point is used. The nerve injuries take no harm in wax at a temperature of 40° Centigrade. The stiff joints and other cases without anesthetic skin benefit by immersion in wax baths at much higher temperatures than the patient could bear in a water bath. The reason why the higher temperatures are not painful is that a thin layer of wax solidifies on the limb immediately it enters the bath and this acts in some measure as a protecting influence against the heat. The patients are enthusiastic about the paraffin wax baths, and there is no doubt but that the limbs so warmed keep warm for fully four hours afterwards.

It is almost unnecessary to utter a warning against the use of hot or even moderately hot baths in cases where "trophic burns" are likely to occur.

Electricity.—As to electrical treatment, we have found the most useful methods to be:

1. Surging faradism for weak and atrophic muscles which have retained their excitability to this current.

2. Constant current without interruptions in the early days after surgical repair. This current may be used for ionization with chlorine or iodide ions, especially for superficial scar tissue.

3. A constant current interrupted abruptly at regular intervals to cause contractions in the paralyzed muscles. It is better to insist that the masseuse use a small button electrode over each muscle in turn, so that each muscle has at least eighteen or twenty contractions at every treatment. If treatment of individual muscles be not insisted upon it is quite commonly found that some are neglected, and eventually degenerate into fibrous tissue.

4. Combined galvanofaradism is useful for cases that have recovered near to the point of restoration of voluntary movement in the affected muscles.

5. The local application of the medical diathermic current has been found to be of value in cases where vasomotor derangements are a prominent feature. Diathermy does not as a rule cure pain in peripheral nerve damage. The vascularization and absorption of scar tissue, which is alleged to be assisted by diathermy, has not occurred in many of our cases. All electrical treatment should be given by carefully trained masseuses. A good knowledge of anatomy and a three months course of training in the theory and practice of simple electrotherapeutics are essential to produce a reliable masseuse for work in the electrical department. Unskilled work is useless, and may do more harm than good to cases of peripheral nerve injury.

Massage.—Massage requires a skilled worker of even longer training and experience, than electrotherapy; unless constant supervision by a medical officer be at hand. In the early days after nerve suture, treatment should be limited to peripheral joint movements, especially those of the hand, and to deep work upon muscles situated some distance away from the operation scar. Gentle effleurage over the site of injury follows in about a fortnight, and from this date until the return of deep sensibility deep work for all muscles and daily movements of all joints should be practised. Where splints are worn it is especially important that all this work should be done in the most careful and painstaking way. Paralyzed muscles should not be forcibly stretched beyond their subnormal range. It must be remembered that their tone is gone, and their normal defense mechanism is temporarily out of action. Too forcible passive movements may lead to trauma and subsequent fibrosis. When the deep sensations return the patients experience unpleasant "pins and needles" when deep massage is carried out. In cases where regeneration is advanced it should be remembered that the patient will have exaggerated sensations to painful stimuli, and will experience most unpleasant sensations when manipulations are carried out which do not cause pain on the healthy side. As recovery proceeds it is good practice gradually to diminish deep massage, and to substitute surface work and put in more time at reeducation movements. The moment at length arrives when all massage should be stopped.

The patient will complete his cure by voluntary movements in the gymnasium and curative workshops, where special exercises are planned for him.

For the ideal result the patient should remain under supervision until there is complete motor recovery in every muscle. This is especially true where the upper extremity is involved.

Economically it is the soundest business for the individual, and for the State, to get a perfect result in a young man if this be possible, even though it take a long time to obtain. An imperfect cure makes a man face difficulties in finding employment, and results in the permanent charge to the State of an unproductive and subsidized citizen.

5 Park Square.

Medicolegal Notes.

Cross-Examination of Medical Experts.—In an action against a physician for failure to properly diagnose a fractured forearm, an expert had testified that proper practice would have required the use of the *x*-ray. During the expert's cross-examination by the defendant an offer was made to show by one of the expert's patients present in court that he had treated this patient without resort to the *x*-ray. The purpose was to discredit his testimony. The court sustained the plaintiff's objection to the introduction of this evidence. On appeal this was held to be correct. To have permitted this would have involved an inquiry into the character of this patient's injury, the diagnosis made and the treatment given, and practically opened up an investigation upon a collateral matter much the same as was being investigated in the case itself. The witness testified that he had treated patients with dislocated and fractured forearms "without subjecting the member to the *x*-ray process." He also testified that in case of "pure dislocation" the *x*-ray was not essential. Having had these answers it was held not error to rule against exhibiting the witness' patients.—McCollum v. Barr (Cal.), 176 Pac. 463.

Expert Opinion Based on Excluded X-Ray Photograph.—In an action for an injury consisting of a fracture in the shoulder joint there was admitted in evidence, over objection, an *x*-ray photograph, without any proof that it was genuine, or was a correct representation of the plaintiff's injured arm. While the photograph was not exhibited to the jury, the plaintiff's medical witness described to the jury what the photograph showed, and testified that, although he had been unable by physical examination to determine more than one fracture, the photograph showed a double fracture. Subsequently in the case it was conceded that the exhibit was incompetent, and it was withdrawn, and the jury were instructed to disregard it; but the defendant's counsel, believing that the evidence could not be disregarded by the jury, asked for a mistrial, which was refused. On appeal it was held that this was, under the circumstances of the case, prejudicial error. The plaintiff's doctor had testified as to the conditions flowing from two fractures to the humerus, and to their permanency. It is well settled that an expert witness may not draw inferences or state conclusions from the testimony of other witnesses. Furthermore, there was no doubt but that the doctor's testimony as to the accident being a competent producing cause for the injuries described by him, and as to the permanent effects of the injuries, was based largely upon the excluded *x*-ray photograph.—Walsh v. Frankenthaler, New York Appellate Division, 173 N. Y. Supp. 764.

X-Rays and Workmen's Compensation.—The Nebraska Supreme Court holds that in the present state of the science of *x*-ray examinations and *x*-ray photographs of the person there appears to be no reason why such examination or photograph should not be permitted by a claimant for compensation under the Employers' Liability Act, upon request by the employer or insurer, unless the request is shown to be unreasonable. But a claimant under the act cannot be denied a recovery because of a refusal to submit to an *x*-ray examination or to have an *x*-ray photograph taken of the person where the uncontradicted evidence shows that neither was necessary.—U. S. Fidelity etc., Co. v. Wickline (Neb.), 170 N. W. 193.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, May 31, 1919.

FUNCTIONAL RENAL CHANGES IN GYNECOLOGY.

THE procedures of examination of the renal functions should enter the domain of surgery and gynecology as a part of the general examination of the patient, as both surgical and gynecological affections are frequently complicated by renal disturbances. Were this done many untoward postoperative results might be avoided. From the viewpoint of the prognosis and operative indications much may be gleaned from a urological examination, such as a dilatation of the ureters and renal pelvis, which in itself would be an indication for hysterectomy for the removal of fibroid growths producing pressure on one or both ureters. The search for edema and determination of the blood-pressure will likewise give us data of the greatest value in gynecological cases, not merely from the viewpoint of chloride excretion, but from that of hydrochloride excretion as well, since both these functions usually go hand in hand and when disturbed produce edema and increased blood-pressure.

Renal lesions secondary to pelvic neoplasms, assume a peculiar type, while in other cases the possibility of a previously existing renal sclerosis and of lesions due to local conditions must be considered. It is not enough to detect renal lesions in gynecology, but we should also be able to attribute them to the pelvic lesion. The age of the patient demands consideration, because in young women infection and the exogenous and endogenous intoxications have not had the time to produce renal damage or the more or less advanced lesions of chronic nephritis. A carefully taken anamnesis may show the minor signs of brightism were absent before the advent of the genital affection, and, consequently, the probability of a preexisting renal sclerosis can be eliminated. But in doubtful cases one must be able to affirm or not the presence of renal changes dependent upon a pelvic tumor. If these changes are really due to ureteral compression from a uterine or ovarian growth, it would seem extraordinary that the functional renal disturbances should manifest themselves with equal intensity in both kidneys. Catheterization of the ureters will here find a legitimate indication.

It may well be objected that a difference in the functional value between the two kidneys is not sufficient evidence for eliminating some general cause, because of two kidneys the seat of an interstitial nephritis, it may be supposed *a priori* that the sclerosis may predominate in one, producing a more considerable deficit on that side, and this unquestionably is often the case. It is clear that the difference noted must be proved not to be due to a lesion belonging to that particular kidney, such as a neoplasm, tuberculosis, and, above all, to a movable kidney, so common in women. After catheterization of the ureters the urines are to be collected for two hours, a sample being taken every half hour. At the end of the first thirty minutes the patient is given three glasses of Contrexéville water in order to realize an experimental polyuria, and, before commencing the test, a hypodermic injection of phlorizine may be given and its elimination estimated in each of the half-hour samples of urine.

In subjects with chronic nephritis it would seem that the morbid process, having involved both glands at the same time, the pathological changes should offer the same characters in both kidneys, and the difference between the two urines should be very slight. This is true in many cases, but the total action will be found disturbed, although the functions of the two kidneys will be carried out equally. Consequently, in a general way, it may be said that in renal sclerosis due to some general cause, it is probable that both kidneys offer lesions of about equal intensity. However, frequently differences between the two urines will be noted which, in the majority of cases, are made manifest by the following characters of the urine from each kidney. The volume will be greater on one side, with a more marked concentration of the urea and chlorides on the other, the corresponding kidney being both quantitatively and qualitatively superior to its fellow. A fact worthy of remark is that the various functions are not parallel. The kidney with diminished functions may very likely manifest a marked change in one of its functions. By the sugar elimination it will be ascertained if the phlorizine test gives results which agree with those furnished by the analysis of the separated urines.

STATISTICS OF PRIVATE PRACTICE.

EVERY physician, whether novice or established man, should, if in general practice, keep some sort of analytical records of his patients which could be published for the benefit of the younger men. Such reports would, of course, be anonymous and beyond identification with actual personages. This is true especially of office business. It is frequently said by novices that practice is very different from what they had expected. They had looked forward to treating pneumonias, typhoid fevers, and fractures, but, instead, soon learned that nine patients out of ten had nothing the matter with them. If the ninety per cent. were analyzed the re-

port would make most interesting reading. There would be found the young mother with her first baby, the youth who had been reading the quack almanac, the subject with palpitation of the heart, the middle-aged man whose unpleasant feelings could be traced to overfeeding and underexercise, the person with brick-dust sediment in the urine, the woman who thinks she will lose her hair, and so on through the usual gamut. Special types of visitors come on more or less sinister errands—the newly married man who does not want children, the woman who wants gestation interrupted, the female adventurer who is of several distinct types, the man who schemes for advice favorable for fornication, the man in search of information which may be put to unlawful uses, etc., etc. Not one of these is a legitimate patient, although some of them may go through the form of stating some symptom and asking for advice.

Of actual ailing subjects some show a pronounced mental state which dominates the physical condition. They come to the office badly frightened and their tension begins to relax as soon as they are able to take their turn. The wearing suspense is now over. They find that they are in no serious or immediate danger, and with the mental state readjusted they cease to worry and probably will not even keep their next appointment. They can never again be frightened so thoroughly over their own condition. It is clearly bad for these patients to reassure them too quickly and thoroughly when they have organic or other serious disease, for we deprive them of a powerful conservative motif, that of a wholesome distrust.

The patient is well represented numerically who comes as a result of a conflict between need of professional services and dread of expense, interruption of business, the necessary publicity, etc. When some little happening tips the beam the right way, he comes, and often too late. The man, or more likely woman who knows herself to be ill but does not present herself until some alarming symptom develops is only too common.

The man who calls with the indifference of one who seeks to engage a plumber or other mechanic, simply because he regards his body as of as much importance as his house and in both cases takes time by the forelock is not so common as he should be. The man who wishes you to give him a complete examination and tell him the exact truth may be paired off with him who resents attention to his body at large and wants treatment for one ailment. The patient who wishes a guarantee of cure or who will deposit a sum of money in the bank for the physician to draw on when a cure is established should be noted as one of a general class who are financially unsatisfactory in various ways.

By analyzing one's material in this fashion for a term of years the most interesting tabulation could be prepared. There would result extensive types and rare ones, some patients would figure in more than one classification and the figures as to the personality of the patient could be offset by figures which sum up the diseases according to the diagnosis. The ancient student who rode for years with his preceptor and who learned the disease pedigrees of entire families as well as family peculiarities of behavior had a great advantage over the modern beginner and his work was largely cut out for him. An analysis of his practice would perhaps have taught him and his confreres little. Today the beginner who settles among strangers should find this custom of much value for his own guidance, and it would be still more useful for those who are to follow him.

TREATMENT OF ACUTE RHEUMATIC MYOCARDITIS.

THE localization in the myocardium during acute articular rheumatism is first of all to be guarded against by the exhibition of sodium salicylate, but since this medicament possesses a depressive action on the cardiac muscle, the dose of four grams daily should not be exceeded. When any suspicion of myocarditis exists, absolute rest in bed must be enjoined, even when the articular phenomena have subsided.

The partisans of the pathogenic theory emitted by Lees and others, namely, that the cardiac muscle is morbidly changed by the action of a substance similar to lactic acid, advise a prophylactic alkaline medication. But, regardless of all measures employed, myocarditis will occur, in which case there are three indications to fulfill, viz., (1) to control the cardia erethism; (2) to avoid all fatigue of the muscle, and (3) to act on the rheumatismal infection. The cardiac erethism may be controlled by the application of ice-bags to the precordial region, while pain may be successfully overcome by judicious revulsion, dry cupping, leeches, or even the use of the actual cautery, if required. This treatment is too much neglected in America, but the results obtained by the French school are sufficiently demonstrative to speak in its favor.

To prevent cardiac fatigue absolute rest is essential, while the action of the myocardium can be reinforced by cardiac tonics. Digitalis should be employed with extreme caution because, as Merklen has shown, this very valuable drug is contraindicated when there is marked dilatation of the right heart. Caffeine is the medicament *par excellence* of acute myocarditis and is better given subcutaneously when a rapid and intense action is desired. When the myocardium commences to flag, still more active measures must be resorted to, such as hypodermics of ether, camphorated oil, sparteine sulphate, or strychnine, while champagne and tincture of cinnamon are useful tonics during the latter phases of the process.

Theoretically, the rheumatismal infection should be treated with sodium salicylate, but on account of its depressive action on the heart it must be prescribed with great care. Many competent writers have even maintained that the salicylates favor localization of the process in the heart and, therefore, they may be advantageously replaced by salicin,

which has little or no deleterious cardiac effect. To favor the elimination of the rheumatic toxin a milk diet, diuretic drinks, and mild purgatives are indicated.

Convalescence is a period replete with danger. The patient should remain in bed for some weeks after all the phenomena of cardiac asthenia have disappeared. When the patient is up and about he should avoid both alcohol and tobacco for some time, likewise all violent exercise and athletics, and the physician should examine the heart from time to time in order to appreciate the condition of the myocardium, a bit of prudence often disregarded by both the patient and his medical attendant.

THE DISCUSSION FIEND.

Medical societies are composed of two sets of members, those who attend regularly and those who attend semi-annually. This is not a purposely heightened statement, but a calm representation of the facts, as the secretary of any society will testify. For the busy practitioner who sacrifices part of his all too little recreation time to attend the meetings of his local society we have nothing but praise. But it is toward a certain genus, one or more specimens of which are found in every medical society, that our remarks are directed. This is the discussion fiend. It is extremely embarrassing to the physician who has spent a great deal of time and trouble preparing a paper to have the usual request for discussion followed by a blank silence. The essayist cannot help but feel either that his paper has lacked interest or that he has made such egregious blunders that his colleagues refrain from alluding to them through delicacy. But on the other hand there is almost sure to be a number of more or less apposite remarks by the discussion fiend.

This individual may be a general practitioner and as such licensed by courtesy to give an opinion on all medical matters, but even if he is a specialist he does not confine his remarks to papers dealing with his branch. By no means! The discussion fiend discusses everything. Should the paper in question deal with his own specialty he is in his glory. If it describes an exceedingly rare case, he has seen a score, or a hundred—or as many of them as needed—in his own practice. He refers largely and easily to European authorities; he speaks of literature of the subject with an air of careless familiarity; he alludes to So-and-So of London, Blank of Vienna, and M. X. of Paris as if they were old cronies of his. If he has taken post-graduate work here or abroad, this is always alluded to, whether it has any relevancy to the subject in hand or not. Nor does he hesitate to drag in mention of cases referred to him. The proportion of sheer delight in talking to the amount of ill-concealed display of wares varies in different persons, but usually both motives are found.

The discussion fiend is frequently an omnivorous reader with a retentive memory. Happening to run across an allusion to a new form of treatment in a foreign medical journal he makes a mental note of it and at the earliest opportunity flashes a casual allusion to it before the eyes of his colleagues. If he reads that a certain form of treatment is beginning to be abandoned, he will state that for some time now he has given up this treatment and he finds that others are just swinging into line.

The only remedy for a discussion fiend is to adopt—and enforce—a limited discussion law. The president of a society has the authority to remonstrate with a speaker when his discussion grows unduly irrelevant or prolix and he should exercise this prerogative. By so doing he will earn the heartfelt gratitude of his fellow members.

Tuberculosis in an Insane Hospital.

It is but one more illustration of the almost universally prevalent neglect of physical states which a patient has to endure once he enters an insane asylum that but little has been done to prevent and cure pulmonary tuberculosis arising in these institutions. To be sure, it is very common nowadays to find special buildings for consumptives in insane hospitals and in many of the more modern institutions they may be such admirably constructed ones, as the improved Loomis shack. But if we investigate somewhat deeper it is the rule to find that these beautifully adapted buildings are but wards for consumptives to die in. The diagnosis is made only when the condition has advanced so far that the patient is bedridden, his sputum full of bacilli, and he is literally dying. In the *American Journal of Insanity* for January, 1919, Dr. S. A. Silk calls attention to this state of affairs. The remedy he suggests is an active tuberculosis service directed by a member of the staff who has had the requisite experience, or who is willing to interest himself in the subject. A large building, surrounded by porches, should be set aside for cases which are not as yet "open," this to be called the "preventorium." Here cases might be given approved dietetic and hygienic treatment and their progress carefully watched. The open cases should be kept in the regular tuberculosis cottages, such as the improved Loomis shack. As they improved they could be transferred back to the wards via the preventorium. In this way two great objects are accomplished: First, the uninfected patients in the regular wards would not run the risk of acquiring tuberculosis, as they do now so greatly. Second, a mental patient developing tuberculosis would be diagnosed in time and given a splendid chance of recovery. Too often now, owing to many circumstances, the most obvious of which is the difficulty of eliciting subjective symptoms from a patient of this sort, tuberculosis goes on until it is beyond recovery; the case is then discovered, called "incipient" and placed in a tuberculosis cottage, where the patient rapidly grows worse and dies. Let us then remove this discredit to psychiatric hospitals—one of the few now left—and by so doing we shall remove one more reason for dreading these hospitals and promote voluntary admissions with their attendant benefit to the mental hygiene of the community.

Sporotrichosic Arthritides.

In 1909, Beurmann, the leading authority on the sporotrichoses, announced the opinion that in virtue of the existence of osseous lesions of this origin joint lesions would also come to light. This prophecy was almost immediately realized in the report of three cases, and soon after several investigators reported the existence of sporotrichosic synovitis of various types. In one case both lesions coexisted in one subject. Aimes, in the *Gazette des hôpitaux* for April 26, has collected notes of 7 additional cases, and announces that in at least two the joint was implicated; or in other words, something more than the synovial membranes or sheaths was involved. Briefly stated, this affection is one which ordinarily would pass for a tuberculous osteoarthritis, especially when it occurs as an isolated affection. As part of a general sporotrichosis it would be associated with subcutaneous gummata and ulcers, and perhaps bone lesions. Occurring only in one joint, the lesion would have to be termed primary. Experience has shown that the diagnosis is more readily made in the multiple cases, while the primary cases have presented much difficulty in diagnosis. In such cases, indeed, no one would even think of sporotrichosis; and, in fact, one case is on record in which a leg with this knee made such a bad impression that it was at once amputated; and other similar cases have no doubt existed. In the known case a sporotrichosic gumma appeared later and showed the error of diagnosis. The enlargement of the knee may be rapid or insidious. Several cases were typical "white swellings," with fistulæ. The knee is the joint involved in the majority of cases. Another articulation mentioned is the sternoclavicular. The practical importance in citing the sporotrichosic white swelling as a disease entity consists in the fact that a knowledge of it may be able to save a limb now and then. The diagnosis is readily made by scrappings and culture, and the affection yields to iodine medication. The treatment is quite efficacious, but does not prevent prompt relapses *in situ* or in another joint.

News of the Week.

Hospitals Planned for Queens.—Memorial Hospital buildings in honor of the soldiers of the Borough of Queens, New York, who lost their lives in France will be erected at a cost of $500,000. The Citizens' Committee of that borough which has charge of the work proposes to raise the funds for these buildings by a public drive throughout the borough. The buildings will be added to St. Mary's and the Jamaica Hospitals. They will be equipped with 100 beds each and will have in addition laboratories, clinics, ambulances, and all other modern hospital facilities.

Bill to Restrict Vivisection.—Senator Myers of Montana announces his intention of introducing a bill into Congress which will narrowly restrict the practice of vivisection in the District of Columbia. He declares that unregulated vivisection means its extensive practice merely to satisfy "wanton and idle" curiosity rather than to serve scientific ends, and expresses the hope that public sentiment will soon demand national legislation to curb its abuses.

Red Cross Relief Work Increases.—According to a report given out at the headquarters of the Atlantic Division of the American Red Cross, on May 19, more than 6,000,000 finished articles for distribution among European refugees and convalescent American soldiers have been received in the division warehouse since November 1, 1918. Of the total collection large quantities have been in the form of hospital supplies and accessories for the hospitals in the metropolitan district which have received wounded American soldiers. Figures for the six months period show that the Atlantic Division chapters supplied 829,439 hospital garments, 693,336 medical and surgical articles, and 3,881,383 surgical dressings. In April the division distributed 86,647 articles of comfort to soldiers and sailors in addition to those supplied to the hospitals.

Charitable Gifts and Bequests.—Under the will of Mrs. Mary W. Almon, the Cambridge (Mass.) Hospital will receive $10,000 for a memorial of Elizabeth Almon Cudworth and Elizabeth Derby Almon, and the Massachusetts General Hospital of Boston will receive $5,000.

Discuss Nursing Situation.—The Public Health Committee of the New York State Reconstruction Committee met in the New York Academy of Medicine on May 19 for the purpose of discussing the nursing situation. The speakers were Dr. Henry Dwight Chapin, Health Commissioner Royal S. Copeland, and Dr. Matthias Nicoll, Jr. Dr. Chapin recommended shorter periods of training in a hospital, with a large experience in the bedside care of the sick as sufficient to fit a large number of women to care for most cases of illness. He advocated one year's training for aids to nurses. For this class of nurses a high school education he considered unnecessary. Dr. Copeland called attention to the fact that the present situation in the New York Hospitals is such that there is an annual deficit of $1,000,000 and the hospitals rob the nurses and make them do menial work to make up for this when they could spend their time more profitably doing other things. Dr. Nicoll told of the great need for more public health nurses and advocated a two years' course which would prepare women for this work.

Clinics for Foreign Visitors.—The Committee in charge of receiving and entertaining the foreign delegates to the American Medical Association meeting during their stay in New York for the first week in June have arranged a series of clinics for Wednesday, June 4, to be held at the following hospitals from 9 to 12 A. M. and from 2 to 5 P. M.: Roosevelt, St. Luke's, Bellevue, Presbyterian, New York, St. Francis', St. Vincent's, Post-Graduate, French, Hospital for Ruptured and Crippled, N. Y. Eye and Ear Infirmary, Manhattan Nose and Throat, Lying-In, Hahnemann, Flower, Woman's; Cornell Medical College, College of Physicians and Surgeons, University and Bellevue Medical College, Fordham Medical College, Long Island Medical College and Rockefeller Institute. Visiting physicians and members of the American Medical Association are cordially invited to attend these clinics.

Dinner for Visiting Delegates.—It is announced that a dinner will be given at the Hotel Commodore, New York, on Thursday, June 5, in honor of foreign delegates to the annual meeting of the American Medical Association. The tickets, which will be ten dollars per plate, can be obtained from the secretary of the committee, Dr. John J. MacPhee, 853 Seventh Avenue.

Opposition to Compulsory Health Insurance.—At a meeting of the social insurance department of the National Civic Federation, held in this city last Saturday under the presidency of Warren S. Stone, grand chief of the Brotherhood of Locomotive Engineers, strong objection to compulsory health insurance was expressed by most of the speakers. Attention was called to the failure of the system of compulsory insurance in England and Germany, in which countries it had fostered an increase in malignering. It was proposed to send a commission to England to gather facts for the information of legislators and employers now confused by propaganda disseminated by social reformers who have undertaken to promote compulsory health insurance.

Hospitals for Near East.—To meet the great need in Palestine and Serbia, the American Women's Hospitals is sending a fully equipped hospital to each of these countries. Included in each unit is a mobile hospital of fifty beds, sixteen motor ambulances, with drivers, in addition to the requisite number of doctors, and nurses. A fully equipped unit which reached Serbia a short time ago reports an overwhelming amount of work and great need of additional helpers. Dr. Agnes Goldman of New York who has been working in Serbia has just returned to this country.

Drug Addicts May be Identified.—Dr. Royal S. Copeland, Health Commissioner of New York, has been advised by William P. Burr, Corporation Counsel, that the Board of Health has the power to make certain changes in the Sanitary Code, relating to the control, identification, and classification of drug addicts. Upon the receipt of this notice Dr. Copeland announced his intention of going ahead immediately with the Health Department's drug addiction program. The form of identification cards to be used has already been determined upon and arrangements are being made with the Police Department concerning the method of registering and identifying addicts.

Plans for Physical Training of Boys.—At a recent meeting of the Physical Education Society of New York, it was announced that physical training will be provided for all boys in this State between the ages of 16 and 18 years, who are included in the universal military training law. It is estimated that the military law affects some 220,000 boys, while only 20,000 are attending school where there are facilities for physical training. Under a plan which provides for the reorganization of the national military program, which was outlined by Dr. Thomas A. Storey, State Inspector of Physical Training, it is proposed to reach the remaining 200,000 and drill them in beneficial athletics, games, and gymnastics.

Colonel William J. Mayo of Rochester, Minn., has been awarded the Distinguished Service Medal by the War Department.

Red Cross Nurses Decorated.—Miss Jane Jeffery of New York, an American Red Cross nurse, has been awarded the Distinguished Service Cross for her courageous conduct during a German air raid on the American Red Cross Hospital at Jouy-sur-Morin, when though wounded severely herself she continued to render assistance to others. The Distinguished Service Medal has been posthumously awarded to Miss Jane Delano, head of the Red Cross Nursing Service in France, who died there last month.

Dr. Samuel J. Kopetzky has returned from duty with the American Expeditionary Forces and has resumed his practice at 51 West 73d Street, New York City.

Dr. Charles Halpin Nammack has returned from service in France and has resumed his practice at 379 Park Avenue, New York City.

Gifts and Bequests.—Under the will of Edward A. Kerbs, the Hebrew Orphan Asylum of New York City is to receive a bequest of $15,000 and the Trudeau Sanitarium at Saranac, N. Y., is to receive $50,000. The will provides that if the daughter dies without issue the principal of the estate is to be used to establish the Kerbs Hospital for Tuberculous Diseases.

Position Open for Psychiatrist.—The Civil Service Commission of the State of New York announces a vacancy for a psychiatrist, man or woman, on the State Commission for Feeble-Minded at a salary of $5,000. Applicants for this position must be licensed practitioners of medicine in good standing and have had at least ten years in the actual practice of their profession. They must also have had special experience and training in the treatment and care of the insane or mental defectives such as might be obtained in State institutions. During their sreviee in a State Hospital they should have held positions of responsibility affording executive and clinical experience. No written examination will be given, but candidates will be rated on their education, experience, and personal qualifications. The examination will be held on June 28. For application forms address a postal card to the State Civil Service Commission, Albany, N. Y.

The American Proctological Society will hold its twentieth annual meeting at the Hotel Chalfonte, Atlantic City, June 7-9, 1919, under the presidency of Dr. Jerome K. Lynch of New York City. The Secretary is Dr. Collier F. Martin, 601 Professional Building, Philadelphia, Pa.

The American Neurological Association will hold its forty-fifth annual meeting in Atlantic City, June 16, 17, and 18, 1919, under the presidency of Dr. James McBride of Pasadena, Cal. The headquarters of the association will be the Hotel Brighton. Communications relating to the meeting may be addressed to the Secretary, Dr. Frederick Tilney, 22 East 63d Street, New York City.

Dr. George E. Hetherington, of Piqua was elected president of the Homeopathic Medical Society of Ohio at the annual meeting of the Society held in Columbus on May 14.

Dr. Augustus W. Shea of Nashua, was elected

president of the New Hampshire State Medical Society at its annual meeting held in Concord, May 15.

Dr. Elmer E. Liggett of Oswego was elected president of the Kansas State Medical Society at its annual meeting held in Ottawa on May 8.

Obituary Notes.—Dr. ALEXANDER LYLE died at his home in New York, after a rather protracted illness, on May 23, aged 53 years. He was a graduate of the medical department of New York University, in 1888. He served an internship at the City Hospital, and immediately took up the practice of surgery. Early in his professional career he became associated with Dr. John A. Wyeth at the Polyclinic Medical School and Hospital, becoming professor of surgery in that institution in 1908. Shortly after its organization he became a member of the American College of Surgeons. He was a member of the New York Academy of Medicine, the American Medical Association, the New York County Medical Society, and the Lenox Medical Society. For several years he had been attending surgeon at the City Hospital, Blackwell's Island.

Dr. JOHN HERMAN EDEN, a graduate of Yale Medical School, in 1874, and formerly connected with the staff of Bellevue Hospital, died of heart disease at his home in Little Neck, Long Island, N. Y., on May 19, aged 69 years.

Dr. HERBERT M. BISHOP, a graduate of Yale University Medical School, in 1865, died at his home in Los Angeles on April 23, aged 75 years. He served as surgeon with the First Connecticut Cavalry during the Civil War, and was a former president of the California State Homeopathic Society and a member of the American Homeopathic Society.

Dr. DAVID WILEY died at Salem, N. J., of heart disease on April 30, at the age of 71 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1870.

Dr. BENJAMIN B. REATH died of pneumonia at Philadelphia on May 6, at the age of 56 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1887, and had practised there continuously since that year

Dr. F. HARVEY DAY died at Wilmington, Del., on May 8, at the age of 56 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1885.

Dr. SAMUEL HENDRICKSON, a graduate of the College of Physicians and Surgeons, in 1875, and for thirty-seven years a practising physician of Jamaica, L. I., died suddenly of heart disease on May 20, aged 69 years.

Dr. HENRY DAVIDSON FRY, a graduate of the University of Maryland School of Medicine, in 1876, died at his home in Washington, after a long illness, on May 12, aged 66 years. He was for many years professor of obstetrics at the Georgetown University, and on his retirement in 1917 was made professor emeritus. He supervised the erection and equipment of the Riggs Maternity Memorial Building in Georgetown, and was well known as a writer on his specialty.

Dr. HEBER JOHN RICHARDS, a graduate of Bellevue Hospital Medical College, and a pioneer practitioner of Utah, died at his home in Provo, on May 12, aged 79 years.

Correspondence.

THE IODINE URINE TEST FOR ACIDOSIS.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—It appears from letters which I have received that I did not make myself wholly clear in my article of March 8 regarding this test, hence if you can find space for this supplementary note it might help the general understanding of what I find to be as useful a test of acidosis in diabetes as the thermometer is of fever.

While it is true that normal urine has the property of decolorizing weak solutions of iodine, the increase in power to decolorize, shown by the urine of acidosis of diabetes mellitus and of pregnancy, is not due to uric acid, creatinine, etc., in increased percentage. Urines containing unusually high percentages of these constituents have been tested by the writer and found not to decolorize iodine to anywhere near the same extent as does the urine of acidosis. Moreover sugar is not the agent which accomplishes the decolorization. If a patient suffering with the acidosis of diabetes mellitus be fasted until just such a time as the sugar has left the urine, but before improvement from acidosis has had time to manifest itself, it will be found that the amount of urine necessary to decolorize the solution described in the MEDICAL RECORD for March 8 will be small, usually less than 10 c.c. Hence sugar did not cause the decolorization. Again if this same patient be kept under observation until, by cautious feeding, he has improved measurably, and until the uric acid, creatinine, etc., have increased in the urine, it will be found that the amount of urine needed to decolorize the iodine rises above 10 c.c., and keeps on rising until it is practically normal, that is above 20 c.c.

CLIFFORD MITCHELL, M.D.

25 E. WASHINGTON STREET, CHICAGO, ILL.

OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, April 30, 1919.

Reform in the R. A. M. C.; a Chance for the Scientific Worker.—This week there has quietly come into existence an alteration in the conditions of service in the Royal Army Medical Corps which constitutes the greatest reform that has taken place in that service for a generation. Moreover it is a reform of promise as well as of performance. Directorates in Pathology and in Hygiene have now been created within the Army Medical Department, the scheme permitting for specially selected men to rise through all ranks of the Army to Major-General *on the strength of their scientific work.* Hitherto, a few notable men being excepted, the rule in the R. A. M. C. has been that whatever a man's qualifications, tastes, or abilities, he must, at any rate on attaining the rank of Major, be prepared to go off into administrative work and leave his scientific duties to his juniors. If he preferred to remain working in Bacteriology, in Preventive Medicine and Hygiene, or in Tropical Diseases, for example, he could do so, but, except in extraordinarily fortunate circumstances for himself, he

would find that his devotion to science had cost him all chances of promotion in his service, promotion being reserved for the administrative billets. Conceive the waste of such an arrangement! Always young men were being taught, and well taught, how to become the scientific branch of their Corps, and, exactly as they had found their *métier*, precisely as they had become valuable advisers of officers, men, the Army, and indeed the nation, they were asked to choose between self-sacrifice or a career of superintending other people, of giving orders, of supervising hospitals and military establishments generally, in short, a career of what is called administration. How could the younger men be expected to preserve their interest in their scientific studies if such was the outcome? And how could their seniors be expected to remain in touch with the scientific developments in whose working out they no longer had any personal share? This now has all been changed, largely owing to the pertinacious, skilful and sympathetic work of Sir John Goodwin, Director General of the R. A. M. C., who has for a year been preparing his scheme of reform with the assistance of the two principal exponents of scientific work with the Corps, Sir William Leishman and Sir William Horrocks. It is certain that the possibility, and, for good workers, the probability of attaining to positions of proper trust and emolument by scientific work will much improve recruiting among the officers of the R. A. M. C.—that will be the immediate outcome of the new scheme; but there will almost certainly follow similar arrangements by which special medical service generally will receive higher consideration in the Corps. Not only is there in the work of the Army Medical Department scope for original labor and research in tropical disease, in Preventive Medicine, and in Bacteriology, but a vast clinical field is also open to these officers, and the specialist in medicine or surgery, in venereal disease or in ophthalmology has as much right as the sanitarian or bacteriologist to expect that his particular skill shall receive particular recognition; shall count, in short, to his credit in rank, pay, and pension. It is certain that these further developments will shortly follow, and it is to be hoped that all the improvements in the conditions of service in the R. A. M. C. will also find their analogues in the Indian Medical Service, though the identical scheme for the one cannot be expected to fit the varying circumstances of the other.

The Dogs Protection Bill.—The bill has procured a remarkable volume of protest from physiologists, who perceive its dangerous and illiberal nature; while the medical members of Parliament have given their colleagues in the House the reason for their opposition to the measure.

A War Memorial to the Officers and Men of the R. A. M. C.—The affairs of the R. A. M. Corps are bulking largely in public this week, and it is right that it should be so in what, it is hoped, may be the actual closing theses of the world war. For in that war no particular unit has played a more useful and devoted part. A scheme has now been promulgated for the erection of a memorial to the officers and men of all branches of the corps who have fallen in the war, and the following comprehensive committee have consented to serve, and have indeed already presented a report on the subject: *Chairman,* Lieutenant-General Sir Alfred Keogh, G.C.B., G.C.V.O., C.H., M.D., F.R.C.P.; *Vice-chairman,* Lieutenant-General Sir John Goodwin, K.C.B., C.M.G., D.S.O., K.H.S.; *Secretary,* Captain A. R. Wright, D.S.O.; *Regular Army,* Lieutenant-General Sir Arthur Sloggett, Kt., K.C.B., K.C.M.G., K.C.V.O., K.H.S., Lieutenant-General Sir Launcelotte Gubbins, K.C.B., M.V.O., Major-General S. Macdonald, C.B., C.M.G., K.H.P., Major-General Sir H. R. Whitehead, K.C.B., Major-General Sir W. G. Macpherson, K.C.M.G., C.B., Colonel C. R. Tyrrell, C.B., Colonel O. L. Robinson, C.M.G., K.HP., Brevot Colonel Sir E. Worthington, Knt., K.C.V.O., C.M.G., Major St. J. A. Maughan, D. S. O., Captain R. E. Todd, a sergeant-major, a staff-sergeant, and a private; *Territorial Force,* Major-General Sir Berkeley Moynihan, Knt., K.C.M.G., C.B., F.R.C.S., Colonel A. D. Sharp, C.B., C.M.G., F.R.C.S., Lieutenant-Colonel, A. M. Macintosh,, M.B., F.R.C.S., Major E. B. Waggett, D.S.O., Captain G. T. Willan, D.S.O.; *Special Reserve,* Lieutenant-Colonel A. A. Watson, D.S.O., Major S. G. McAllum, M.D., and Captain J. G. McCutcheon, M.B.; *Temporary Commissioned Officers,* Colonel Sir T. Crisp English, K.C.M.G., M.B., F.R.C.S., Major P. Turner, M.B., F.R.C.S, and Captain A. R. Owst, F.R.C.S.; *Consultants,* Major-General Sir George Makins, G.C.M.G., C.B., F.R.C.S., Major-General Sir Bertrand Dawson, G.C.V.O., C.B., M.D., Major-General Sir Anthony Bowlby, Knt., K.C.M.G., K.C.V.O. C.B., F.R.C.S., Brevet-Colonel Sir W. Hale White, K.B.E., M.D., and Sir Norman Moore, M.D., F.R. C.P., President Royal College of Physicians; *Ireland,* Colonel W. Taylor, M.B., F.R.C.S.; *Scotland,* Colonel H. M. W. Gray, C.B., C.M.G., F.R. C.S., and Colonel Sir H. Styles.

It will be seen that the committee contains representatives of the Regular, Territorial, Special Reserve and Temporary officers, as well as a few non-commissioned officers and distinguished physicians and surgeons, whose connection with the corps, is simply of a consultant character. The permanent memorial, or monument, will be erected on a central site in the metropolis, and it is recommended by the committee that replicas of it should also be placed in Edinburgh and Dublin. The number of officers of the corps who laid down their lives for their country is 560, while over 4000 men of other ranks were killed, or died in discharge of their duties. During the war 17,338 officers, and 179,711 men served in the corps.

The Director General of the Army Medical Service has published to-day the following recommendation of the committee, with a view to elicit subscriptions from the public, as well as from the medical profession, and having regard to the notoriously difficult, dangerous, and useful responsibilities discharged by the corps, it is probable that the sum of money needed, though a large one, will be promptly forthcoming: (1) That a permanent memorial or monument be erected in London, with, if possible, replicas in Dublin and Edinburgh. (2) That a fund be formed from which grants in aid be given to the families of officers, non-commissioned officers, and men of all branches of the Royal Army Medical Corps who have fallen

or been disabled in this war, or who may be in necessitous circumstances owing to the exigencies of military service. (3) That scholarships or memorial prizes for officers and men of the Royal Army Medical Corps be founded for research work. The Duke of Connaught, late Governor-General of Canada, is the new honorary chairman of the committee.

The Post Graduate Scheme for London and the Provinces.—The scheme for post graduate education with which the name of Sir William Osler is intimately connected has already been outlined in your columns. This week, at a meeting held at the house of the Royal Society of Medicine, the details of the scheme were approved of unanimously, though there were differences of opinion as to the preparatory part which it was proposed that London should play in the organization. It is almost inevitable that this should be so at first, but the various post-graduate organizations are to acquire complete independence and self-government under the scheme.

Honors for Service Men.—Canada, the oldest dominion in the Empire, has definitely pronounced against the principle of titles—hereditary or otherwise, but at home their bestowal is regarded as a convenient and extraordinarily cheap manner of rewarding public service. A long list of so-called "New Year Honors" has found its way into the *Gazette* this week, and among the names are five medical men, viz., Dr. Norman Moore, Mr. J. M. Cotterill, Dr. Edward Malins, Mr. C. S. Tomes and Dr. T. J. Verrall. Dr. Norman Moore, devoted historian of St. Bartholomew's Hospital and an authority on medical history and archæology, obtains the baronetcy that is almost traditionally attached to his important post of president of the Royal College of Physicians of London. The other four doctors receive knighthoods. Mr. Joseph Cotterill, a famous Scottish surgeon, was in his youth an eminent cricketer, and during the war has been commandant of the Edinburgh Military Hospital; Dr. Malins, a Birmingham obstetrician, has been a generous benefactor to projects of public utility; Dr. Verrall acted as Chairman of the Central Medicine War Committee throughout the valuable existence of that body; and Mr. Tomes is the dental authority on the General Medical Council, where he sits as a nominee of the Crown. Mr. Glyn-Jones, a pharmacist and secretary of the Proprietary Articles Trade Association, has also been knighted. A member of Parliament, he acts in the House of Commons as Parliamentary Secretary to the Pharmaceutical Society of Great Britain.

The Risk of Rabies; a Dog Landed in a Bag.—Only last week I surmised that the outbreak of rabies in the metropolitan area, and earlier in the south and west of England might have had origin in the smuggling over of pet dogs from infected districts on the Continent. This week a remarkable confirmation of this idea was received from the proceedings at the Croydon police court, when a captain in the Royal Air Force was convicted and fined for landing a fox-terrier surreptitiously on his return from Holland as a repatriated prisoner. The defense put up for this erring officer was that, having been out of England, he knew nothing of the Importation of Dogs Order, but the plea was rather a cynical one to make in face of the fact that the dog was smuggled through the port of entry in a handbag. Moreover, the officer's statement that the dog was worth a good deal of money showed a pecuniary motive for disregarding the public safety. It is well that a good deal of publicity was given to this case, as there are many members of the public who might be tempted to bring a dog into the country, feeling certain that their pet, at any rate, must be free from infection. The sooner the public understands that the law against the importation of dogs, framed in behalf of public safety, cannot be defied with impunity, the better chance there will be of the eradication of rabies.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

PARIS, April 20, 1919.

Sanitarians en Route to the Cannes Health Conference.—Several British and American specialists have arrived in Paris, on their way to Cannes, to participate in the International Conference of Red Cross Societies. Among them are Colonel S. Lyle Cummings, Dr. William H. Welch, Colonel F. F. Russell, Dr. Herman M. Biggs, Dr. E. R. Baldwin, Dr. Emmett Holt, Lieutenant Colonel Sir Ronald Ross, Dr. Samuel McClintock Hamill, and Dr. Fritz F. Talbot, Sir Arthur Newsholme of London, and Dr. Truby King of New Zealand.

Professor Roux, Professor Vidal, Dr. Edouard Rist, Dr. Bernard, Dr. Laveran, Dr. Millian, and Dr. Armand Delille will join the other delegates in preparing a programme of united action to relieve suffering and combat disease in the interest of all peoples.

The first week's sitting of the Committee of the "Big Five" Red Cross Societies has been entirely devoted to the consideration of the Central International Health Bureau, required to act as a linking-up agency for the Red Cross societies of the world. On Monday the Conference will devote itself to the consideration of the reports presented by various groups on venereal disease, nursing, preventive medicine, hygiene, tuberculosis, and malaria. One of the interesting personalities of the Conference is the eminent Frenchman, Dr. Edouard Rist, of the Service de Santé, who acts as interpreter. Most of the speeches are made in English, but the French, Italian, and Japanese delegates speak in French. Dr. Rist, at the conclusion of each speech, gets up and makes perfect translations. His English is a constant wonder to all who listen to him. Indeed, some of the delegates laughingly state that he improves their original remarks in translating.

The outstanding speeches at the conference were made by Sir Ronald Ross, Sir Robert Philip, Professor Roux of the Pasteur Institute, and Dr. Truby King of New Zealand. Sir Robert Philip regretted that it was not possible to distribute by means of the gramophone throughout the world some of the information discussed at the Conference. Professor Roux urged that the Central Red Cross Committee should become a center of stimulation for medical research for mankind. Sir Ronald Ross said that he regarded the formulation

of a combined scheme of sanitation as of great moment for the world and one which he had often thought of in the past. He made a forceful appeal for the provision of adequate means for research work by the central health body to be set up, and referred to the fact that his work had often been hampered through lack of funds. Dr. Truby King quoted Huxley as saying that science was merely "crystallized common sense" and what was needed was to tell the man in the street health facts in simple language. He referred to the appalling fact that half the inmates of our lunatic asylums were suffering from a disease introduced during the first nine months of their life, and he made an appeal that the great health crusade to be undertaken should concentrate on the children.

The American Committee for Syria and Armenia has sent a mission of 42 members, who have just landed at Beyrout. The object of the Committee is to open free dispensaries and assist the work of the Red Cross organizations.

Red Cross Relief for Poland.—A train of sixty cars carrying 2,000,000 francs ($400,000) worth of relief supply, and fifty physicians, nurses, and sanitary workers from the American and Polish Red Cross societies is on its way to the territory east of the River Bug, where the greatest suffering and destitution prevail as a result of typhus and hunger. Headquarters will be established at Brest-Litovsk. The train also carries 400 miles of telephone wire to be used in establishing communication between the units and the general headquarters of the American Red Cross Commission to Poland in Warsaw. The relief equipment also includes six field kitchens and disinfecting plants. The purpose ultimately is to turn over the whole health organization to the Polish National Red Cross.

The despatch of this relief train was found necessary through the investigating expedition recently sent out by the American Red Cross Commission to Poland. The American investigators found food supplies exceedingly scarce in the larger towns and utterly lacking in some isolated villages. The population in Eastern Poland has been reduced almost one-third by disease, hunger, and war emigration. Typhus is epidemic in almost all the small villages and smallpox is to be found in various sections. One-half the medical profession has been lost to the communities through the war, with the result that people have been left with an insufficient number of physicians and nurses.

146, Avenue des Champs Elysées.

Progress of Medical Science.

New York Medical Journal.

May 17, 1919.

1. Encephalitis Lethargica. Alfred Gordon.
2. The Dominance of the Endocrines. William V. P. Garretson.
3. The Maloney Method of Reeducation in the Treatment of Chorea. Morris Grossman.
4. The Physical Condition of Men of the State of New York Between the Ages of Twenty-one and Thirty-one. Isaac W. Brewer.
5. The Health Question of the Man Next Door. A. Brashear Jackson.
6. Operative Bone Surgery. George Chaffee.
7. Postural Treatment of Proctocolitis, Based Upon the Anatomy of the Large Intestine. Arthur A. Landsman.
8. Clinical Similarity Between the Influenza Epidemic and Plague. Anne Young.

3. The Maloney Method of Reeducation in the Treatment of Chorea.—Morris Grossman points out that for a clear understanding of the clinical entity known as chorea, which is more frequent in girls than in boys in the proportion of three to one, it is essential to limit the application of the term to a disturbance of the central nervous system characterized by sudden, rapid, widespread, seemingly involuntary movements, devoid of outward purpose, yet not wholly beyond the control of the will, and aggravated in excited, and moderated in tranquil states. The term minor chorea should be applied only to cases in which, with or without the occurrence of an infectious process or of an emotional crisis, these characteristic movements spontaneously begin, gradually becoming more conspicuous. There seem to be two types; one in which infection and emotional accidents are blamed, the other in which these factors are not implicated. There are also two types of patients; those who before the disease were notably restless and excitable, and those who did not differ markedly from the average child. In the latter, onset of the disease can often be traced to some infection; whereas in the former the disease more often dates from some emotional stress. Physical examination as a rule does not reveal any great change in the size of the muscles, although the tone may be slightly diminished. Superficial reflexes are usually present and sometimes unusually active on both sides; deep reflexes are normal as a rule, and sensation undisturbed. Pathologically neither gross nor microscopic lesions have been found in a sufficient number of cases to afford a definite structural foundation for the symptoms. The bacteriological findings suggest a clinical phenomenon resulting from the action of a bacterial toxin upon the cortical tissues. It would seem from evidence available that there is no distinct causal relationship between rheumatism, endocarditis, and chorea; there is, however, a close association in about 20 to 25 per cent. of cases. *Treatment:* Patient should be confined to bed during the acute stage. All mental and intellectual efforts should be avoided, and all emotional influences shunned. A competent nurse and a well ventilated room are of value, with bland diet and hydrotherapy in the form of tepid douches or packs. In severe cases continuous warm or tepid packs are of great benefit in soothing the patient. Bowels should be kept open and a mild saline given if necessary. A thorough course of salicylates should be given in cases with a rheumatic history; aspirin or salicylate of soda up to five-grain doses with ten grains of bicarbonate of soda should be given every four hours to a child of ten. If there is no history of rheumatism, arsenic in the form of Fowler's solution (diluted with half its bulk of distilled water in the case of a child of ten), or Donovan's solution may be given. The urine should be closely watched for albumin; diarrhea or puffiness of the eyes should be followed by immediate reduction of the arsenic or its temporary discontinuance. In cases with marked motor unrest, bromides in five-grain doses every four hours may be given by mouth. Salvarsan and neosalvarsan have been advocated on the assumption that chorea was a manifestation of syphilis; the author, however, believes that in the small proportion of cases in which syphilis was present, it was merely a coincidental condition. The subcutaneous injection of magnesium sulphate solution, the intravenous injection of dilute phenol solution, and the intraspinal injection of autoserum have all been tried. The author has found the rest or relaxation exercises described by Maloney of value in quieting the patient during the acute febrile period. The diaphragmatic breathing is of great value in inducing relaxation of the muscles. The patient is asked to take a deep breath using his diaphragm, restricting his thoracic movements, and at the height of inspiration to pause, then slowly and evenly expire, and again pause. This breathing soon tires the patient, so after ten or twelve of these deep respirations have been taken, the depth of inspiration and the pause are shortened until the patient is breathing, without effort, as in sleep. To relax the muscles, passive movements in which the muscles are alternately lengthened and shortened are employed. The muscles of the forehead, cheek, and jaw

are manipulated until wrinkling of the forehead and blinking of eyelids disappear and the muscular spasm is eliminated. Next a shoulder is relaxed, then an arm, a leg, and so on. After a part is relaxed, the parts previously treated should be briefly dealt with again in the order in which they were first relaxed. This is helpful in bringing the entire body into a state of relaxation. During the passive movements, the patient's attention should be directed to the control of the choreic twitchings; gradually this requires less and less effort, and soon complete and perfect relaxation is possible. When the temperature and pulse have been normal for several days and the limbs can be freely moved passively without rigidity or spasm, active movements may be begun. Simple movements—flexion, extension, adduction, and abduction of joints—should be regulated by a metronome. The patient next resists the movement, in order to increase the ability to maintain tonic contraction; and finally the movement is made against the resistance of the operator. When the patient is able, in the recumbent position, to perform normal movements, reeducation in maintaining the normal attitude may be commenced. Creeping on hands and knees, balancing and creeping on knees, and finally maintaining an erect attitude and progression. Changes should be made gradually and fatigue avoided, and rest exercises should be given alternately with active work. Toys and games are useful in helping patients to regain precision of movement; they also interest and amuse the patient. The aim of these exercises is to encourage freedom as well as precision of movement; incoordination is corrected and concentration with increased mental stability is thus promoted.

Journal of the American Medical Association.

May 17, 1919.

1. Differential Diagnosis of Peptic Ulcer. Wm. Fitch Cheney.
2. Theories Regarding Blood Pressure. Harold W. Dana.
3. A Hospital Epidemic of Streptococcic Sore Throat with Surgical Complications. J. J. Keegan.
4. An Old Time Victim of Ametropia and a Modern Instance. E. J. Gardiner.
5. Narcotic Drug Addiction as Regulated by a State Department of Health. Thomas A. Blair.
6. Protrusion of Artificial Pneumothorax into the Opposite Untreated Side. Barnett P. Stivelman and Joseph Rosenblatt.
7. Epidemic Encephalitis Lethargica, or Epidemic Somnolence, or Epidemic Cerebritis, with Report of Cases and Two Necropsies. Beverley R. Tucker.
8. Anterior Dislocation of the Atlas with a Break in the Continuity of the Anterior Arch. Jacob J. Syhenga.
9. Spontaneous Perirenal Hemorrhage (Hematoma). Karl A. Meyer.
10. Postinfluenzal Alopecia. H. H. Hazen.
11. An Index of Body Resistance in Acute Inflammatory Processes as Indicated by Examination of the Blood. Orville J. Walker.
12. The Blood Picture of Those Inoculated with Influenza Vaccine. Guthrie McConnell.

2. Theories Regarding Blood Pressure.—Harold W. Dana has had an opportunity of studying blood-pressure findings in a large number of army officers and candidates for commissions in the army, chiefly men over 30 years of age, medical officers being in a large majority. He states that the more he studies blood pressure, the less sure he becomes of any of the accepted interpretations regarding the test. His observations have led him to the following conclusions: (1) That systolic blood pressures indicate the presence in the circulating blood either of unexcreted putrefactive products absorbed from the intestine, from the kidneys, from focal infections in the dental alveoli, the nasal sinuses, the tonsils, the genitourinary tract, or of secretions in abnormal amounts from the glands of internal secretion. (2) That in some cases at least, a lowered systolic pressure indicates a defective secretion of pressor substances, or an increased secretion of depressor substances by the ductless glands. (3) That the diastolic pressure, when it fails to conform to its normal ratio with the systolic pressure, is also influenced by abnormal products of metabolism or by abnormal amounts of the ductless gland secretion in the blood stream. (4) He does not believe that either the systolic or the diastolic blood pressure gives any certain indication as to the condition of the cardiovascular renal system as such; but that when changes in the vascular system are accompanied by hypertension, neither condition is secondary to the other, both being secondary to the presence of unexcreted toxic products of metabolism in the circulating blood.

The Lancet.

April 26, 1919.

1. Some Aspects of the Influenza Epidemic. Being the Summary of Two Clinical Lectures Delivered in the Edinburgh Royal Infirmary. William Russell.
2. Experimental Studies with Small Doses of *X*-rays. S. Russ, Helen Chambers, Gladwys M. Scott, and J. C. Mottram.
3. Some Remarks on the Psychology of Internment, Based on the Observation of Prisoners of War in Switzerland. R. Bing and A. L. Vischer.
4. Some Cases of Gunshot Wounds and Other Affections of the Chest Treated by Breathing and Physical Exercises Cortlandt MacMahon.

3. Some Remarks on the Psychology of Internment, Based on the Observation of Prisoners of War in Switzerland.—R. Bing and A. L. Vischer point out that any path of life which diverges from the ordinary and along which bodies of men find themselves obliged to travel will in a short space of time affect the mentality of the travelers, and that the same objective influences operating upon different minds often produce psychical results of striking similarity. This has been seen among the members of Arctic expeditions, among exiles in Siberian prisons, and particularly among prisoners of war in internment camps. The name of "barbed wire disease," or in French "psychose du fil de fer barbelé" and in German "Stacheldrahtkrankheit," has been given to this psychoneurosis. This name seems to have originated in Switzerland though its exact origin cannot be determined; it has, however, established itself so thoroughly that it is already found in international treaties. There are essentially three abnormal conditions reacting on prisoners of war: the deprivation of liberty, the heaping together of the prisoners one upon another, and the uncertainty of the duration of their internment. The monotony, and particularly the lack of privacy, engenders a nervous irritation which reacts with especial force upon the more sensitive personalities. At first the prisoners seek in a feverish activity an antidote to the remembrance of the horrors through which they have passed, the anxious waiting for letters and constant homesickness, and the anxiety for the future, but little by little interest in sports, theatricals, concerts, etc., disappears and they come to live in a grey and dreary shadowland; their emotions become blunted and give place to apathy. The first sign of a neurasthenia is an increase of irritability. The men will not suffer the slightest contradiction; they become argumentative and obstinate and exhibit a characteristic lack of judgment, and there is a great deal of quarreling. They lose the power of concentration, and pathological fatigue which makes it impossible to read even a few pages consecutively, has its counter part in the motor system and often leads the soldier to sacrifice the little exercise he is permitted. There is also a striking loss of memory of people and places. Among the secondary symptoms insomnia should be mentioned; in some camps it is widespread, in others unimportant. Asthenopia is particularly noticeable in artificial light. Many men grow suspicious, and all have a marked tendency towards pessimism. Sexual impotence is common. The authors have been interested in observing the effect of transfer to a neutral country on these nervous and physical anomalies. They have found that as a rule the unnatural irritability disappears within a few weeks of the arrival of the prisoners in Switzerland; on the other hand, improvement in intellectual stability and concentration takes place very slowly; there is, as the British say, "a difficulty in settling down." The men have the greatest difficulty in confining themselves to a single occupation or their thoughts to one order of ideas; very often they cannot even attend a cinematograph performance. Disturbances of memory are also very remarkable; one man was unable to remember the name of the village from which he came; another, a lawyer, could not remember about a trial in which he had been greatly interested, nor could he recollect the name of his client. This symptom is distinguished from other mental phenomena of the internment psychoneurosis by the fact that it is foreign to simple neurasthenia. Insomnia and impotence as a rule disappear, but many of the interned men give the im-

pression of a personality that has been profoundly changed. Their families, on coming to see them, find them completely altered; the authors, however, strongly insist upon the good influence that some of the men derive from the visits of relatives, as by this means a living contact is established with the family—the fundamental basis of social life. Among the intellectuals there is often an extreme sensitiveness; they tend, in spite of themselves, to misunderstand a gesture, a tone or even a silence. There is also a certain shyness, which is not misanthropy but a consciousness of abnormality. Many even believe that their nervousness has grown worse in Switzerland. This, however, is not the case and the authors assert that the nervousness, in reality, gradually decreases as a result of the changed environment. They add that these observations, though slight, will suffice to make manifest in a new light the great humanitarian value of neutral internment.

British Medical Journal.

April 26, 1919.

1. A Lecture on the Practical Importance of Vitamines. F. Gowland Hopkins.
2. A Collective Investigation of Ten Thousand Recruits with Doubtful Heart Conditions. Third Report. S. Russell Wells.
3. A Plea for the Homogenous Nerve Graft. E. Welby Fisher.
4. Hyperpyrexial Heatstroke: A Brief Note on Its Etiology and Prevention. K. G. Hearne.
5. A Stock Vaccine in Pneumonia. W. F. Theodore Haultain.
6. The Health Resorts and the State. Charles W. Buckley.

1. A Lecture on the Practical Importance of Vitamines.—F. Gowland Hopkins draws attention to the fact that in a proper diet sufficient for the needs of the body something more is required than the protein, carbohydrate, fat, and mineral salts which were formerly considered the only essential constituents. An efficient diet must possess vitamines, the importance of which is out of all proportion to the minute quantities in which they are consumed. That this is so is proved by the following: if animals are fed with a mixture containing pure protein such as purified casein from milk, purified starch, and pure sugar together with a vegetable fat and the requisite mineral salts, normal growth will fail in young animals and, sooner or later, all animals, even adults, will die. The author points out here that such a diet is wholesome, is fully digested, and can be eaten in ample quantity for growth and maintenance, and yet there is failure of growth and maintenance. If, however, a minute quantity of some preparation made from plant or animal tissues, for instance, milk which was used in the author's experiments, the young animals grew satisfactorily. The diet must contain something made originally by living cells. All our natural foods are parts of tissues which have lived and we owe our supply of them to the plant, for the plant makes and stores these essential substances in very small quantity. It would seem that these vitamines are not made in the animal body and that the animal depends ultimately upon the plant for a supply. They accumulate in the tissues of herbivorous animals and there, as well as in the plant, they are available for human consumption. Without these minute quantities of accessory substances, perfectly wholesome and necessary foodstuffs are not, in any complete and proper sense, utilized at all; they are absorbed and energy is liberated but the co-ordination of metabolism is absent. The exact nature of the vitamines is not known; but they are nutritive essentials not directly concerned with the supply of potential energy. Efforts have been made to effect their isolation, but as yet without success. There are at least three of these substances, each having its own function in nutrition. Two of these are of especial importance to nutrition; one associated with certain fats, the "Fat-soluble A," and one soluble in water, the "Water-soluble B." Both must be present in sufficient amount in any dietary providing proper nutrition. The prevalence of beriberi, a deficiency disease, in certain rice-eating communities of the East is a good example of this. The disease has been shown to be due to the use of polished rice, from which the vitamines containing "silver-skin," the thin layer which lies on the outer part of the husk-free seed, together with the germ or embryo has been removed by modern milling machinery recently introduced from the West. Reference was previously made to the effect of feeding an animal upon a non-vitamine containing diet, the fat given being a vegetable fat. If this vegetable fat is substituted by butter, or any other animal fat, growth will occur if small quantities of watery extracts made from various plant or animal tissues are added. Since the animal fat contains the "Fat-soluble A," all that is necessary is to add the "Water-soluble B," which is contained in the watery extract. If a vegetable fat is again substituted for the butter, the watery extract will naturally have no effect since the "Fat-soluble A" is lacking. Its absence from vegetable fats is due to the fact that it is left behind when the fats and oils are expressed and extracted. This substance is abundant in butter but, strange to say, absent in lard. The water-soluble vitamine is the substance which rice loses when it is polished, and is the very substance that is necessary for the prevention of beriberi. One of the special characteristics of this disease is a disturbance of the nutrition of the nerves; a degeneration of the nerves occurs with accompanying paralysis. Birds when fed exclusively on polished rice display this particular symptom; after three weeks upon a diet of polished rice, a pigeon or a fowl will suddenly develop acute symptoms of paralysis. The effect of absence of the fat-soluble vitamine in the diet is more difficult to observe, because animals possess a supply of this substance in their own fat stores and appear able to draw on this until their store is exhausted. It is probable that in rickets a deficiency of this fat-soluble vitamine plays a causative part. Mellanby has shown that dogs fed on a diet lacking this essential, though kept in healthy surroundings and given exercise, speedily develop this condition. He has also shown that this can easily be prevented by giving fats which are rich in the fat-soluble vitamine, though vegetable fats are without effect. The author states that although other factors, such as deficient hygiene, may be contributory, he is quite convinced that the dietetic error is the primary cause of the condition. Furthermore it has been demonstrated by Mrs. Edward Mellanby that deficient diets involve grave errors in the growth of teeth in young animals. Cod-liver oil stands preeminent as a fat rich in vitamines and capable of curing rickets in dogs, and it has long been known to have a favorable influence on the disease in infants. It has been found of great benefit in preventing rickets in infants in a negro community where the dietetic standards are low. Scurvy is another deficiency disease which arises when no fresh foods are available and which teaches us that a third vitamine exists, the antiscorbutic factor which, unlike the antineuritic ("Water-soluble B") or the fat-soluble substance is very unstable and is rapidly destroyed when fresh fruits are heated, dried or kept too long. Pellagra is also due to the absence of some specific necessary nutritional factor from the diet. To show the national importance of these facts, the author refers to the sufferings of the British troops from scurvy during the siege of Kut. He also points out that although the absence of certain factors, or their presence in insufficient quantities, in diet may not lead to symptoms sufficiently marked to be considered as a definite disease, malnutrition and a great deal of ill health may result which could be prevented. This is of course particularly true of the poor, whose food consists largely of bread. The elaborate milling and "refining" which the whole grain suffers before it appears in the form of our white flours deprives it entirely of its water-soluble vitamine, and this illustrates the danger of "fractionating" natural foods. Again, margarine is a vegetable fat and therefore is devoid of the fat-soluble vitamine. It is easily seen therefore that white bread and margarine is a desperately bad combination. Many of the advertised breakfast and invalid foods are also lacking in vitamines. In connection with the antiscorbutic vitamine, the author points out that tinned foods are largely used in poor households, chiefly because they require no cooking. He emphasizes the fact that absence of an essential vitamine means disease; but no more than a relative deficiency of a vitamine may mean bad nutrition. It is the children chiefly who suffer, and it is important that the facts should be recognized, as the consequent ill health is often misunderstood and wrongly treated. It should be recognized also that in the case of the nursing

mother, since vitamines are not made in the animal body, should her diet be deficient in vitamines her milk would also become deficient—to the complete detriment of the nutrition of the child. Professor Hopkins adds that the study of vitamines is yet in its infancy; he believes, however, that no matter whether these substances prove to be of more or less importance than is thought at the present time, the subject is one that should in any case awaken public interest.

American Medicine.

April, 1919.

1. The Physics of the Chest and Their Relation to Diseases and Injuries of the Thoracic Organs. James Barr.
2. Chorea. George T. Stevens.
3. Pulmonary Tuberculosis Cases Treated with Ultraviolet Light. Ernest Zueblin.
4. The Prevention of Goitre. Israel Bram.
5. A Plan for the Eradication of Venereal Diseases in Localities. Edmond Souchon.

1. The Physics of the Chest and Their Relation to Diseases and Injuries of the Thoracic Organs.—James Barr points out that in his Bradshaw lecture, delivered in 1907, he somewhat forestalled many of the observations on the chest wounds in the present war. Inter alia, he said: "With care atelectasis is easily differentiated from pleural effusion even when the dull percussion is absolute and the respiratory and vocal phenomena absent. In atelectasis of one lung the affected side is smaller than the other, the ribs are closer together and more sloping, the costal angle more acute, the diaphragm raised, the dull percussion barely reaches the middle line in front, while the sound lung passes beyond the medial line, the heart is either not displaced or slightly pushed over by the sound lung." In pleurisy there is no sudden arrest of the effusion as in hemothorax, but it gradually accumulates, and as the pressure becomes positive you get collapse from below upwards, but there can be no general collapse of the lung until the intrapleural tension becomes sufficiently positive to overcome the intrapulmonary pressure minus the elasticity of the lung. Even before there is any general positive pressure, if there be a difference in pressure in the two pleuras the heart may be pushed or drawn over to the side where the negative tension is the greatest. As the effusion increases the tension becomes more and more positive, and eventually there is not only complete collapse of the lung, but the heart and neighboring organs get much displaced, and the diaphragm pushed down so as to depress the abdominal organs. If you withdraw the effusion and substitute fluid air for the liquid you can now easily regulate the pressure, which then becomes equal all around the lung and not according to the depth of the liquid. If you are careful to leave a pressure in the pleura less than that of the atmosphere in the ultrapulmonary air sacs you encourage the gradual expansion of the lung and the restoration of its elasticity. On the contrary, in hemothorax the tension rarely, if ever, becomes positive, hence you get sinking in of the chest walls and a rise in the diaphragm which becomes fixed in its elevated position. Owing to the complete collapse of the lower lobe there is no intrapulmonary pressure to assist in the expansion of the collapsed lobe. In empyema the pressure is frequently higher than in serous effusion, and when the tension is very high there is not only complete collapse of the lung, but you may have the pulsations of the heart communicated to the liquid, giving rise to a pulsating empyema. The lung is kept expanded by the negative tension within the pleura, and the greater and more active the inspiration the greater the negative tension, but not infrequently, especially in many wasting diseases where the demand for oxygen is not great, the negative pressure may fall to a very low ebb or may disappear, especially at the base and posterior surfaces of one or both lungs, the inspiratory movements being confined to the upper part of the thorax. In such cases partial atelectasis is of one or both lungs, or almost complete atelectasis of the lung of the side on which the patient has mostly lain is not at all uncommon. Massive collapse mostly occurs in the lower lobes, and is especially apt to occur in young, flat-chested individuals with pliant chest walls. When these cases are discovered in the early stages they are frequently mistaken for pleural effusion, an error which is apt to remain uncorrected if an exploratory needle be not inserted into the chest. The careful physician should avoid exploratory operation until all other methods of diagnosis have failed him. With reference to emphysema, Barr says that in emphysema the chest becomes barrel-shaped, except in the senile type, and the costal cartilages rigid; so the chest walls assume their largest possible dimensions, the lungs lose their elasticity, the recoil of the chest walls and the intrapleura negative tension disappear. Consequently, the only part of the respiratory pump which remains in action is the diaphragm, which is a very poor affair compared with the movement of the pliant chest walls; thus the vital capacity is much diminished. If the pump action be completely abolished the blood can only enter the chest under positive pressure. The veins of the chest remain full and tense even in inspiration, and the right side of the heart does not receive any respiratory assistance. According to Barr if you wish to retain a healthy chest, you must maintain a good vital capacity, for which purpose pliant chest walls are essential. You must not allow any calcification of your costal cartilages to take place. In the respiratory pump action which maintains the vital capacity the movements of the chest walls are equivalent to more than double that of the diaphragm. Everyone should be taught chest breathing, and leave the diaphragm to look after itself: it is an adventitious agent which will naturally come into play when required. In emphysema the difficulty is not so much in getting air into the chest as in driving it out, hence a elastic band worn moderately tight around the chest assists expiration and gives more work on inspiration, which helps to establish a negative pressure within the chest. As for pneumonia, on the affected side the movements are diminished, the negative pressure is lessened and gradually becomes positive, but not to such an extent as to cause displacement of the heart and other organs. At first the loss of elasticity of the lung may be greater than that of the chest expansion, so that the intercostal spaces are depressed in inspiration. However, the affected lung may become so large as to abolish the recoil of the chest wall and the lung be marked by the pressure of the ribs. The blood is often badly oxygenated, but this is rarely, if ever, a cause of death, while on the other hand the greater percentage of carbonic acid in the blood stimulates the respiratory center and keeps up the pump action.

Le Progrès Médical.

March 29, 1919.

Syndrome of Raynaud.—Rathery reports seeing three cases of this syndrome in subjects attacked with chronic nephritis, tuberculosis, and diabetes. It is not strange that this experience should influence one to speak of syndrome rather than autonomous disease. The nephritis patient presented in a high degree the phenomena which characterize the syndrome. The entire history of the patient and even the family history showed marked predisposition to cardiovasculorenal disease for the mother had been a cardiorenal patient and patient had been attacked in her youth with both scarlatina and acute articular rheumatism. She had had one attack of hemiplegia from which recovery ensued. With the peripheral gangrene associated with the Raynaud syndrome were other areas of dry gangrene, as one in the region of one elbow which were doubtless due to arteritis of the same or an analogous type. Much more atypical was a case of gangrene in the feet seen in a diabetic. Such a condition is not usually classed under Raynaud's syndrome, but as a positive Wassermann was present the real motivation for the gangrene may have been a syphilitic arteritis. In addition tuberculosis was found at autopsy. The author appears to think that the presence of the chronic pulmonary trouble by disturbing the peripheral circulation (drumstick fingers, etc., were present) may have been a factor in the genesis of the gangrene. However, the fingers were not attacked by the gangrene, which was of the dry type in the feet and toes. Of the three factors present—diabetes, syphilis, and tuberculosis—no one seems to have the priority. The third patient suffered like the first from chronic nephritis, but without complications.

Society Reports.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

One Hundred and Thirteenth Annual Meeting, Held in Syracuse, May 6, 7, and 8, 1919.

(Special Report to the MEDICAL RECORD.)

SECTION ON MEDICINE.

(Continued from page 894.)

A Clinical and Bacteriological Study of Fusiform Bacillus Infection.—Dr. R. R. MELLON of Rochester made this presentation (by invitation). The speaker said he would confine himself to the clinical side of the picture. The word fusiform bacillus infection was used in the generic sense, indicating the organism responsible for Vincent's angina and ulcerative conditions of the throat. These organisms closely resembled the diphtheria bacilli, the streptothrices, and throat fungi. It had been difficult to infect experimental animals and the relationship to human disease had been questioned. Flexner, however, had produced lung lesions closely resembling tuberculosis, and Bunting had produced fibrosis in guinea pigs, by infection with diphtheroid bacilli. Actinomycotic lesions had been produced in the lungs which were very easily confused with tuberculosis. Case histories of this infection were cited. One, a young girl, 17 years of age, with chronic cough, relapsing fever, and occasional small hemorrhages. She was sent to Saranac Lake, but tubercle bacilli were never found and Dr. Kinghorn said the lesion was non-tuberculous. She had a purulent sputum which contained non-acid fast organisms of a fusiform type. The *x*-ray showed bronchiectasis with interstitial fibrosis. Subcutaneous injection of the organism in guinea pigs produced marked fibrosis. The second case was one of acute bilateral empyema which at the end developed mental symptoms and the patient developed extensive meningoencephalitis. At autopsy the lungs were negative. In the aortic valve were millions of coccoid and bacilloid forms. The cerebrospinal fluid was purulent. Case three was a unilateral empyema. Case four was an acute bronchitis. Case five a gangrenous balanitis. The man went five months without consulting a physician and when seen the penis was the size of an orange. There was a purulent exudate with millions of fusiform organisms. Wavy filamentous forms were isolated from the blood. The Wassermann test and complement fixation for gonococcus were negative. The sixth case was gangrene of the lower extremities, diagnosed as Raynaud's disease. There was history of severe mouth infection. The Wassermann test was negative. The seventh case was one of painless arthritis of the knee in a boy. The exudate showed myriads of coccoid organisms and filamentous forms. After tonsillectomy the patient recovered. The eighth case was one of Dupuytren's contraction following streptococcic infection. There was slowly progressing adenitis with spondylitis. A pure culture of a spirillum was obtained from the tonsillar crypts. With tonsillectomy there was disappearance of the spinal symptoms, but no effect on the Dupuytren's contraction. There was one case of mandibular ulcer; one of dropping out of the teeth in a boy six years old; two cases of mycotic pharyngitis; one of mastoiditis; several cases of post-partum fever; one case of toxic hypochromic anemia simulating pernicious anemia; one unilateral salpingitis in a very young child in whom there was obviously no gonorrheal infection. In all of these cases the same coccoid form was found frequently associated with wavy, filamentous forms in the blood. Some of these forms might be secondary invaders, but in view of the pathology one was not justified in regarding these organisms as purely saprophytic.

Dr. AUGUSTUS WADSWORTH of Albany said it was of the utmost importance to have records and cultures of infections that simulated tuberculosis. It was interesting that Dr. Mellon had been able to gather so many cases apparently incited by this organism. The inference might be, although this was not certain, that there were a much larger number of cases living. In many cases of supposed tuberculosis it was difficult to demonstrate the tubercle bacillus and one was at a loss to know what to do. To order the patient to a tuberculosis sanatorium was to run the risk of infecting by contact a non-tuberculous patient. Therefore these studies were of the greatest importance and Dr. Mellon was to be congratulated upon the care and thoroughness of the pathological and bacteriological studies of his cases.

Dr. MITCHELL of Albany said that this fusiform organism associated with a spirillum was very commonly met with. It caused a necrotic condition of the tissue with foul odor, described by Dr. Mellon. Just what the relationship was of the organism to the condition was not yet clear. It was constantly met with in wounds and the laboratory worker could describe the wound to the surgeon by observing the flora found there. There was marked necrosis of the floor of the wound. In regard to the mouth, conclusions should be drawn with the greatest care, as these were the predominating bacteria found there. Many mistakes were made by calling ulcers round the gums Vincent's angina. Everybody's mouth would yield such organisms. Dr. Mellon's work was very instructive, but he thought that Dr. Mellon did not want them to conclude that the flora was the cause of the necrotic lesion.

Dr. JENKINS of Albany said he was not a laboratory man, but he had worked at Plattsburg and when in doubt he referred things to Dr. Wadsworth. There were two cases of doubtful diagnosis: one supposed to be tuberculosis had a leucocytosis of 25,000. There were no tubercle bacilli, but there were fusiform organisms. At Camp Choate there was one case reported diphtheria, but the findings showed a pneumococcus. Another was a case of marked gingivitis in which the smears showed fusiform bacilli and spirilla. One case had a plus Wassermann and the medical officer mantained that the cases were syphilis. The dentists got many cases. With the use of formaldehyde they recovered promptly.

Dr. MELLON said that he had not been able to present conclusive evidence that the organism found was the cause of the condition. Experimental work on animals was still being carried on. As to the fact that the fusiform bacilli were found in the pharynx and mouth, he did not think that had any weight, because the same thing was true of the streptococci, especially *S. viridans* and sometimes *S. hæmolyticus*, in which case there was no pathological lesion. The same thing was true of the intestinal tract. These infections were conditional infections—in fact, all infections were—and some were more virulent than others, but, as Dr. Cole and others brought out the day before, although the pneumococcus was the organism that caused pneumonia, there were a large number of other factors of a preliminary nature which made it possible for the pneumococcus to take root, and the same thing was true to a greater degree in this infection. A large number of the cases of "trench mouth" reported in England seemed to be contact infections. There was no proof that the organisms found in normal mouths could not become pathological under certain conditions.

The afternoon session was a joint meeting with the Section on Surgery, and was devoted to a Symposium on Anemias.

DR. A W. BOOTH OF ELMIRA IN THE CHAIR.

Diagnostic Methods.—Dr. ARTHUR HAWLEY SANFORD of Rochester, Minn., made this presentation (by invitation). The subject, he said, was so large that it was impossible to do justice to it in an afternoon's discussion. Some of the points which he was obliged to leave out, he hoped would be touched upon by other speakers. The Addison type of pernicious anemia had been termed by some writers the "so-called" pernicious anemia. There was some unknown cause operating which accelerated blood destruction. The true, primary pernicious anemia was very difficult to differentiate from other diseases which have anemia for a cardinal symptom, but perhaps owing to better ob-

servations, the profession were certainly diagnosing more cases of pernicious anemia than they did ten or fifteen years ago. In patients with a color index of one, with a slight icteric tinge of the skin, and with complaint of general weakness, one might suspect the disease. Certain diagnostic points had been evolved to aid in determining the conditions, such as the analysis of gastric contents, consideration of neurological symptoms, fragility of the erythrocytes, presence of urobilin or urobilinogen in the stools or urine, presence of syphilis, examination of the stools for parasites, inspection of the mouth, especially the tongue, teeth, and tonsils. In pernicious anemia there was usually found an achlorhydria with absence of free acids. The nervous symptoms of pernicious anemia resembled those of tabes dorsalis, but the involvement was not only in the posterior columns, but in the anterior horns as well, and definite degenerative areas in the posterior portions of the cerebrum were noted. The clinical manifestations of somnolence and delirium, however, were probably of toxic origin. Reactions showed that the sensations of heat and cold, pain and touch, were diminished, but reflexes were increased rather than diminished, as in tabes. The Babinsky reflex was increased, and there was Romberg sign with spasticity, rather than ataxia of gait. Of 150 cases examined at the Mayo clinic, 80 per cent. showed nervous tissue degeneration. Ophthalmological examination also showed changes in the retina. As regards other anemias with somewhat similar symptoms, the anemias of ancylostoma and that associated with *Bothryocephalus latus* had been described by some writers as "pernicious anemias with known etiology." Hemolytic jaundice presented a similar blood picture to that of pernicious anemia, but a differential diagnosis was of importance because splenectomy often originated a cure in hemolytic jaundice. Schneider's test for hemolytic jaundice consisted in the recovery of urobilin and urobilinogen from the duodenal contents by the Einhorn method. In this disease the bile registered 3,000 to 4,000 units, as against a normal of a hundred units. In severe anemias a Wassermann test should be made to exclude syphilitic anemias. Many patients responded to antisyphilitic treatment, but some did not do so until after the blood picture had been improved. Some patients whose blood gave a positive Wassermann did not respond to any therapeutic measure, and the question might arise "Does the pernicious anemia produce changes in the blood which give rise to the positive Wassermann reaction," The evidence was doubtful, because many cases of pernicious anemia did not give a positive Wassermann. In anemias due to parasites, such as hookworm and *Bothryocephalus latus*, proper treatment brought about a cure, but often in pernicious anemia there was an amebiasis, which, however, was probably due to secondary infection caused by lowered resistance. The removal of the parasite did not change the blood picture. *Balantidium coli*, a tropical parasite, frequently caused the blood picture of pernicious anemia. Inspection of the mouth in pernicious anemia was important and would reveal the absence of the papillæ—the typical "ball tongue"—with more or less severe glossitis. The splenic anemias and the pseudoleucemia (of von Jaksch) were not easily confused with pernicious anemia. They were curable by surgery, and the anemia due to myxedema could be modified by endocrinal therapy.

Medical Treatment.—Dr. Louis Virgil Hamman of Johns Hopkins Hospital, Baltimore, Md., read this paper (by invitation). He said that ignorance prevailed as to the etiology and pathology of the disease. The clinical features were not peculiar to pernicious anemia and consequently the diagnosis had to be one of exclusion, and sometimes the disease was only discovered at autopsy. There were many clinical manifestations of the disease, but one was still ignorant of the way in which the anemia was produced, and the term "hemolytic anemia" did not explain the reactions which occurred in the bone-marrow structure or the state of its exhaustion of production. Under such conditions one could not expect much from treatment, and, strictly speaking, there was no treatment beyond palliative measures. The disease was never cured, but carried the patient down to death. The question arose, however, How far can this termination be postponed? Data were necessary concerning the course of the disease, and yet this had not a smooth and regular march; it progressed with frequent pauses and remission, causing the therapeutist to ignore this tendency and suppose that he had restored the patient to health, happiness, and useful occupation. These states, however, were at best but fleeting. The onset of the disease was insidious and difficult to determine as to time; some patients died within six months, others lasted ten years or more. In regard to treatment three points could be borne in mind: (1) The choice of method to employ; (2) the search for indications as to whether the disease was advancing or was getting better; (3) reliance could be placed on impression gained by daily contact with the disease. Aids to therapy were many and included attention to hygienic diet, with perhaps forced feeding; baths, massage, administration of hydrochloric acid to aid digestion, arsenic, removal of foci of infection, transfusion, and sometimes splenectomy. The reactions to transfusion varied in different patients. In some there was a steady rise of hemoglobin; in others only a transient rise, followed by a fall to the original level. Some patients could be kept alive by repeated transfusions, some grew worse in spite of them. From an analysis of cases at the Johns Hopkins Hospital it was found that neither transfusion, splenectomy, nor removal of foci of infection produced any more lasting or any better results than the older methods of treatment. In one patient, a man who had no other treatment than rest in bed, the hemoglobin rose from 22 to 78 per cent. and the red blood cells from one million to three and one-half million. The blood picture showed so many exceptions and variations in various cases that it could not be used as a gauge to value the methods of treatment. Results therefore had to be estimated by clinical impressions, a very loose standard, but one which allowed the clinician the widest latitude. The speaker said he could sum up his impressions as follows: Recent methods had not altered the results in pernicious anemia. *When* treatment was given was more important than *what* treatment was given; sometimes all methods would cause improvements, sometimes all would fail. Perhaps more desperately ill patients had recovered with the help of transfusion than without it. Remissions were often hastened and sometimes inaugurated by it. Splenectomy had a high death rate and was a formidable procedure, and for this reason had been abandoned at Johns Hopkins. Pernicious anemia was inevitably fatal and treatment could but permit and prolong the remissions. Success, it would seem, depended more upon the use of all methods and the proper combination of them, rather than upon one alone.

Surgical Treatment.—Dr. Donald Church Balfour of Rochester, Minn., sent this presentation, which, in the author's absence was read by Dr. Hunt of Rochester, Minn. Surgery, it was stated, bore an important relation to the treatment of the anemias of splenic origin. It occupied a minor place in the diagnosis and differentiation of the condition, but once the diagnosis was made the surgeon's work was begun. Indications for splenectomy were hemolytic jaundice, syphilitic splenomegaly, Gaucher's disease, and gastrointestinal hemorrhage. In syphilitic splenomegaly operation could restore the blood picture and procure a negative Wassermann. In gastrointestinal hemorrhages, occurring sometimes without a lesion and from results of toxemia, splenectomy caused cessation of the hemorrhages. In pernicious anemia splenectomy was of no avail. In myelogenous leucemia the size of the splen was a direct indication of the severity of the lesion. Its reduction could be effected by radium and after that removal of the spleen could be undertaken, but it was doubtful if the result would be permanent. The operation of splenectomy, as a rule, could be carried out without difficulty and without higher mortality (2 per cent.) than that of other abdominal operations. Sometimes, however, the operation was very difficult. The procedure consisted in an incision close to the left rectus, carried up high to the sternal notch; the gall bladder and liver were thoroughly explored. The spleen would be found in anatomical contact with the diaphragm, the left kidney, the colon, and the pancreas. The spleen was freed from adhesions to the gastrosplenic omentum, and a large pack was placed where the spleen was to be re-

moved to prevent oozing. After ligating the vessels of the pedicle the organ was removed. No unusual risk was run by the operation and it was specific in anemias associated with enlargement of the organ in question.

Transfusion Method.—Dr. RICHARD LEWISOHN of New York presented this paper. He said that his experience with other methods than the citrate was a limited one. In the method outlined the usual attention was paid to the proper grouping of the blood, and the classifying of the blood of the donor and of the recipient in the same group. With care as to transfusion in proper quantity there was then no risk either to donor or to recipient. The methods of vessel anastomosis required skillful surgery, therefore transfusion was not resorted to as often as the welfare of the patient required. Lindemann and Kempton and Brown had done work toward the simplifying of blood transfusion, but the citrate method was fundamentally different from the others in that it made use of a chemical to prevent coagulation of the blood, a result never entirely successfully obtained by other methods. The sodium citrate employed was a nontoxic substance and would prevent coagulation for twenty-four hours. Two steps were necessary: (1) taking the blood from the donor; (2) injection of the citrate into the recipient. Very simple apparatus was needed—a large graduated glass holding 500 c.c., two small flasks, a salvarsan flask, and two cannulas. The insertion into the vein of the donor presented the only difficulty. The donor should be a robust man and a professional donor was to be preferred. Sometimes as much as 900 to 1,200 c.c. was taken. The donor was removed before the recipient was brought in and the second stage was the intravenous infusion of the patient. It could be said that the citrate method did not appeal to all members of the profession on account of the introduction of the chemical into the blood. The coagulation time was a little shortened thereby, but returned to normal in twenty-four hours. More chills were observed by the citrate method—that is, 20 per cent., as compared with 10 per cent. The method was of use in four groups of cases: hemorrhage, pernicious anemia, preoperative and postoperative transfusions, and sepsis. Its harmlessness was proven by the lack of toxic effects in infants. In cases of severe hemorrhage it was well to have a donor ready so that no time should be lost. This method could be used with advantage in the rupture of ectopic pregnancy. The experience gained in the war had proven the advantages of the citrate method. Preoperative transfusion often helped the patient to withstand the shock of the operation and postoperative transfusion assisted him to overcome the effects. In pernicious anemia the results were not permanent, but it did give a temporary rise in hemoglobin; in leucemia it was of no value. Work in the future could be directed toward immunizing donors, so that the blood could be ready in acute cases and in extreme sepsis. The question as to whether the blood of the donor actually lived in the body of the recipient had been studied in a very interesting way by Miss Ashly of the Mayo clinic, and it had been found that the blood did actually live in the recipient's vessels for about thirty days.

Dr. EMANUEL LIBMAN of New York said that he would like to take up one or two interesting points that had been made. Dr. Sanford had described very fully the newer method of diagnosis of pernicious anemia. One of the most important older diagnostic methods was the presence of macrocytic blood, with a color index of one or over one. It was important to look over the blood very carefully and, by the presence of macrocytes one might diagnose the disease long before the patient became anemic. The nervous symptoms also were important for diagnosis. In pernicious anemia there would often be found a Babinski reflex on one side or on both, and no other form of anemia, so far as the speaker knew, would give the Babinski reaction. The question of differential diagnosis between pernicious anemia and neoplasm would have to be considered. In new growth there was a similar blood reaction, but the index was usually below one, and there would sometimes be found cells in the blood which were characteristic of new growth. In regard to aplastic anemia, this term could be applied where there were no nucleated red blood cells and no erythroblastic cells in the bone marrow: the lymphocytosis was very high. Aplastic anemia was rare and some of the cases so termed were really cases of aleucemic leucanemia. The importance of recognizing these last cases lay in the fact that there was no result to be obtained by transfusion or splenectomy. The speaker said that he agreed in the main with Dr. Hamman, but he did not consider that focal infections had any influence in the causation of pernicious anemia. As soon as one found the cause of an anemia, it was no longer a case of (so called) pernicious anemia. It would be well to attend to minor infections of the teeth and so on, but such important procedure as surgery of the gall bladder had better be left alone, except in cases of emergency. Arsenic, of course, might be of use on account of the tonic effect. In regard to the treatment of the intestinal tract, usually there was increased putrefaction in the tract because of the lack of normal *B. coli*. The artificial implantation of *B. coli* in some people had aided in lessening the autointoxication and had raised the efficiency of the patient, and in this sense the method would help along. As regards transfusion, it was important to consider the hydremic cases. They should be put first on the Carrel diet or else one might get cardiac insufficiency or congestion of the lungs. It could be said that transfusion did not cure pernicious anemia, but it did surely help. Dr. Libman said he had been watching pernicious anemia for twenty years. Transfusion had given some benefit. It might initiate a remission. The patient felt an immediate result and the use of transfusion certainly put him into better shape for the time he had to live. It raised the blood figure and improved the difficulties due to anemia, removed mental symptoms, caused the patient to eat and digest better, although it never brought back the hydrochloric acid or stopped the glossitis. Often the patient would declare that his tongue was better, although really this was not changed, nor was there a real difference in the neurological condition. Cardiac efficiency was certainly raised and systolic murmurs would tend to disappear when the hemoglobin was raised (in general at about 60 per cent.). In pernicious anemia one had a reduction of the functional capacity of the kidney and this could be raised by transfusion. To use the term pernicious anemia was to call the disease by only one of its symptoms. The anemia due to an unknown toxin, the glossitis, the achylia, and the nervous symptoms were all part of the general process of which the anemia was but one manifestation. In the giving of transfusion, one point was of great importance and that was not only to make a Wassermann test of the donor, but also to examine the man from head to foot. In one case of which the speaker had heard a man who had a chancre concealed the fact from the physician. His Wassermann was naturally negative and he was used as a donor, with the result that syphilis was communicated to the recipient. In another case with a negative Wassermann the donor had gumma of the liver. Another point was that if the same donor was used again and again, tests should be made for agglutinins and hemolysins, because it appeared that isolysins could develop in the blood of the recipient. In regard to the citrate method, Dr. Libman said his cases of anemia had been mainly transfused by the Unger method; the earlier cases by the suture methods. The citrate method would probably have given the same results. Two points were to be noted about the citrate method: chills were more frequent in febrile patients; in cases without fever the figures for chills were higher with the citrate method than with the direct methods. Therefore, in cases in which the patient suffered from a long standing chronic disease and was in a critical condition, it was better to use the non-citrate method. A sharp chill might put the patient in peril of his life. Another question was whether there were any difficulties in cases of renal disease. In one case seen the patient suffered suppression of urine for 24 hours after a citrate transfusion. It is true that he might have had block of the kidney from the ordinary method, but the introduction of a renal stimulant like citrate might exhaust a depressed kidney. This question should be studied for both types of transfusion. In cases of pernicious anemia with fever (over 60 per cent. had fever) the effect of transfusion was to lower the temperature to nor-

mal and there was no return of fever until the hemoglobin went down again. Splenectomy was apt to initiate remissions just as transfusion was. It did more, because it decreased the hemolysis, and as Schneider's studies had shown, stimulated the bone marrow and decreased the fragility of the red blood cells. Splenectomy carried with it a certain amount of risk, although at the Mayo clinic they had had one series of 29 splenectomies in pernicious anemia without one death. Some cases, however, developed thrombosis. From the reported cases it appeared that splenectomy was of most value in certain cases, namely, those in younger individuals, with large liver and spleen and marked hemolysis. Dr. Libman said that his plan was as follows: If the patient was suffering from anemia of the disease, a transfusion was performed. If that did no good, a second was tried. A remission was obtained, and transfusion was performed when the hemoglobin definitely began to drop again. Transfusions were performed as long as remissions of about three months or over were obtained. After that splenectomy was advised in properly selected cases, and after a remission, due to the latter, terminated, transfusions were again performed. It was important to determine whether a patient holds transfused blood better than before removal of the spleen. The present opinions were in conflict. Dr. Libman described briefly a case which was under treatment for seven years, having had eighteen transfusions done and also a splenectomy. This case and others made it clear that, whether or not one decided that transfusions and splenectomy prolong life, the patient was put in much better condition for a larger part of the duration of his life.

Dr. H. L. Brown of Rochester, N. Y., said he would like to ask Dr. Sanford and Dr. Hamman if they had run across any very early cases in the medical draft. In one young man of 22 years of age he had met with a count of two million red cells and hemoglobin of 40 per cent. The man said he had followed the plow and did not complain of any discomfort. Another point was the autointoxicaton. The giving of *B. bulgaricus* had been known to improve the patient in a surprising way. It was correct that the intestinal tract had something to do with the disease.

Dr. Sweet of Syracuse said that there was no doubt that the citrate method of transfusion was the best for practicability and simplicity. It had its restrictions, but used as in the A. E. F., and confined to cases of shock and hemorrhages, it answered exceedingly well. In his own practice the method was used (with some hesitation) in two cases of typhoid hemorrhages. One patient died with severe toxemia, the other recovered. In the A. E. F. a slight modification was introduced, large needles being used instead of cannulas. He personally had never cut down to the vein of the donor, but this was sometimes necessary in dealing with the collapsed vein of the recipient. They used a two bore rubber stopper on the container and the blood flowed by gravity into the bottle, which already contained the citrate solution dissolved in physiological saline. Before introducing the blood into the recipient's vein another sterile stopper was inserted into the bottle, which was placed in a can of warm water to keep the blood warm without subjecting it to atmospheric conditions. The procedure was so simple as to be a medical operation rather than a surgical one, if the details were carefully followed. It was necessary to have the needles sharpened every time before using.

Dr. Bowen of Buffalo, N. Y., said that one of the important things in pernicious anemia was the rate of the hemolysis and there was no good way of estimating this accurately; one had to go by qualitative tests, as, for instance, urobilin and urobilinogen. Those cases with a great deal of hemolysis were benefited by transfusion. The achylia cases received benefit from splenectomy. One patient had been coming in at intervals for two years for transfusion, from which beneficial results were obtained for a time. She had no icterus nor had she the urine and stools of pernicious anemia. Another patient whose diagnosis was aplastic anemia, was transfused with 1100 c.c. from his brother, and the blood came up a little. The next time it was without result. The family thought that an outside donor might be better and 500 c.c. was transfused from an homologous donor. The patient rapidly developed severe chills and died in coma. It was thought that this was anaphylactic shock, but the urine did not show hemoglobin nor did the blood show agglutinins. The tests for donor and recipient showed the types were homologous. The only possible explanation was that the patient was sensitized to sodium citrate and since then it had been the custom first to inject 30 c.c. with citrate and wait 15 minutes before completing the transfusion.

Dr. D. Olin of Watertown, N. Y., said that with the use of the sphygmomanometer cup one could get the maximal flow of blood.

Dr. Sanford, in conclusion, said that he had often heard the heresy expressed that it was not necessary to select the donor, and that some man had done 150 transfusions without any test at all and no ill result. He believed that by neglecting the group tests one ran a great risk. One had to be sure that the recipient's serum did not agglutinate the donor's corpuscles. A good and tried method was to take the recipient's serum with a corpuscle suspension from the donor and watch for a few minutes for agglutination. The agglutination reactions covered the hemolysins, as had often been brought out. Dr. Lewisohn's method was more than intravenous medication; it had been described as tissue transplant and required a great deal of skill and judgment to accomplish. One word could be said about Miss Ashley's entirely original work which merited attention. She took a recipient of a different group from the donor. All of the recipient's corpuscles were agglutinated with a large quantity of type four serum. The recipient's serum did not agglutinate type four corpuscles. After the transfusion she took the recipient's blood mixed with group four serum and then a large quantity of agglutinated corpuscles, then the transfused group four corpuscles and made daily observations until the agglutinated corpuscles disappeared from the recipient's blood. From these studies she concluded that the donor's corpuscles lived in the recipient's serum thirty days.

Dr. Hamman, in conclusion, said that Dr. Libman misunderstood him in thinking that he said that foci of infection played an important part in pernicious anemia. Sometimes, however, the removal of these did improve the patient's general condition. In one case where the patient had remained stationary for one and a half years an attack of gallstone colic made operation necessary. The patient improved very much after operation, perhaps on account of the cessation of digestive disturbances. Dr. Bowen had mentioned the early stages; the profession should be on the lookout for this incipient period when nervous disturbances could be looked for, also the papillary atrophy of the tongue. A careful examination would also reveal macrocytes in the blood.

Dr. Hunt of Rochester, Minn., said that he could not add much to Dr. Balfour's paper. He could speak for the success of the Lewisohn method of transfusion. In the Mayo clinic they had used it 1,400 times with practically no alteration of technique. They transfixed the vein with a little cambric needle, described by Watson in the *Journal of the A. M. A.* They did not cut down to the donor's vein and in less than 5 per cent. of cases of the recipient's. The importance of group tests could not be overestimated. In one case at the Mayo clinic, through a clerical error in tabulation the wrong donor was chosen, and the reaction was fatal. It was not interpreted rightly, as the error was not known. Now, however, they had learned to interpret pain in the chest and in the lumbar spine as danger signals. In one case with the wrong donor the patient recovered, but only after a stormy convalescence with evidences of hemoglobinuria.

Dr. Lewisohn, in conclusion, said that he had never seen a chill following a severe hemorrhage, and he had never seen a chill in an infant. As far as modifications in technique were concerned, he felt that it was useless to recomplicate a method that had been purposely simplified. In regard to the group tests, these made the popularization of the method impossible, because it was difficult for a man in a small place to have the proper laboratory facilities. Personally

he had never had a disaster himself, because he always left the testing to a laboratory expert. The practitioner was apt to make mistakes and this might cost the patient's life. He was at a loss to explain the accident to Dr. Bowen's patient.

Third Day—Thursday, May 8.

DR. A. W. BOOTH OF ELMIRA, N. Y., IN THE CHAIR.

Camp Work in the United States; Organization, Foot Inspection, Shoe Fitting, Moving Pictures.—Major WILLIAM C. PETERS and Major R. T. TAYLOR presented this subject, which was read by Major Taylor of New York. The speaker said that it had early become clear that oral instruction must be supplemented by illustration, in order to cover the vast educational field that the Government planned. Film instruction was found to be of far greater value than lantern slides, because it was easily transportable. It was used for medical officers, for line officers in order to teach them to look out for the disabilities that would produce stragglers, and for the men themselves to show them how to avoid defects. The illustration laboratory took care of three points of instruction: (1) lectures to prepare men for overseas duty, (2) films illustrating proper splinting of wounds, (3) reconstruction methods after wounds by arthroplasty, plastic operations of the soft parts, and bone grafting. A standard war manual was used which covered the disabilities of the foot and leg and dealt with the anatomy and physiology of locomotion. Flat foot was called "acute foot strain," because it was found that many cases with perfect arches suffered acute foot strain, while many others with congenitally flat feet (notably the negroes) suffered no symptoms of foot strain at all. The majority of men had to be taught how to stand and to walk in order to prevent foot strain. The men taken suddenly from sedentary desk work could not undertake the long hike with a pack of 50 pounds weight. These men were apt to walk with the foot averted, so that the strain was thrown entirely on the arch. The acute strain had a sudden onset in these cases. The men had to be shown how to walk and stand "pigeon-toed" in order to counteract the disability. Marked persistent swelling of the legs and feet, however, was found to be of infectious origin. The treatment was by enforced rest in bed, massage, and passive movements, contrast baths (50° and 110°). The foot was strapped in adduction, with the supports following the direction of the tibialis anticus muscle and carried well up the leg. The patient was permitted to walk gradually, after the heel on the inside of the boot had been raised. Exercise was necessary for weak muscles of the foot and leg, instead of the usual practice of raising the arch by metal appliance. If one considered the analogy of the muscles of the foot and hand, it would be seen that unexercised muscles tended to become weaker. A pianist, for instance, exercised the muscles of the hand to get more power. One exercise which was very popular with the men was a rotating movement of the thigh and patella which, as a consequence, pulled up the arch of the foot. In ankle strain the foot was strapped in pronation to approximate the torn ends of the ligaments as nearly as possible and to facilitate repair.

Medical Organization Overseas.—Lt. Col. ROBERT B. OSGOOD of Boston made this presentation. He said that the first combat unit sent overseas was a medical unit. The British Government had sent for medical units and the preliminary preparations had been made in such good order that the first unit was ready to leave within ten days. An urgent need was for workers to man and organize special hospitals. The cases of bone and joint disabilities were flooding the general hospitals and bone and joint men were greatly needed from America. Twenty men were sent over under Col. J. Goldthwaite in June, 1917, and later ninety bone and joint men went over to get their training in England although at that time troops were going over in small numbers. Preliminary American work was carried out in French and British hospitals. In France the difficulties of organization were very great. Hotels and monasteries had to be equipped as hospitals, and the first consideration in this work was to try and avoid the large number of preventable deformities, such as ankylosed joint, that might ensue. Perhaps 50 or 60 per cent. of the deformities were preventable, and often were harder to correct than the wound itself. Proper splinting of the limb was perhaps the most important factor in this respect. It was found that the British were using fifty kinds of splints and the French perhaps three hundred, and it was manifestly impossible to teach an intelligent handling of so great a variety. Finally the American organization limited the number to seven of the most practical and useful splints, which covered the ground satisfactorily. The credit of this work belonged to Major Allison, who got wonderful results through the simplification of methods. The regimental surgeons and stretcher bearers were trained in practical methods of splinting, and the methods carried out in the evacuation hospitals saved a great deal of time and added much to the comfort and prevention of disability in the wounded. Genitourinary men and psychiatrists, for the examination of shell-shock, were also attached to the evacuation hospitals. With the application of practical splinting, large numbers of wounded could be transferred long distances without danger or discomfort. The open wire type splints were used, which involved traction as well as fixation. Later the cases could be grouped in special hospitals, where a certain amount of reconstruction work could be done. Finally, the men went to hospitals on the coast which were used as clearing houses. In transporting men overseas the naval surgeons were apt to think that the splints could be discarded, but it was found that this resulted in many deformities and the practice was stopped. At the debarkation hospital the question was studied as to whether the methods had accomplished results. Not more than 5 per cent. of bone and joint deformities which could have been avoided were noted. The deformities that occurred were because the men here were not as fully trained in the conservation of function as they were over there. The untrained men were in the position of the negro soldier who complained that he was kept in the dark as to the direction of the troop ship. He was asked by the officer what good it would do him to know. He replied, "Becos, suh, ef de ship sink, how 'mah gwine to know de weh to swim fo' de sho'?" It was a big question to know in which direction to go. One word should be said as to the cooperation of the regular army officers with the medical men. They had had a rather green lot to deal with and they had helped them in a very kindly fashion in regard to army regulations, and in professional questions the medical men had always had the final voice. The general staff had a medical representative to whom questions were submitted and the spirit of the regular army in these matters deserved great credit.

Surgery of the Front and Evacuation Hospitals.—Col. CHARLES H. PECK of New York presented this communication. He said that the work of the evacuation hospital behind the battle front was different from that of the regular army organizations. It consisted of emergency surgery, treatment of shock, rest and recuperation before the journey to the base hospital, which was sometimes hours or days behind the fighting line. All the war wounds that went to the base hospital were suppurating wounds; the loss of life was great and the loss of function excessive. Early operation—that is, within twelve or fifteen hours—was of great importance in saving function. With the Carrel-Dakin technique a delayed method of primary suture was possible, and DePage, LeMaitre, and Duval had been able to carry out wonderful work by this method. In the work near the front line the work had been organized by surgical teams who worked day and night with a trained personnel. Cases could be operated on within a few hours and projectiles could be located by radiograph. With the shifting battle line of 1918 the organization had to be changed to mobile units who could maintain a relative distance from the front line. The trifling wound cases, which were of the highest importance from the military standpoint, could be treated and the men made fit to return to the battle front within a short time. This fact was recognized more and more, and hundreds of these cases were cared for almost immediately. In another type of wounds, those of the soft parts (excluding fractures), most brilliant surgical results were seen. Knowledge of anatomy, clean technique, and removal of all devitalized tissue were of the utmost importance. In these wounds a delayed primary suture was of great

advantage. The avoidance of gas gangrene, caused by too early suture, was learned by this method. The dictum was made that no wound should be closed early unless the operating surgeon could watch the case himself. The practice was established to pack the wound with gauze, and the bacterial count was watched in order to determine when safe closure could be made. Wounds characterized by anatomical loss were not suitable for primary suture, and these were best kept open and treated by the Carrel-Dakin technique. A proper treatment of fractures at the evacuation hospital avoided many deformities. In times of great stress, with a movable battle line and constant mobilization of the hospital, this was not possible. Under these conditions the orthopedic men did wonders in preventing deformities by applying proper methods of splinting and thus preventing deformities and osteomyelitis. At the evacuation hospital the treatment of the wound was the first issue, and this was done by the general surgeon. At the base hospital further mechanical treatment was given. The general tendency was toward conservation of fragments whenever possible. In joint wounds the wound was closed (but not too tightly) and active motion was commenced at once; this helped to pump the fluids out of the joint and was found to be a great advance in treatment as it prevented atrophy of the joints and muscles. Closure without drainage was the routine, and the successful treatment of joint wounds was a brilliant chapter of war-wound history. Much brilliant work had also been done on wounds of the thorax and of the head, and the work of Cushing in this field was noteworthy.

Surgery of the Peripheral Nerves.—Major CHARLES HARRISON FRAZIER of Philadelphia read this paper. This type of surgery, the speaker said, did not commence until the soldier went to the general hospital. There were twelve hospitals where lesions of the peripheral nerves were treated, and at which there were consulting neurologists and practitioners of nerve surgery. The surgeons on peripheral nerve lesions were asked to prepare a report for the Surgeon-General, to give an idea as to the end results. About 3,000 cases of these injuries had been treated and there were still some 411 waiting to be transported. One hundred and thirty-seven cases had recovered spontaneously, and there were still 125 to be operated upon. The decision for or against operation was based upon the proper interpretation of findings; the nicest judgment was required and experience gained from the study of war wounds was a prerequisite. There was a question of how long one should wait before operating, and it had been the rule to wait for three months after the wound had healed and thus to avoid chances of nerve infection. The appearance of false movements had to be disregarded, as, for instance, in complete ulnar paralysis another set of muscles might contract and lead the surgeon to believe that spontaneous recovery was about to take place. Thus if the flexor tendons were shortened, to extend the wrist would draw the fingers up. In operating, the differentiation between transient block and complete physiological division should be made. A free incision was necessary so as to expose the nerve well, otherwise there was great difficulty in recognizing one structure from another in the mass of scar tissue. In about 34 per cent. of the cases complete anatomical division had been found; 25 per cent. of neuromata; lateral neuromata, 2 per cent.; neuritis, 1 per cent.; pressure by bands and adhesions, 14 per cent.; aneurysm, 1 per cent. A preliminary dissection and disentangling of the nerve was necessary, and in 30 to 50 per cent. of cases a liberation of the nerve from scar tissue. This was better than suture as the nerve responded more promptly to faradic stimulation. With a sclerotic nerve there was no faradic response and one had to do resection. Neuromata, *per se*, did not impair the growth of the nerve; examination showed the formation of neuraxes or axis-cylinder processes, and the patient might have spontaneous recovery. In performing a neural operation, it was necessary to find a bit as free from scar tissue as possible, and sometimes one had to move the nerve to a more superficial plane, laying it in a bed of fat. It was not advisable to lay the nerve in a muscle bed as the scar tissue might cause compression. In lesions of the musculospiral nerve it was possible to divide the anterior fibers of the median nerve, with but temporary loss of sensation, and to transplant the peripheral segments of the other nerve, as a healthy nerve was a good medium for the downgrowth of neuraxes. The nerve sheath had to be sutured with fine sutures. The susceptibility of the nerve trunks to stretching had been made use of to bridge defects. The damaged portion was removed, the healthy ends connected with silk, and the limb was then put in flexion and day by day for some weeks was gradually extended, until it was little by little brought into the straight position without undue tension on the sutured nerve. The preservation of healthy fasciculi was the prime essential of good nerve surgery. If these were embedded in scar tissue, the prognosis was bad. The nerve should be grasped with very fine forceps and removed by very small portions, so as not to risk sacrificing too much nerve tissue, and the ends should be approximated by single through-and-through catgut suture. The autograft method had produced many successful results, and when necessary the internal cutaneous nerve could be sacrificed to supply the graft. Recovery of function took longer after grafting. Tendon transplantation could be resorted to to replace paralyzed muscle, and in these cases electrotherapy had a most successful effect on the patient's psychology; it interested him and he felt that something was being accomplished in the tedious interval. Baths could be used to prevent keloid formation. The curative workshop had a physical and psychological value in the gradual restoration of function which might take six months to two years. It was necessary that the muscle be kept in a state of absolute relaxation, and cases in which proper splinting had been attended to got well sooner. The plaster cast was undesirable as it promoted the formation of ulcers and, being heavy, prevented the patient being an ambulant case, which he often could be. Treatment was designed to keep the patient busy every hour and minute of the day, and a schedule was planned so that the physician could see at a glance what the patient ought to be doing at a certain time, and if he were faithfully following the course of therapy outlined or not.

Chronic Osteomyelitis Resulting from Gunshot Injuries.—Major EDWIN W. RYERSON of Chicago presented this paper. The speaker said that of 5,000 overseas cases received at Fort Sheridan, 700 were of chronic osteomyelitis. This was the result of Chateau Thierry and the battle of the Argonne Forest. The injuries were of 6 months' duration and usually caused by high explosive shells. In cases where an 18 mm. bullet was the projectile, the agent passed clean through the bone and tissue, leaving a perforation which did not give much trouble. Fracture cases were not operated upon unless there was marked laceration. In cases in which wide debridement was done and the Carrel-Dakin technique used, the infections seemed to be limited to the immediate vicinity of the wound and did not extend to the medullary cavity, on account of the lack of tension of the medulla, due to wide opening of the wound. Sequestra were usually present and these had been apparently left in the wound, in the hope of consolidation of fragments of the fracture. The rule had been to leave any fragments with periosteum attached, but later it was impossible to tell whether these sequestra had been attached to periosteum or not. The limb usually presented a swollen discolored appearance, with old, healed scars. *X*-ray examination disclosed the pathology—the presence of sequestra, with necrosis of bone—and the neighboring bone had undergone the atrophy of degeneration as the lime salts had been carried away by the blood stream. The *x*-ray plates needed careful interpretation. There was often disclosed a hole in the bone that showed no tendency to heal, a sort of cave with overhanging edges which acted as a septic pocket. The infection was a low-grade staphylococcus contamination, the cases being apparently on the verge of healing, and yet they did not heal. These cases were of very great interest, although there was nothing new or startling in their treatment and many old phases of treatment had been rediscovered. One was the use of chlorine as an antiseptic and the other was the value of the use of flaps. The technique consisted of removal of all sequestra and the overhanging walls of the bone cavity. Incision down to the periosteum was done, avoiding the exposure of more bone than was abso-

lutely necessary. The periosteum was scraped away and the necrotic bone chiselled. "Give the poor bone a chance" was a good dictum, as the bone needed all the nourishment it could get. Half the bone might have to be obliterated and the soft parts should be let freely into this area. Most of the bleeding would be papillary oozing, which had to be packed tightly. The use of carbolic acid or iodine was interdicted, and weak Dakin solution was used to cleanse the wound. It was wise to apply a wire splint before operation and to keep it in place during the procedure. In cases of virulent infection it was wise to use the Carrel-Dakin method, and not to close the wound until the bacterial count came down. One hundred and fifty cases at Fort Sheridan had been treated according to this method. A light dressing was laid around the wound, but not over it, and it tended to fill with healthy granulations. Sunlight, and when this was not possible, electric light, were allowed to bathe the wound freely. Position was of importance and the patient was made to lie on his face so as to let the pus flow out of the wound, instead of, as was so often done, allowing a pool of pus to collect in the wound. As healing took place, the skin was drawn into the deeper parts of the wound by strips of plaster, and sometimes muscle and fascia had to be put into the wound.

Loss of Bone Substance and Non-Union Following Gunshot Injuries.—Major F. H. ALBEE of New York made this presentation, which he illustrated by lantern slides showing the substitution of grafts of bone and plastic addition of soft parts, for losses of tissue which had been carried away by high explosives. In any cases where it was possible to leave bone fragments, Dr. Albee said that this should certainly be done, as this avoided the bone-graft operation. Many cases put down for bone graft were restored spontaneously because of fragments left as osteogenetic centers. In cases of extensive loss of bone, operation should never be undertaken until complete healing of the soft parts had taken place for a generous period of time. If there was no infection and the wound had healed kindly, then three months was a good time to allow for waiting. If safe to do operation then, it was better to do so, because then there would be less loss of function than if one waited longer. The limb should be allowed free motion without splints in order to stir up any latent infection that might exist, and if necessary, the operation could be further postponed. In regard to operation, as soon as the graft was in place, the wound should be closed, so as to expose the graft to the air as little as possible. High speed in the operation should be tried for, and this could be attained by the use of the electric twin saw. The operation had been done in as short a time as 19 minutes, but it averaged 30 minutes. Long drawn out operations of two or more hours were sure to spell trouble. Cases of non-union after the use of the Lane plate had been seen, although the apposition of the bones was excellent, and the reason for failure was undoubtedly because the screws tended to hold the bones apart and to obliterate the thrust of one bone upon another which was the necessary stimulus for osteogenesis. Normal growth of bone took place by a simultaneous stimulation of all the layers together. The osteogenetic cells acted in some way upon the fibrous tissue and turned it into bone, and this accounted for the rapid union in the case of green-stick fractures. In joint work the graft could be pushed well into the cancellous bone and a favorable take of the graft could be expected. A graft could be put in to stand stress, provided the fixation at time of operation was right. Stress was the greatest stimulus to bone growth and without stress the cortex became paper-shelled, which state was avoided by the grinding of one fragment on another, sclerosis of the bone resulting. In grafting it was important to restore the marrow cavity from one fragment to another. The gutter should be made deep enough so that marrow fragments would cling to it. In arm fractures it was necessary to get back to healthy vascular substance; the bleeding might be tiresome, but this was an essential point. Grafts of the long bones could be made with mortised ends so that there was a good shoulder for the graft to rest on and better thrust was obtained.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

VIRGINIA STATE BOARD OF MEDICAL EXAMINERS.

Richmond, June 18-21, 1919.

(Concluded from page 852.*)*

SURGERY AND GYNECOLOGY.

1. Give symptoms and physical signs of empyema.
2. What are the conditions necessary for successful skin grafting, and what is meant by the terms autograft and heterograft?
3. Differentiate cholelithiasis, gastric ulcer, and right renal calculus.
4. Differentiate glaucoma, iritis, conjunctivitis.
5. What symptoms follow injury to the musculospiral nerve below the branch going to the supinator longus muscle?
6. What important structures lie near the femoral ring?
7. Give clinical history and diagnosis of acute osteomyelitis.
8. Differentiate ovarian cyst and tubercular peritonitis with effusion.
9. Give causes and treatment for cystocele.
10. Differentiate tubal pregnancy and acute salpingitis.

MEDICAL JURISPRUDENCE, HYGIENE, AND PREVENTIVE MEDICINE.

1. Define "rigor mortis" and discuss its importance from a medicolegal standpoint.
2. What points would help to determine whether a "gunshot wound" were self-inflicted? The same to "throat cut"?
3. Under what conditions is the destruction of the fetus justifiable?
4. On what points, upon examination of a suspected case, could you be certain that rape had been committed?
5. Can a man's wife who stays with him, after she knows he has gonorrhea, use the fact of his having it, as a cause for divorce? Why?
6. What is the best method of purifying water for pharmaceutical or analytical purposes? Why is this method not used to purify water for general use?
7. What is hard water? And discuss its bearing on its sanitary value.
8. What do you understand by "vital statistics"? And what is its significance from the standpoint of preventive medicine or hygiene?
9. Give the best method of fighting an epidemic of cerebrospinal meningitis.
10. What steps should be taken to get rid of malaria in a locality?

ANSWERS.

SURGERY AND GYNECOLOGY.

1. EMPYEMA.—*Symptoms:* Fever, sweats, chill, diminished breath sounds and vocal fremitus, impaired mobility of chest, dullness on affected side, heart displaced to opposite side, leucocytosis.

The *physical signs* are those of fluid in the pleural cavity; that side does not move well, the percussion note is dull, there is absence of breath sounds, vocal fremitus and resonance are diminished. Left alone, an empyema may burst through an intercostal space, usually the fifth. The lung is collapsed in extent according to the amount of pus. Aspiration shows the presence of pus.

2. *Conditions necessary for successful skin-grafting* are: Proper selection of cases and methods, rigid asepsis, absence of tension, absence of cicatricial tissue, and thorough freshening of the part to be covered.

An *autograft* is a graft supplied from the body of the patient.

A *heterograft* is a graft taken from some person other than the patient.

3. In *cholelithiasis*, the attack is sudden, the pain very severe and generally localized in the right hypochondriac region, and often spreading to right scapula and over the abdomen; vomiting. chill, fever, drench-

ing sweats, feeble and rapid pulse are common; liver and gall bladder are swollen and tender; jaundice may supervene; the urine may show bile pigment and albumin; examination of the feces for a few days after the attack may reveal the calculus.

In *nephrolithiasis*, the pain is also sudden and very severe, begins in the lumbar region and follows the course of the ureter, and is often referred to the testicle and glans penis; nausea, vomiting, chills, fever, and sweat are common; strangury may be present; there is great prostration following the attack; there may be polyuria or suppression of urine; with the aid of a cystoscope or sound, the calculus may be found in the bladder; examination of the feces is negative.

In *gastric ulcer*, the pain, while severe, is never as severe as that of biliary or renal calculus; it is localized in the epigastric region, and comes on soon after eating. There is no chill, no vomiting, no fever.

4.

ACUTE IRITIS.	ACUTE CONJUNCTIVITIS.	ACUTE GLAUCOMA.
1. Iris swollen, dull, and discolored.	1. No change in iris.	1. Iris congested, discolored, dull, periphery pushed forward.
2. Pupil small, gray, sluggish, irregular after use of atropine.	2. Pupil normal.	2. Pupil dilated, oval, immobile.
3. Anterior chamber of normal depth (deeper in serous form) and presents exudation.	3. Anterior chamber normal.	3. Anterior chamber shallow and aqueous, sometimes turbid.
4. Cornea transparent (may present deposits on posterior surface) and sensitive.	4. Cornea transparent.	4. Cornea steamy and insensitive.
5. Ciliary (circumcorneal) injection; pink zone of fine vessels surrounding cornea and fading toward fornix.	5. Conjunctival injection, coarse meshes, most pronounced in fornix and fading toward the cornea.	5. Ciliary and episcleral injection (also conjunctival congestion).
6. Conjuctiva usually transparent.	6. Conjunctiva reddened and opaque.	6. Conjunctiva congested and chemotic.
7. Lacrymation but no discharge.	7. Mucous or muco-purulent discharge.	7. Lacrymation but no discharge.
8. Tension usually normal (occasionally increased).	8. Tension normal.	8. Tension increased.
9. Some ciliary tenderness.	9. No ciliary tenderness.	9. Ciliary tenderness.
10. Pain radiating to forehead and temple, worse at night.	10. Discomfort, hot gritty feeling, but no real pain.	10. Severe pain in and about eye, with headache.
11. Dimness of vision.	11. No interference with vision, except blurring caused by the discharge smeared over the surface of the cornea.	11. Marked dimness of vision.

—(May's *Diseases of the Eye.*)

5. Injury to the musculospiral nerve below the branch going to the supinator longus muscle is followed by: Inability to extend the wrist and fingers; wrist drop, with the hand held in the position of pronation; the fingers are flexed, but the last two phalanges may be extended by the action of the interossei muscles. There is no loss of sensation.

6. The *femoral ring* has, in *front* of it, Poupart's ligament and the deep crural arch; *behind* it, the pubic bone, pectineus muscle, and fascia; on its *inner side*, Gimbernat's ligament; on its *outer side*, the femoral vein, from which it is separated by a septum from the crural sheath; external to the femoral vein are the femoral artery and the anterior crural nerve. The deep epigastric artery passes close to the upper and outer angle of the femoral ring. The femoral ring is the upper opening of the femoral or crural canal, which is about half an inch in length.

7. ACUTE SUPPURATIVE OSTEOMYELITIS.—"*Causes:* The general vitality is lowered, and there is some focus of ulceration in the mouth or throat, by which organisms enter and circulate in the blood. All that is now necessary is that some part of a bone should have its vitality depressed by a blow, strain, or exposure to cold, and the organisms then attack it. The bacteria most commonly found are the staphylococci, but streptococci are present occasionally. The disease usually begins in the new growing bone at the end of the diaphysis, rarely in the epiphysis. The lower ends of the femur and radius, the upper ends of the tibia and humerus, are the commonest seats.

"*Symptoms:* The disease begins with a rigor, high temperature, and severe pain. The part becomes swollen, infiltrated, and congested, with distended veins over it. The pulse is rapid and small and the tongue dry, and delirium soon comes on. It should be distinguished from acute rheumatism by the fact that the interarticular and not the articular region is affected. Fluctuation can be detected if the bone be superficial, or the abscess may burst on the surface. The bone is then found to be bare over the extent of the abscess cavity. When the bone is deeply seated or the disease confined to the medulla, the swelling is later in evidence, but the pain and toxemia are very severe, and the patient may die from this before local signs show themselves. When the epiphysis is attacked, septic arthritis often quickly follows, and a loose flail joint may result."—(*Aids to Surgery.*)

8. "Encysted peritoneal exudates of a tuberculous origin may very closely resemble the ovarian cyst. In many of these cases the results of the physical examination are such as to fit as well with one condition as with the other, but in general the outlines of the ovarian cysts are sharper and more distinct, and the tumors themselves are often more motile in response to the changing position of the patient. Usually there is no fluid free in the peritoneal cavity, in the case of an ovarian cyst, while this is quite common in tuberculous peritonitis. In many cases light may be obtained from other sources—the history of the case, the body temperature, the patient's general condition, her behavior under Koch's tuberculin test, and an examination of the other organs of the body. The demonstration of a tuberculous process elsewhere in the body, as in the lungs, lymph glands, or bones, speaks strongly for the tuberculous nature of the process in the abdominal cavity. A coincident inflammation of one or more other serous surfaces, such as the pleura or pericardium, also speaks for the tuberculous nature of the process. In still other cases it is necessary to make an exploratory puncture in order to ascertain the character of the fluid. If the fluid is an exudate, it will have a high specific gravity and percentage of albumin. The fluid of different ovarian cysts varies considerably in specific gravity, from 1.007 to 1.020 or more. In one case it is a thin serous fluid; in another, a gelatinous material. It contains considerable albumin and paralbumin. Microscopically there is nothing peculiar to these cysts except the cylindrical epithelium occasionally found."—(*Reference Handbook.*)

9. *Cystocele* is really a hernia of part of the bladder into the vagina, the vaginal mucous membrane forming its outer covering; or it may be expressed as a deflection of the vesico-vaginal septum toward the vagina. It forms a smooth rounded swelling, which bulges through the vulvar aperture when the patient coughs or strains. The cause of cystocele is a relaxation of the tissues forming the vaginal walls. This is mainly due to childbirth. *Symptoms:* A dragging sensation in the lower pelvic cavity; a feeling of distention at the vulva; loss of power in urination; tumor of anterior vaginal wall, more apparent on straining; prolapse of uterus. It is often accompanied by rectocele.

For radical cure of cystocele: "The patient is placed in dorsal position. The posterior vaginal wall is kept out of the way with a weighted speculum. The cervix is drawn down with a bullet-forceps. With a pair of tenacula the sides of the prominence are drawn together in the median line in order to see how much of the wall is redundant and these points are marked with small nicks. Next, the whole surface is put on the stretch between four pairs of forceps—one at each of the side marks, one near the cervix, and one at the transverse ridge at the inner end of the urethra. With a pair of scissors curved on the flat, a strip about ¼ inch wide is cut out of the mucous membrane. Similar strips are removed on both sides until an oval is denuded. Finally a running suture of chromicized catgut is passed under the whole pared surface, uniting the

edges from side to side."—(From Sutton and Giles' *Diseases of Women.*)

If necessary, a perineorraphy should be done at the same time.

10. In *extrauterine pregnancy* there will be signs of early pregnancy, hypogastric or inguinal pains, probable history of a previous sterility, probable expulsion of decidual membrane or shreds, softening of the cervix, enlargement of the uterus, the tumor is not bound down in the pelvis, presence of a distended tube, contractions of the wall of the gestation sac; if rupture occurs, there will be sudden, excruciating pains over the lower abdomen and on the affected side, shock, collapse, and symptoms of internal hemorrhage. In *salpingitis* the tubes are inflamed usually secondary to inflammation of uterus or to infection (either gonorrheal or puerperal), backache, pain in lower abdomen, history of menstrual irregularity, leucorrhea, tube is enlarged and tender, the uterus is not enlarged, the signs of pregnancy are not noticeable, the tumor is firmly bound down in the pelvis.

MEDICAL JURISPRUDENCE, HYGIENE, AND PREVENTIVE MEDICINE.

1. *Rigor mortis* is the condition of rigidity or contraction into which the muscles of the body pass after death. It begins at a period varying from about fifteen minutes to about six hours. It usually begins in the muscles of the eye, neck, and jaw; then the muscles of the chest and upper extremity, and last of all those of the abdomen and lower extremity are affected. It passes off in the same order in about twenty-four hours. It is said to be due to the coagulation of the muscle plasma.

Medicolegally, it is a sign of death, and an indication of the length of time that has elapsed since death occurred. The onset and duration of rigor mortis depend upon the previous degree of exhaustion. In death from exhausting diseases there is an early onset, while in those dying suddenly, as from accident, it may be delayed for twelve hours or more. Its duration is very variable; it is shortened by heat and prolonged by cold; it generally lasts about twelve to twenty-four hours; in death by lightning or electrocution it may only last a few hours, in other cases several days.

2. *Points which help to determine whether a gunshot wound was self-inflicted:* The location of the wound; the distance at which the shot was fired; the character of the wound; the burning of clothing, skin or hair; the embedding of grains of gunpowder; the presence or absence of the weapon; the position of the body when the wound was received; and certain surrounding circumstances which may have a bearing on the case.

In "*throat-cut*," suicidal wounds (in right-handed people) usually begin on the left side, and are directed toward the right; and except for a few scratches at the very commencement, the incision is generally deeper on the left side, and is higher on the left side, the wound being oblique from left to right and from above down.

3. *Destruction of the fetus is justifiable* and not criminal when it is due to natural causes, or when done by a physician, after proper consultation, for sufficient cause. The chief conditions that justify it are: (1) Certain pelvic deformities; (2) placenta prævia; (3) pernicious anemia; (4) toxemia of pregnancy; (5) habitual death of the fetus toward the end of pregnancy; (6) hydatidiform mole; (7) habitually large fetal head. But when performed, or attempted, for any other reason, or under any other condition, it is *criminal.*

4. *Rape* has been defined as being the carnal knowledge of a woman against her will. But the element of will may or may not enter into the case; consent, if it be obtained by fraud or from one mentally deficient, or under age, does not relieve the criminal from the charge of rape. Rape may also be perpetrated when the victim is unconscious or in such other condition as to interfere with the action of the will.

"Medical testimony in these cases has usually to do with three conditions: (1) The presence or absence of bruises, lacerations, or other signs of injury upon or about the genital organs. With regard to the evidence of lacerations of the hymen, it must be remembered that a certain number of hymens are so elastic as to permit of intercourse without laceration. (2) The presence or absence of spermatic or blood-stains upon the person or clothing of those concerned, and the presence or absence of spermatozoa in the vagina. (3) The presence of venereal disease in one or both."—(Dwight.)

The physician can *never be certain* that rape has been committed on an adult, because the element of "volition" enters into the case. All he can do is to give evidence on the lines indicated above, and leave it to the jury to decide to what extent the complainant was "willing."

5. The generally accepted rule is that if the husband had *concealed* the existence of the disease, there would be ground for divorce. The fact that his wife knew of the disease, and continued to "stay" with him, shows that she condoned the offense. If, under the condition, the husband compelled sexual intercourse, the court might interpret the same as "legal cruelty" and on this ground grant a divorce.

6. The best method of purifying water for pharmaceutical or analytical purposes is distillation; only the "middle run of the still" must be used.

This method produces a water that is flat or tasteless, being deprived of oxygen and carbon dioxide; at the same time certain volatile substances which were present in the original water may appear in the distillate and produce undesirable results. To remedy these defects is expensive.

7. A water is said to be *hard* when it contains in solution certain salts, such as calcium and magnesium salts, which form with soap a curdy deposit.

Sanitary value of hard and soft water: "An excess of limesalts and of other mineral matters in water produces constipation, flatulence, indigestion, and favors the formation of calcareous deposits in various parts of the body. 'Hard water' unites with soap and makes it less soluble, so that it is difficult to cleanse the hands with it. It also roughens the skin and dries the mucous membranes. By boiling, the hardness of water, which is due to the presence of earthy carbonates, is diminished, for the carbonic acid, which aids in holding them in suspension, is driven off. Water is also improved for drinking by filtering through a filter paper or clean absorbent cotton on a funnel. Boiling the water does not precipitate neutral and alkaline salts, and a purgative action may still remain if they are present. Hard water is made more digestible by converting it into barley or oatmeal water. Water which contains sulphate of lime causes gastric distress and dyspepsia, and it may form calculi. 'Soft water' is simply water which is free from objectionable salts. It is more wholesome than hard water. Hard and soft water have well-known characteristics in regard to their effect upon the cooking of food. Calcareous drinking waters have been believed to be factors in the development of goiter and cretinism, notably in Switzerland, but many cases occur in which such theory is untenable."—(Thompson's *Dietetics.*)

8. *Vital statistics* is the science of figures applied to the health history of countries, and the study of the laws that govern the physical condition of the inhabitants. It deals with births, marriages, and deaths, the diseases from which we die or suffer; and it takes into consideration the age, sex, and occupation of individuals. The study of vital statistics gives information as to the health of the people in a community, and to the good and evil conditions present; it shows the fatality of different diseases at different ages; it indicates the influence of professions, trades, locality, and age on the well-being of a community; and it enables the authorities to estimate whether conditions are improving, from a sanitary standpoint.

9. *To fight an epidemic of cerebrospinal meningitis:* Isolation of all known cases, and also of suspected cases, with report of the same to the health authorities; education of the public as to "carriers," and spread of infection by the nasal secretion; the use of antiseptic gargles and nasal douches; antimeningitis serum has also been recommended.

10. *To get rid of malaria in a locality:* Individuals should use mosquito netting round their beds and wire gauze in doors and windows, so as to keep out the mosquitos as much as possible. During residence in malarial districts quinine should be taken every morning before breakfast. All pools, stagnant water, etc., where *anopheles* may breed, should be removed. All mosquitos, larvæ, etc., should be destroyed as far as possible. By staying indoors during dusk and darkness, opportunities for infection may be avoided. Occasional fumigation with formaldehyde or sulphur is useful.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 95, No. 23.
Whole No. 2535.

New York, June 7, 1919.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

OCCUPATION THERAPY AND TUBERCULOSIS.

By W. R. DUNTON, Jr., M.D.,

TOWSON, MD.

PRESIDENT OF THE NATIONAL SOCIETY FOR THE PROMOTION OF OCCUPATIONAL THERAPY.

At a recent meeting of the National Society for the Promotion of Occupational Therapy, held in New York, I received a letter from which the following is extracted. In preface it may be said that the writer was born August 30, 1837, holds the degree of Master of Arts from Yale, has been a professor of chemistry and geology, and has attained eminence as a mining and metallurgical engineer. The letter is dated at Colorado Springs, August 29, 1918.

Miss Susan S. Harris, R.N., Director of the School of Diversional Occupations in our city, has asked me to write you. On such short notice, I do not know that I can do much more than congratulate you and the society on having such a capable, faithful, and efficient representative here in the person of Miss Harris; also to congratulate you on your great humanitarian work, in lending the word of cheer, the ray of hope, the hand of help, to the great multitude of those struggling with limited means against the tubercular blight. The cure is largely a mind cure.

If one is going to get strength, even with exercise, he must get it from his food; and it will not come from his food, unless that food digests; and it will not properly digest when the mind is in a constant state of anger, or worry, or despair. I say this as a chemist who has devoted much time to analyzing contents of stomachs. In Colorado the rest fad is in the saddle. The objection to it is that the feet and legs get rest, waste away in flesh and strength, while the upper portion of the body, which ought not to be subjected to strain, gets more unwarranted exercise in one hour, in the majority of cases, than it should have in a week. Within the past few months I have carefully studied some forty cases of those taking the so-called "rest cure." Not one case, where I have remained longer than twenty minutes, that the rester has not taken a straining exercise ten times more violent than he would have taken in an easy chair or in walking about his room—ten times the amount of exercise that I was taking during my visit. There was a reaching for sputum cup, reaching for water, pouring out water from a pitcher, twisting the whole body in fixing the pillow, pulling up bedcovers, with hands on bed lifting himself up into a sitting position, etc.

One great objection to the so-called "rest cure" is that it gives too much time for thinking about personal ills, personal troubles, the wasting of time, the uncertainty of the future, financial difficulties, home responsibilities, and meditating on the dark clouds, sure forerunners of despair. All of which have a depressing effect on the mind. In such cases, even if a cure is effected, in nine cases out of ten, blasting habits have been formed which leave the cured either mutton-heads or social parasites.

When I left Yale College in 1865 I weighed 178 lbs. When I came to Denver in the early part of 1874 I weighed only 119 lbs. I had been examined by three physicians in St. Louis. They all told me I had waited too long. One told me that I would never reach Denver alive. At Denver I was taken from the depot on a stretcher. Twenty-two days passed before I was able to sit up. When I was able to move about I took all the judicious exercise I could. Never thought of giving up study and teaching and geologizing. Like thousands of others then, I could not afford to be idle. Could not afford to die. For six years I worked and fought consumption. Did it so effectively that ten years after coming to Colorado I called on the St. Louis doctor who said I never would reach Denver alive. After examining me again he said: "Well, at that time I told you the truth, but you were too stubborn to die."

Am now satisfied if I had taken the present so-called rest cure forty-four years ago, I would have to-day a record of over forty years in eternal rest, instead of a record of eleven years in the tropics, one year in England, one year in Germany, and one year in Japan and China.

In those days we had a greater proportion of cures in Colorado than we have to-day. Surely it *cannot all* be due to the fact that we had but few doctors then to kill us. My firm opinion is that it was our ignorance of the so-called rest cure and our own blundering on to lines of occupational therapy that saved us in those far-away days.

To-day Occupational Therapy is the only fadeless candle in the window for the unfortunate T. B.

Very sincerely and cheerily,

K———

A number of comments may be made on the foregoing. In the first place it may be at once admitted that the rest cure as described is not a rest cure. Years ago, practitioners attempting to give the Weir Mitchell rest cure for nervous invalids met with poor success. Later it came out that while the patient was placed at rest physically his mind, and especially his attention, was not permitted to be idle. He was diverted by being read to, massaged, bathed, fed, and talked to, until the depressing or fatiguing thoughts which characterized his illness were forgotten. When carried out with proper attention to the morale or mental attitude of the patient the rest cure was successful. A special nurse was therefore absolutely necessary. As described by Mr. K. evidently there was no special nurse to pour the water, pass the sputum cup, or arrange the pillows. It can easily be conceived, therefore, that a patient in a reclining chair, who is not the sole charge of a nurse, may be able to get more rest than when recumbent in bed, because less movement is required for necessary reaching.

We pass over Mr. K's remark about there being "few doctors to kill us" as being a bit of airy persiflage. His remarks about too much time being given "for thinking about personal ills,

etc.," apply equally well to many other conditions and it is believed that insufficient attention is given to the patient's mental attitude by the majority of physicians. In the introductory chapter to "Pulmonary Tuberculosis and Sanatorium Treatment" Dr. C. Muthu says

It is not by injections and inoculations that the final triumph over disease will be achieved. Vaccine and serum therapy are only a half-way house at most. We have many leagues yet to travel to reach the goal of medicine, viz., the prevention of disease. Evolution is moving humanity forward from cruder to higher life, and the physician should keep pace with the times, and equip himself with more and more refined methods in his treatment of disease. Already our remedies have changed from cruder to finer forms. Bleeding is gone, drugging is going; electric treatment, with all the mysterious forces allied to it, is already to the front, and psychic treatment is coming forward for serious consideration. No treatment in the future will be deemed permanent or satisfactory which does not recognize the psychic element of man. The ancient Brahmins combined in their persons the offices of physician, philosopher, and priest, which represent the functions of the body, the mind, and the spirit. We are just beginning to tap the mind forces in the treatment of disease, and the spirit forces are still beyond. If the medical profession would lead humanity aright in the future, as it has always done, it would not be content to live in the lower planes of physical treatment, which is cramping its sphere and usefulness, but would rise with the trend of the times, and learn to make use of those psychic and mental powers for bringing about the healing of body and mind.

"What has all this to do with tuberculosis and the open-air treatment? A great deal. Behind the visible factors that make for consumption lie the root-causes of worry and anxiety, of mental strain and fatigue, of restlessness and instability. And it is only by bringing calm and peace to mind and body that disease can be tracked to its deepest lairs and be destroyed. Peace and calm of mind spell health of body. This is why we read that the Great Master healed the body by speaking peace to the inmost soul. The civilized man has lost the secret of peace. While he has multiplied riches and comfort, he has also multiplied care and disease. *And open-air treatment has taught this precious lesson—that it is only by going back from the bustle and excitements of town life to the calm and communion of nature that man will regain his lost peace and health.* The secret of the real strength and happiness of an individual lies surely in the simplicity of his life and the fewness of his wants.

If mankind is to progress in the future towards the achievement of its ultimate aim—the prevention of disease—it will move in the following directions: It will strive towards removing all those evil conditions which predispose the body to disease. This creation of a healthy environment by return to nature and to a simple life will enable the forces and powers of the mind to exert their healthy control over the activities and functions of the physical body, and the harmonious working of body and mind will bring about peace and health. The open-air treatment has given a right lead in this direction. If man would only learn the full meaning of the movement, and follow the footsteps of nature in humility and reverence, it would lay a foundation for a great reform. It would bring about a revolution in the social and national life as momentous and far-reaching as the idea of evolution created in the scientific world.

After such an expression of the importance of the patient's mental attitude it is naturally to be expected that Dr. Muthu would amplify the subject in his later description of treatment. Excepting for a number of remarks about vital energy, previous to the above quotation, in which he states that for a free flow of vital energy the body should be kept in good repair by food, and the mind should be undisturbed, with slight further elaboration of these statements, there is nothing more found upon the subject of the mental attitude.

No directions are given for invalid occupation or occupational therapy. Directions are given for walking exercises, breathing exercises, singing exercises, reading exercises, manual exercises, and tramping, etc. An interesting comparison is afforded of the pedestrian habits of the English and Americans, by the following directions for manual exercises.

When the patient is able to walk about four to five miles a day, and the temperature is satisfactory, he is allowed to do some manual work for about twenty minutes, which is increased to forty minutes, and then to an hour a day. There are three grades of work:

First Grade.—Weeding in the garden, hoeing, raking, and gathering leaves, edging grass, planting, pruning, etc.

Second Grade.—Chopping logs, making paths in the woods, spade-work, digging broken ground, etc.

Third Grade.—Sawing, carpentering, painting, digging unbroken ground, wheelbarrow work, etc.

Ever since manual labor was introduced in this sanatorium as part of the treatment a decided improvement has been noticeable. During an experience of more than five years we have had no untoward result except in two instances, when the temperature rose after the exercise and continued for some days after, which showed that the patients had overexerted themselves.

It may be stated here that while a rise of temperature is usually noted after physical exercise, it should return to normal after an hour's rest. The exercises as noted seem somewhat strenuous and various forms of craft work might be given earlier with benefit.

Elsewhere it is said that patients walk for an hour and a half in the morning and for the same period in the afternoon, and for a half hour before breakfast and after supper, "When he covers about eight or nine miles during that time." It is believed that few American men in good health walk so much as this during the day's activities.

Another writer, Bonney,[2] also refers to the psychic element and says (p. 757): "It is essential that *recreation* be *combined* with *exercise.*" Also "correctly regulated exercise, if adapted to the inclinations of the invalid, is diverting in nature and correspondingly healthful, while physical effort *without recreation,* no matter how perfectly adjusted, remains but work, and hence less advantageous."

In a much older book,[3] Dr. Thomas J. Mays says: "It is of the highest importance to keep in mind the fact that whatever the mode of physical exercise may be, it must not be compulsory, but must be performed without effort, and, as it were, without consciousness." Though less clearly expressed, a thought similar to Bonney's, that is, that the patient's mental attitude will determine the benefit derived from physical exercise.

In a brief address made before the American Society of Superintendents of Training Schools for Nurses in 1910, Dr. Livingston Farrand states that "Work under the strict supervision of the Medical Superintendent is one of the most valuable factors we have; the patients almost invariably do better." He speaks of cases from the Yonkers carpet mills who have done better when they have been allowed to return to their former work. In this, evidently the patient took

a greater interest than in the new work which had been found for him. Dr. Farrand also speaks of a "growing tendency" to provide some sort of occupation for patients when discharged. Surely a step in vocational education.

Dr. Lawrason Brown has written some excellent Rules for Recovery from Tuberculosis[4] which deserve to be better known. In the chapter on Exercise he says "Exercise is as important as rest in the treatment of pulmonary tuberculosis but vastly more dangerous." He directs attention to the fact that the small duties of life, such as dressing, entail considerable exercise, therefore they must be taken up carefully. In this book, "Exercise means walking. Special permission must be obtained before indulging in other forms of exercise." Another excellent chapter is "On Cultivating an Outdoor Hobby and on Recreation." It seems unfortunate that but few directions or suggestions are given for mental occupation during the long periods of resting. Reading and writing are merely suggested by being forbidden during a certain period. Bird study by means of an opera glass, the study of botany from specimens brought by friends, sewing, knitting, and crocheting, and solitaire are the only occupations specifically mentioned. All of these require some movement. It would seem that puzzle pictures, embroidery, some forms of knotting, and clay modeling, would not entail as much physical exertion as does the lay-out of solitaire. If reading can be permitted there is a splendid opportunity to provide subject for thought even while at absolute rest, and if worry and anxiety is replaced by speculations upon art, history, or biography there is no doubt that the rest will be more beneficial. Courses of study, if not carried out too enthusiastically, might be undertaken. "Cerebral activity is as great a drain on the patient's vitality and reserve force as is physical exertion." In the tuberculous especially, it seems advantageous to permit the patient to undertake some work allied to his former occupation, as there may be less depression and anxiety if he feels that he is still linked to his old job.

Dr. Philip King Brown, has interestingly described the Potteries of Arequipa Sanitarium,[5] and from the fact that but 24 out of 66 made good and 20 of the 24 had previously been successful, has come to agree with the theory of the psychological determinists: "How many things and how hard things a person will do lies in his nature; the kind of work may change but there is no new potential." All of the patients in this sanitarium were wage earning girls.

Dr. Horace Carncross,[6] believes that the mental change noted in the tuberculous is due to chronic illness rather than to tuberculosis specifically. This view would appear to be correct.

Dr. Guy H. Fitzgerald has very fully considered the Mental Side of the Consumptive[7] and says: "Mental content is as necessary in successful treatment as pure air and good food."

How then may mental content be secured? And what occupations shall be given? To secure mental content we must study each individual patient, and adapt our means to him. His physical condition must first be considered, next, his capabilities, and finally his tastes or interests. With these three siftings the best means will be found.

Before answering the next question it may be well to consider what work does to the tuberculous patient. The work of Walther of Nordrach, Patterson of Frimley, and McConnell of Colorado Springs has shown that physical exercise causes a discharge of toxins into the circulation with consequent autoinoculation of the patient. As is well known, immunity to a disease is secured by gradually increasing the strength of inoculations. Patterson claims that by gradually increasing the work we increase the strength of the autoinoculations until immunity or cure is finally reached. Less enthusiastic advocates, or opponents, of the work cure object that there is no possibility of gauging the amount of dosage as the amount of toxin liberated by a given amount of work will vary in different individuals, and it is therefore dangerous. According to McConnell[8] in febrile cases the autoinoculations are excessive and must be reduced by appropriate means. He treats such cases by absolute immobilization in bed, as a typhoid patient is treated.

The patient is not allowed to move in bed, to read, to wash himself, to cut up his food, or to go to the lavatory. If rising from the bed or moving about do not produce a rise in temperature a preliminary period of walking exercise is prescribed. In this paper Dr. McConnell does not touch upon the mental side and it is easily conceivable that bed occupations are permitted before the walking period, but mention of them has been omitted.

During the past year an investigation of Invalid Occupation, Principally at Sanatoriums for Tuberculous, was made by Mr. T. MacLaren, an architect of Colorado Springs, who while a patient at Davos Platz and Saint Moritz, found sketching out of doors "a most agreeable substitute for idleness." In his study, as in the majority of papers on the subject, much more attention is given to ambulatory occupations than to those which may be given to the "resting" patient in bed. It appears that more should be published on this part of the subject. Captain J. R. Byers, C. A. M. C., commanding the Laurentian, Laurentide Inn and St. Agathe des Monts sanatoria, says that it has been possible to allow, under careful regulation, bed patients to draw, embroider, knit, crochet, do cardboard work, and study, all in moderation. It would seem that less effeminate occupations of the same physical value might easily have been found for men.

Captain Byers' conclusions are of interest and follow:

1. That properly regulated, and the greatest care having been exercised in the selection of the work as adaptable to the patient having been made, and with a willing co-operation on the patient's part, work is highly beneficial to the patient with pulmonary tuberculosis.

2. That even Class "A" patients (bed cases) appear to progress more rapidly when allowed to fill out their day in part with some interesting finger work, rather than lie still and in all probability brood over their sad lot.

3. That contrary to expectation, relapses have been very rare (less than 2 per cent.), and that in a year there has only been one small hemorrhage following exposure in the workshop.

4. That the vocational training, while not by any means making a man a wage-earner in a new field, has in a large number of cases started new lines of thought regarding the life to be led by the patient following discharge from the sanatorium, stimulated not a few of the younger patients to improve themselves in knowledge, and a desire to rise above the level which they occupied in society before enlistment, and to become better and more useful citizens than they otherwise would become. In addition the work has made an air of contentment and happiness in the sanatorium. Generous competition has grown up among the men as to the finish and design of the work in hand. Married men have made their children happy with many novel toys and models of furniture, while many a wife has been gladdened by the production of excellent house furniture resulting from her husband's handiwork.

5. The morale of the men has improved in a remarkable manner, there is far less tendency to drunkenness, absence without leave, and more serious attention to the routine of the treatment is exhibited now as compared with those dull days previous to introducing the system.

6. The results of treatment, while not showing any marked change from those obtained in civil sanatoria, are decidedly better than obtained during the first year of military work, and comparing the large percentage of men who refused treatment last year, with the very small number now applying for releases is one of the strongest proofs of their appreciation of this method of loosening nervous tension and making the prolonged and tedious treatment bearable.

I am firmly convinced that in the application of properly regulated work of an interesting nature in the treatment of pulmonary tuberculosis we have added a fourth word to our code which should read *rest, fresh air, good food, and work.*

A number of other works on tuberculosis which have been examined give nothing which has any relation to the mental side of the patient, or to this question of the occupation of bed cases. There are numerous articles on the subject of work after leaving the hospital.

I have discussed the occupation of the tuberculous on numerous occasions with Dr. M. F. Sloan, Medical Superintendent of the Eudowood Sanitarium, and the following may be considered as a summary of our views. It is quite obvious that individually we view the subject from different view points, Dr. Sloan giving first consideration to tuberculosis, while I, from training and experience, am influenced by consideration of the mental factors. That we have been able to pool our experience and agree upon the subject will anticipate any criticism that either one is lacking in a full knowledge of the subject. For years past the Eudowood Sanitarium has been well known for the occupation of ambulant cases, and its farm is quite celebrated.

It is possible to divide the tuberculous into four groups:

1. Those who show signs of the disease with but few symptoms, who usually recover quickly, but who are difficult to impress with the necessity of sanatorium care.

2. Those showing signs and having symptoms sufficiently marked to make the patient feel that he is sick.

3. Those having extensive signs and symptoms. Who have probably been treated for other ailments, the early diagnosis having been incorrect. Who frequently have a temperature of 101°. Who are desperately anxious to get well and therefore willing to cooperate.

4. The old chronics who come to the sanatorium as a last resort for treatment, or to die.

It must be emphasized that each case is an individual problem and requires special study before any occupation is prescribed. This is one of the principles I formulated in a paper read before the National Society for the Promotion of Occupational Therapy, which were indorsed and expanded by a committee appointed to consider the subject. It is quite possible that a considerable number of cases may be exceptional, and cannot be treated as are the majority. For example, a man with a very active mind who has been accustomed to doing many things may find it extremely difficult to cooperate with the requirement of absolute rest. This may be more frequently the case with those patients in Group I. It is with such that I claim that better rest is secured if the patient is allowed for a part of the day to read or carry on some other employment, entailing a minimum of physical exertion. In this way mental rest will be secured, there will as a consequence be less motor restlessness, and therefore greater physical rest.

It is well known that the more absolute rest a diseased part is able to obtain, the more quickly will it recover. This applies equally to other organs than the lungs. The only method of giving a lung absolute rest is by producing artificial pneumothorax. It is obviously impossible to produce this on both lungs, nor is it desirable to produce it at all except in certain selected cases. Our absolute rest in bed for the tuberculous is a compromise and merely reduces the necessary functioning of the lungs to a minimum, by reducing the amount of physical exercise and the consequent necessity for an increased amount of oxygen. There is probably no greater inciter of motor restlessness than mental worry or anxiety. Those who have had the experience know this—and who has not? Even in calf or salad days we pace the floor to relieve mental tension. The man or woman who has recently been told that he or she has tuberculosis, who perhaps is somewhat doubtful of it, who is responsible for the welfare of others, who is ambitious, cannot help feeling anxiety and worry. Depressive ideas will usurp the focus of consciousness and it will be most difficult, well-nigh impossible, to lie abed and get absolute rest. It is this type of case that we feel may be best helped by reading, crocheting, whittling, knitting, sketching, writing, embroidery, or other occupations which entail a minimum of physical exertion, yet require a concentration of attention and therefore exclude the depressive ideas. I believe that bed occupations may be beneficial to the first and second groups which are noted above. It is doubtful, excepting in rare instances, if in either of the latter two groups that bed occupations may be of value. In the first place individuals with a temperature of 101° usually feel too sick to desire occupation, and depressive ideas caused by unfulfilled responsibilities will be forced to the background by the physical ill feeling.

The subject of occupations is undergoing considerable investigation at present. Let us hope that some research will be directed to the subject of bed occupations for the tuberculous.

REFERENCES.

1. Muthu, C.: Pulmonary Tuberculosis and Sanatorium Treatment. London. 1910.
2. Bonney: Pulmonary Tuberculosis and Its Complications. 2nd Ed. 1910.
3. Mays, Thomas J.: Consumption and How to Prevent It. New York, J. B. Putnam's Sons. 1879.
4. Brown, Lawrason: Rules for Recovery from Tuberculosis. Privately printed, 1915.
5. Brown, Philip King: *The Modern Hospital.* June, 1917, viii 6.
6. Cameron, Horace: Second Annual Report of the Henry Phipps Institute. Philadelphia. 1906.
7. Fitzgerald, Guy H.: *Cleveland Medical Journal.* May, 1905. iv, 221.
8. McConnell: Autoinoculation in Pulmonary Tuberculosis. *New Mexico Medical Journal.* December, 1911.

SOME EXPERIENCES WITH U. S. A. BASE HOSPITAL NO. 37, AMERICAN EXPEDITIONARY FORCES.*

By HENRY MONROE MOSES, B.S., M.A., M.D., F.A.C.P.,

BROOKLYN, NEW YORK

ATTENDING PHYSICIAN, KINGS COUNTY HOSPITAL; ASSISTANT ATTENDING PHYSICIAN, NORWEGIAN HOSPITAL AND THE HOSPITAL OF THE HOLY FAMILY, BROOKLYN, N. Y.; FORMERLY LIEUT. COL., M. C., U. S. ARMY, CHIEF OF MEDICAL SERVICE, B. H. NO. 37.

THE entrance of a civilian doctor into army life leads to experiences both numerous and varied. His comfort or discomfort is in a large measure dependent upon his point of view and his adaptability. As the greater number of Americans can readily conform to new surroundings and conditions, we find that little difficulty is experienced and the new mode of living is soon adopted. Each individual learns that his interests are those of the organization to which he belongs and all his efforts and energies are directed toward making his Unit the most efficient in its line. The Medical Corps of the United States Army was striving for the best—our Unit was a Base Hospital Unit—and our efforts were to have our hospital give the most efficient service to the sick and wounded.

When entrance into the World War by the United States seemed inevitable, the Medical Board of the Kings County Hospital, Brooklyn, N. Y., offered this hospital to our government for use and also volunteered a base hospital unit from the members of the visiting staff and associates.

After the declaration of war by the United States, the unit was formed for overseas service. The organization was originally that of a 500-bed hospital; later this was increased to a 1000-bed hospital. We were all new at this line of effort and the greatest credit is due our Director, Doctor Edwin H. Fiske, of Brooklyn. Through his untiring energy and activity the Brooklyn Chapter of the American Red Cross with its Local Branches, and the public spirited citizens of that City, made it possible for us to obtain the necessary equipment for, at that time, the government did not accept any Red Cross Unit until it was fully equipped. Before we sailed for overseas service we were made a government hospital and all our activities were under the United States Government.

*Read at the meeting of the Medical Association of the Greater City of New York, May 19, 1919.

Many unexpected discouraging incidents and events happened during our preparation for service and in our enthusiasm to be doing something overseas, the time seemed long before we received our orders to sail. Eventually our efforts were rewarded and after two or three days of the greatest secrecy we sailed from the Crescent Athletic Club Dock, on the Shore Road, Brooklyn, to the pier and boarded the S. S. *Lapland.* The following day, May 19, 1918, at noon, the boat left the dock and we at last felt we were started on the great adventure. Our first orders were: that as soon as the boat leaves the pier everybody must go below decks: for no troops must be seen on transports until they are outside New York Harbor. We were also ordered to wear our life preservers at all times except when in the dining room and while sleeping. For twelve days our convoy of fourteen camouflaged ships zigzagged across the Atlantic Ocean escorted by the U. S. Battleship *Montana.* When about 500 miles off the coast of Ireland we were picked up by a convoy of eight destroyers and, unless one has actually had this experience, it is impossible to imagine the feeling of relief and security we had when we sighted these little boats. They sailed in and out among our vessels like shepherd dogs guarding a flock of sheep. A perfect day's sail up the Irish Sea, where many more destroyers and observation balloons came out to meet us, brought us to the Canadian Docks at Liverpool during the night. We were all glad that this phase of the journey was over for, although we did not see any immediate signs of danger, no one could ever tell just what might happen.

Our first news of the war on landing was bad news—all England felt that the Channel Ports and even Paris would soon be captured and were almost reconciled to it. The attitude of the people was one of the greatest depression and with good reason too. Every family had lost at least one member; all business was being carried on by women and old men, and everyone was underfed. A strict rationing system was being enforced. The principal meat was pork, and poor pork at that. Butter, sugar, cheese, or milk could not be had. Eggs were obtainable at prohibitive prices. No fowl or green vegetables, excepting cabbage and sprouts, were available.

We were all anxious to be in France and when we entrained for Southampton we felt that at last we would soon be caring for our own wounded. We had in store for us, however, something which at that time seemed the greatest possible disappointment. After most of our baggage had been loaded on the Packet for passage across the Channel from Southampton, we were informed that our Government had decided to establish Base Hospitals in England for the care of our troops and that we had been assigned to one of them. Nothing that I can ever write will express the disappointment of the members of our unit at that time. Never have I seen so disheartened a group of individuals as we were when we received this news. We were then ordered to the Rest Camp at Southampton and three days later were sent to a British Training Camp, turned over to the Americans, two miles north of Plymouth, England. This was

an excellent training camp of about sixty huts situated in the Southwestern part of Devonshire, one of the beautiful spots of England. But there were no attractions in it for us because we knew that it would be impossible to establish a base hospital there. I will not dwell upon our six weeks' stay at Plymouth except to say that we were all discontented on account of the enforced inactivity in hospital work. During this period many of our doctors and nurses were loaned to the British Government as there was great need of them.

At last orders came that we were to proceed to Dartford, and all our energies were directed toward a "quick get-away." Our supplies, which had preceded us by a month from the United States, had arrived in France. These were sent to Plymouth and again reshipped to Dartford when we finally established our hospital there.

Dartford is a manufacturing town of some 10,000 to 15,000 inhabitants in peace times, but of 50,000 in war times, chiefly composed of munitions workers. It is located about twenty miles southeast of London and forty-eight miles from Dover. The town's history dates back over a thousand years and it is of interest because it was the first stop made by the pilgrims when on their journey to Canterbury to visit the tomb of Thomas à Becket. It was also the home of Wat Tyler. It is five miles from Tilbury Dock, from which point many of our boys were shipped home. It is near the town of Cobham and the Leather Bottle Inn, made famous by Dickens, and also the City of Rochester, well known in early English history. Vickers Munition Works, the largest factories in England, are just outside the town, and the Woolwich Arsenal, also the largest in England, was only five miles away. Both of these places were objectives in the air raids over London, as they are in direct line to London, and several hostile machines were brought down in the neighborhood. However, we saw nothing of the Boche machines during our stay.

The hospital which we took over had been built for about twenty years and was one of the Metropolitan Asylum Board Hospitals. It was originally intended for the care of convalescent communicable diseases—cases from the City of London. It was a well-built, well-equipped plant, covering 170 acres, and beautifully situated on a hill. There were about forty buildings on the grounds, twenty-six of them were used as hospital wards—the others for administration, laundry, kitchens, storage and quarters for the personnel. We had a complete laundry, kitchen, engine room, baths, storehouses, and offices. Twenty of the buildings were built of brick and were two-story, arranged in the arc of a circle, standing alone, and could be completely isolated. Each building or block would accommodate from 100 to 110 patients and could be divided into six independent wards of different capacities. There were two small rooms for the suspected infectious diseases, a small kitchen, linen room, a nurse's office, and two baths in each block. Each building had its own hot water system and we always had hot water supply night and day.

At the time of the signing of the armistice we had a colony of our own on this 170-acre hospital —2077 patients, 42 officers, 100 American trained nurses, 225 enlisted personnel, about 50 British nursing helpers, and 200 other British helpers in the offices, kitchen, garage, laundry, and grounds. This made our hospital a town in itself and there is much more than medical and surgical work in having an organization like this run smoothly.

Our Quartermaster Department was busy and efficient. Our enlisted personnel had been carefully chosen to include clerks, accountants, stenographers, and men who could adapt themselves to different duties as well as those who would be useful in caring for the patients. We had our own carpenters, plumbers, and mechanics. All repair work, all of our food supplies, hospital dressings and equipment, transportation of our wounded, and the payment of everybody, not only our own men but also the patients were attended to by our own Quartermaster.

A 2000-bed hospital, with 60 per cent. of the patients surgical cases, requires a great amount of detail work. No patient was discharged without his necessary papers or without complete equipment and part of the pay due him from the government. All patients returning to the United States were inspected by an Inspector from Headquarters for both equipment and physical condition before leaving the hospital.

The Registrar's office was a busy spot because there seemed to be an indefinite number of different records and copies to be made and kept for the army as well as complete individual histories and records. Next to the Quartermaster Department this was the busiest office in the hospital.

The feeding of all this army of people was quite a problem. A large central kitchen was worked to its utmost capacity to provide for the patients, nurses, and British helpers. An improvised military kitchen provided for the enlisted personnel and a smaller kitchen served the officers. All the food was obtained from the British Quartermaster Department. A few additional luxuries we obtained in the open market—one month we bought $12,000.00 worth of extra milk and eggs for the patients—this coming out of the hospital fund. Had it not been for the service of the British women in the kitchen as well as in other departments of the hospital we would have been in the greatest difficulties.

We received our first patients July 29, 1918, ten days after opening our hospital at Dartford, although our British friends told us that it would take two months to get the place cleaned up and the buildings arranged for army patients. This rapid cleaning and fitting up of the hospital was the result of hard work on the part of every member of the Unit and a desire to get under headway. Our first patients were Americans who had been fighting in the North of France with the British and who had come from under treatment in British hospitals. Without seeing it, one can not imagine the joy shown by these men when they found that they were in an American Hospital with American doctors, nurses, and hospital corps men. Their usual expression was that "it seemed like home," and they did not try to conceal their pleasure. No complaint or criticism of the care

or treatment given them during their stay in the British hospital was ever made by any of these men, but "It is good to see American faces and have Americans taking care of us," was a commonly heard expression.

Fawkham, a small station, four and one-half miles from the hospital, was our receiving point and the sick and wounded fighting in Northern France came from Boulogne and Calais to Dover and then to us. Our first convoy of patients were Southerners; later we received many soldiers from the 27th Division, New York City's and State's own troops. Our officers had the novel experience of having in the hospital some of their pre-war civilian patients and our enlisted personnel met many of their former chums. This made conditions very personal and interesting.

As soon as a patient was able to return to active duty, he was sent to the American Camp at Winchester and then returned to his organization. All other cases appeared before a Disability Board, composed of three doctors, before discharge from the hospital was granted. Those cases fit for active duty in less than six months' time were graded "Class B" and remained in the hospital for treatment. Those who were well, but not useful in their original line of duty, were graded "Class C" and recommended for some lighter work than their former line of duty. This class of men were frequently assigned to some duty at the hospital. Those cases which could not recover within six months' time or were no longer needed in the American Expeditionary Forces were graded "Class D" and returned to the United States for treatment. The Disability Board passed on about 3500 cases between September, 1918, and the middle of January, 1919, when the last patients were ready for evacuation.

The entertainment of these soldiers was an important feature of the hospital life and for their contentment and peace of mind was as necessary as clothing and shelter. We had a recreation hall on the grounds with a seating capacity of 800 and this would be crowded with patients in wheel-chairs, on crutches, men with their arms in slings, and other convalescents whenever any entertainment was being given. Under the direction of our Commanding Officer, Lieut. Colonel Edwin H. Fiske, the various associations organized in the United States most capably cared for these patients and enough credit cannot be given to these enthusiastic and self-sacrificing men and women who did so much to cheer our soldiers abroad. Concerts, lectures, moving pictures, vaudeville entertainments and other amusements were frequently given, not only by our own American actresses and actors, but also by the British. The people of the neighborhood showed their good will and appreciation of the spirit of the Americans by organizing groups who visited the hospital on different days and thus helped to shorten the long hours of the sick. We were delighted one morning when a telephone message from Buckingham Palace came about 11:45 informing us that the King, the Queen, and the Princess Mary would visit our hospital that afternoon. It was later explained that notice of the visit was not given earlier in order not to disturb the routine of the hospital. The party spent the afternoon inspecting the wards and talking with the wounded. As a large number of our patients had been fighting in conjunction with the British, the King would converse freely with the men about the battles in which they were wounded. Ours was the only American hospital visited by the Royal Family in England. We encouraged the presence of visitors in order that the patients might benefit by their words of cheer and encouragement. Because of the proximity of our hospital to London, our patients saw and received many greetings from visitors from this side of the Atlantic. Each visitor brought messages of good cheer.

The religious life of the men was looked after and services were held by all beliefs in the little chapel which was among the hospital buildings.

An additional hospital of 1500 beds was started by our government outside the hospital grounds after our arrival in Dartford and three of the wards had been completed when the armistice was signed. All new construction stopped at this time.

We treated only Americans at the hospital. Our first patients were received on July 29, 1918, and the last patient was discharged January 21, 1919. During that time we admitted approximately 4500 men to the hospital; 60 per cent. of these were surgical cases and the remaining forty per cent. were medical cases. More than 1000 soldiers were returned directly to their organizations and about 3500 appeared before the Disability Board—a number of these were also returned to duty. Forty-seven of the patients died—25 of whom were among troops arriving from the United States with the most virulent form of influenza and its complications. Of this number 21 died of pneumonia and four of epidemic cerebrospinal meningitis.

The first patient who died in the hospital was a typical case of Addison's disease, without the bronzing. Autopsy showed a small focus of tuberculosis in the right upper lobe and both suprarenal glands were extensively involved. Many of the wounded were received with their first dressing still on. We had only one case of tetanus; this man died. There were eight cases of cerebrospinal meningitis with three recoveries. Two of these cases were among our female nursing staff and the third was a case of "flu" on whom a lateral ventricle puncture was done. All of our cases who died were autopsied and the findings were always most instructive. A detailed description of the treatment of surgical cases will probably be published before long.

Among our medical cases were found many interesting conditions, and we feel that the medical men profited more by their work than the surgeons did. Several of the Southern troops were admitted with a history of the symptoms of appendicitis with frequent attacks. Examinations of the blood in these cases showed a leucocyte count between 6,000 and 7,000 with an eosinophilia of from 7 to 12 per cent. The stools of these men were examined and the ova of the hookworm found.

Our Neurological Service was a busy one. Twelve cases of dementia precox were admitted to our hospital and sent back to the United States. Many cases of nerve injury, with involvement in scar

tissue came into the hospital, were examined, the lesion noted, and the necessary treatment recommended. Because of the slow recovery of this type of case, recommendation for return to the United States was usually made. The majority of the cases, however, were the so-called "war neuroses," or cases diagnosed as "psychoneurosis, anxiety state." These men presented the usual symptoms so vividly described in articles on this subject. They all recovered. Among the officers this nervous breakdown was usually due to worry because of the many responsibilities. Among the men we found that those who developed this condition were of somewhat unstable, poor-quality nervous system. The treatment was assurance of no immediate danger, ignoring the condition before the patient, giving no sympathy, keeping his mind occupied with pleasant surroundings, and giving him light agreeable employment. Our neurological ward was more like a club house than a hospital ward.

We had an unusual experience with a ship load of troops, coming from America, which arrived in England the latter part of September suffering with a type of influenza and complications, epidemic at that time. About 11:00 P. M., September 24, 1918, one hundred and sixty of the severest "flu" cases I have ever seen arrived from Southampton after a seven-hour car ride. All of these patients on admission showed cough, sneezing, profuse mucopurulent sputum, severe headache, pains through the body, pain and constriction through the chest, together with extreme weakness. In about 25 per cent. of these cases there was epistaxis either on admission or within the first twenty-four hours. In 30 per cent. of the cases there was bloody expectoration. Cyanosis was marked in many of the patients, with extreme difficulty in breathing. Among this convoy of 160 cases were found: 54 cases of pneumonia, and 5 cases of epidemic cerebrospinal meningitis. Twenty-five of the patients died: 20 of pneumonia, 1 of pneumonia with pneumonococcus meningitis, and 4 of epidemic cerebrospinal meningitis.

There also appeared among these patients: 14 cases of otitis media, 2 cases of scarlet fever, in 1 of which developed a case of bronchopneumonia with recovery; 1 case of measles; 1 case of mumps; 1 case of cervical adenitis which required operation; 3 cases of empyema; 1 case of erysipelas.

In the uncomplicated cases of influenza, the temperature was rarely over 102°, and the symptoms subsided within three or four days, leaving a severe cough with profuse mucopurulent expectoration which was easily raised. The pneumonia cases were both lobar and broncho in type. Those dying in the first three days showed complete consolidation of practically the entire lung. The organism found in the consolidated tissue was the pneumonococcus. Those cases not dying within the first few days showed more of a bronchopneumonia of a streptococcic origin. The findings at autopsy showed a marked difference between the lungs of those dying in the first seventy-two hours and those who died later. Those patients showing a lobar pneumonia returned to normal by crisis; those showing a bronchopneumonia returned to normal by lysis.

These patients arrived at the hospital after the symptoms were well developed, and it was difficult to obtain from the men a satisfactory history of the disease. The majority claimed that the attack had started about two days previously with cough, pain, fever, and general weakness. The striking features of the uncomplicated cases were excessive cough, sneezing, profuse mucopurulent sputum, pains over the body, and extreme weakness, continuing after the other symptoms had subsided. The severe symptoms subsided in from three to four days leaving the patient extremely weak with persistent cough and expectoration.

The pneumonia in these cases was more severe than the usual type of either lobar or bronchopneumonia. The amount of involvement was unusually large, and in the majority of cases but little toxemia was shown with this involvement. The patients suffered much from air hunger. There was marked cyanosis with the heart apparently not affected by toxemia. In some cases the involvement extended so rapidly that physical findings varied in a few hours. Those men who died within the first seventy-two hours died of asphyxiation because of the great extent of lung involvement; those dying after the first seventy-two hours died of toxemia due to influenza, pneumonococcic and streptococcic infection.

It is of interest to note the extent of lung tissue involved and the time of death of each patient after admission to the hospital.

Cases dying in:

34 hours	Lobar	All lobes involved.
43 hours	Broncho	Four lobes involved.
46 hours	Lobar	All lobes involved.
47 hours	Lobar	All lobes involved.
58 hours	Broncho	All lobes involved.
82 hours	Lobar and broncho	All lobes involved.
86 hours	Broncho	All lobes involved.
5th day	Lobar	Four lobes involved.
5th day	Lobar	All lobes involved.
6th day	Lobar	Three lobes involved.
6th day	Lobar and broncho	Four lobes involved.
6th day	Lobar	All lobes involved.
6th day	Lobar and broncho	All lobes involved.
8th day	Lobar	All lobes involved.
8th day	Broncho	All lobes involved.
8th day	Broncho	All lobes involved.
9th day	Broncho	All lobes involved.
9th day	Broncho	Four lobes involved.
9th day	Broncho (Meningitis)	One lobe involved.
10th day	Meningitis	No lobes involved.
11th day	Meningitis	No involvement.
11th day	Meningitis	No involvement.
12th day	Broncho	All lobes involved.

The examination of the blood showed various findings in the white cell count: there were some cases of leucopenia and some of leucocytosis. The findings in a number of cases that died showed leucopenia. The urine showed traces of albumin, few casts and no blood. A number of these patients showed the development of a loud systolic murmur at the apex of the heart, which disappeared eventually.

When these patients arrived, at eleven o'clock at night, we did not have masks ready for use. Nor did we have gowns, because this was the first sign of the "flu" epidemic we had and we were not prepared for it. Among our own men who attended this convoy upon its arrival, 15 developed symptoms of the "flu" and were in the hospital. Among the nurses who attended these patients, five were in the hospital with "flu," two with pneumonia, and

Report of Influenza Epidemic.

U. S. A. Base Hospital No. 37, Dartford, Kent, England.

Case No.	Pneumonia.			Involvement.	Complication.	Bacteriology.	Other Post Mortem Findings.
	Lobar.	Broncho.	Both.				
1	Yes	.....	.	Right and left lower lobes complete. In all other lobes large areas.	None.	*Staphylococcus pyogenes aureus*, pneumococcus.	Edema and congestion of lungs, Fatty infiltration of liver.
2	.	Yes	...	All lobes involved to a marked degree.	None.	Streptococcus, pneumococcus.	Serous effusion in pleural cavities, edema and congestion of lungs, fatty infiltration of liver.
3	Yes	.....	..	Right and left lower lobes complete. Large portions of both upper lobes. Lower half of middle lobe.	None.	No culture taken.	Serous effusion left pleural cavity, edema and congestion of lungs, fatty infiltration of liver, acute parenchymatous nephritis.
4	Yes	..	....	Right and left lower lobes complete. Large portions of both upper lobes.	None.	No culture taken.	Edema and congestion of lungs, serous effusion in pleural cavity.
5		Yes	...	All lobes involved markedly.	None.	*Staphylococcus pyogenes aureus*, pneumococcus	Serous effusion in pleural cavity, subpleural hemorrhages in both sides, fatty infiltration liver. Congestion other organs.
6		.	Yes	Lobar: Right lower lobe. Broncho: Right upper and middle left upper and lower.	None.	Influenza bacillus, pneumococcus.	Atypical left lung, middle lobe presents showing bronchopneumonia, fatty infiltration liver.
7	.	Yes	.	Entire left lung except small apical portion. Entire right except small portion at base. Areas of middle.	Acute fibrinopurulent meningitis, pneumococcic.	Lung culture: Pneumococcus. Spinal fluid smear and culture also yield pneumococcus.	Acute fibrinous pleurisy, early septic spleen, fatty infiltration liver.
8	Yes	.	.	Entire left lower. Lower half of left upper. Entire right lung except apex of upper, and upper border of lower.	Abscess of the lung.	Influenza bacillus.	Early septic spleen, chronic fibrinous pleurisy.
9	Yes	. .	.	Entire right lung. Few small areas in left.	Empyema, right pleural cavity.	Pneumococcus.	Early septic spleen, chronic fibrinous pleurisy.
10	Yes	.	.	Entire right lung except small portion at apex. Few patches in left lung.	None.	Influenza bacillus, pneumococcus.	Acute fibrinous pleurisy, serous effusion in right chest, fatty infiltration liver.
11	.	...	Yes	Entire upper and lower left except small portion at lower border of each. Diffuse broncho: Right middle lobe throughout.	None.	Pneumococcus.	Edema and congestion of lungs, chronic fibrinous pleurisy.
12	Yes	.	.	Entire left except small portion at the apex and lower border of lower lobe. Entire right except lower margin.	None.	Pneumococcus.	Acute and chronic pleurisy, congestion of spleen, retention cyst of left kidney.
13	.	..	Yes	Left: Entire, and area in lower right. Marked broncho throughout. Small patch in middle.	None.	No culture taken.	Chronic fibrinous pleurisy, edema and congestion of lungs, congestion of spleen and kidneys.
14	Yes	..	..	Left: Entire lung except lower border of lower lobe. Right: entire lung except anterior half of upper lobe and middle lobe.	None.	No culture taken.	Acute fibrinous pleurisy, early septic spleen, fatty infiltration of liver.
15	...	Yes	. .	Left: All lower and lower half of upper. Right, lower lobe and patches through upper and middle.	None.	Influenza bacillus, streptococcus	Acute fibrinous pleurisy, early septic spleen.
16	.	Yes	.	Diffuse throughout all lobes or both sides, most marked in lower lobe, right lung.	None.	Influenza bacillus, streptococcus.	Acute fibrinous pleurisy, bilateral hemorrhages in adrenals.
17	...	Yes	..	Nodules all through lobes, left side, upper and lower lobes right side.	None.	Streptococcus.	Acute fibrinous pleurisy, hemorrhage in myocardium, septic spleen.
18	. .	Yes	.	Entire left lung except apex Upper and lower right. Few nodules in middle lobe.	None.	Pneumococcus. *Staphylococcus pyogenes aureus.*	Acute fibrinous pleurisy, septic spleen.
19	..	Yes	. .	Both lower lobes and upper on left, and upper on right side.	Empyema, right thorax.	Pneumococcus, streptococcus.	Abscess lower right side, septic spleen, acute fibrinous pleurisy.
20	..	Yes	.	Both lobes left side, entire right side except small area at apex	Pleurisy.	Streptococcus.	Acute chronic pleurisy, chronic fibrinous pericarditis, septic spleen.
21	.	Yes	..	Few nodules right lower lobe.	Epidemic cerebro-spinal meningitis.	Meningococcus.	Septic spleen.
22	..	.. .	...	Lungs clear.	Epidemic cerebro-spinal meningitis.	Meningococcus.	Septic spleen.
23	.	.....	....	Lungs clear.	Epidemic cerebro-spinal meningitis.	Meningococcus.	Small amount of hypostatic congestion.
24	..	.. ..	....	Lungs clear.	Cerebro-spinal meningitis epidemic.	Meningococcus.	Small amount of hypostatic congestion.
25	.	Yes	....	Entire right lung, entire left lung.	Acute fibrinous pleurisy.	Pneumococcus.	Acute fibrinous pleurisy, septic spleen, chronic parenchymatous nephritis, multiple infarcts right kidney.

two with epidemic cerebrospinal meningitis. All these cases recovered.

Early during the morning after the arrival of the convoy, the following orders were issued to prevent the spread of the disease through the hospital:

"U. S. A. Base Hospital No. 37, American Expeditionary Forces. Date, September 25, 1918.

"A number of patients have been received at this hospital suffering from a

"COMMUNICABLE DISEASE.....INFLUENZA.

"Every precaution must be taken to prevent the spread of this disease through the hospital.

"These patients must and will be isolated until the danger to others is passed.

"They will have a distinctive mark upon their clothing during the infective period.

"All doctors, nurses, male or female, and any other person coming in contact must wear masks and gowns and be instructed in the care of their hands and clothing. They must place some substance, such as a nasal cream of camphor-menthol and vaseline or lanoline, in each nostril at least twice

during the twelve hours' contact, and before retiring wash the mouth and nostrils with some alkaline cleansing and antiseptic solution.

"Each patient must be taught the proper use of a handkerchief or a piece of gauze to prevent the spread of the disease when coughing or sneezing.

"All wards must be divided into cubicles.

"All patients must be carefully screened and segregated."

The enforcement of this order had much to do with the prevention of the epidemic in the hospital. We made a quarantine area of the buildings in which these patients were being cared for, and really had a contagious disease hospital within our own hospital. There was no outbreak of the disease among the 1700 patients in the hospital at that time. As a result of our care when the epidemic was raging in England, there was less "flu" in our 170 acres than anywhere else in England. We encouraged our own men not to visit outside the hospital grounds.

The chart shows the findings at autopsy of those cases which died. These autopsies were performed by Capt. Beecroft, Chief of our Laboratory Section.

Our disappointment at not serving in France entirely disappeared when we found the amount and character of the work we could do in England. We received our cases earlier than the Base Hospitals in France. We were not used as an Evacuation Hospital but as a Base Hospital. The care of the patients was more thorough and satisfactory and we were able to follow the cases to recovery.

The success of the hospital would have been impossible without the cooperation and encouragement of Brig. General F. A. Winter, Chief Surgeon of the American Troops in England, and his capable assistants who did everything in their power for the establishment of the hospital and for the comfort of the troops.

During our life in the army we met many able, large-minded, energetic, and capable men who had given up the possibilities of lucrative practices to serve with the army. They are all deeply interested in improving the condition of the service. They deserve, are entitled to, and should receive, the support and cooperation of the Medical Profession at large in improving the Medical Corps and in making it the strongest branch of the army. Before the present war but few of us knew anything about the medical conditions in the army—now we know that with our backing and support much that was formerly lacking can be secured and improvement must result. I know that these doctors look to us hopefully for advice, support, and cooperation.

108 Prospect Park West.

Retention of Chlorides in Uremic Eclampsia.—Holst has analyzed the blood of nine subjects from this viewpoint. The condition was one of nephritis with chlorine retention, known as chloruremia. He finds that the relationship between the serum content and clinical uremia is not exact as in azotemia. Increased concentration in the serum of the chlorides is of much less significance. There is considerable evidence that the symptoms of chloruremia are due to a retention of chlorides without reference to increased concentration, the chief consequence being the visceral edema.—*Norsk Magazin for Lacgevidenskaben.*

GONOCOCCUS PNEUMONIA:

REPORT OF A PROBABLE CASE.

By MARTIN ROSS, M.D.,

NEW YORK.

THE frequency of gonococcus infections, and the undisputed fact that septicemia with metastases is not uncommon, would make it reasonable to suppose that lung infections of this origin must occasionally occur. Yet, after an exhaustive search of the literature, reference has been found to but one case of gonococcus pneumonia. This case, reported by Von der Bressel,* although inconclusive, bears a resemblance to the present one. His case is that of a man aged 32, who came under his care for an acute gonorrhea. In a few days the patient complained of severe headache, signs of lobar pneumonia quickly following. Late in the course of the disease, he developed a cough, with sputum scanty, tenacious, milky white, and bloodless. Pure cultures of gram negative diplococci were obtained from the blood and sputum. In a week the temperature began to fall by lysis, complete resolution resulting by the eighteenth day.

Case Report.—Our patient (A. C.) was a female, age 16 years, of Italian parentage. She first came under the writer's observation, at the infirmary of the Randall's Island Hospital, in March, 1918, at which time she was suffering from a severe form of dysmenorrhea, a condition existent for a number of years. At this time her symptoms subsided, and she was discharged a few days after admission.

Family History: Father died at the age of fifty-two, with the diagnosis of nephritis. Mother and seven children are alive and well. No history of disease, hereditary or otherwise, in the family.

Previous History: As a child patient had measles and scarlet fever. She started school at five years, and had only reached the grade of 4B at thirteen, at which time she left school. Repeatedly failed to be promoted. At the age of twelve, she had acute rheumatic fever, and was confined to bed for three months. After leaving school, the patient became rather ungovernable, and there was a definite history of sexual irregularities and a chronic vaginal discharge.

She was committed to the institution March 1, 1918, for moral delinquency. Psychological tests gave her a mental age of six years four months, by the Terman scale, with an intelligence quotient of .46. Wassermann negative. Upon entrance into the hospital, routine examination having revealed the gonorrheal nature of her discharge, the patient was accordingly transferred to the female genitourinary division, where she was treated intensively for her infection. As a consequence, an acute exacerbation resulted, with a profuse vaginal discharge, and accompanied by a return of her menstrual difficulties. For this reason, she was transferred to the author's service, where she was again seen April 10, 1918.

Present Illness: Upon admission to the infirmary, patient complained only of a very severe headache. Her face was flushed, temp. 103.4°, pulse 98 full and regular, resp. 24. Menstrual flow beginning. The vaginal smear taken on the 10th was reported positive for gonococcus, and hence she was placed upon strict gonococcus precautions.

April 14: Patient persistently lies upon her right side and complains of severe pain in the right chest, exaggerated by deep inspiration. Face markedly flushed, with slight circumoral pallor. Large crop of herpes on both lips. No cough, but respirations are rapid with dilatation of alae nasi. Temp. 104°, Resp. 46, Pulse 136. Physical examination of chest shows dulness over the lower and middle lobes of the right lung, with increased voice sounds and fremitus, and showers of crepitant rales at the end of inspiration.

*Von der Bressel *Muenchener medizinische Wochenschrift*, March 1903.

Diagnosis made of lobar pneumonia. Blood taken for culture.

April 15: No additional complaints. Pulse weak and irregular, rate 100; Temp. 104°, Resp. 36. Patient has no desire for food, but takes water freely. Blood count gives the following: Erythrocytes 4,500,000; leucocytes 22,000, with a differential count of 92 per cent. Urine reported as being alkaline, specific gravity of 1015, and showing the presence of albumin, glucose, a few hyaline casts, pus, red blood and epithelial cells. Blood again taken for cultural purposes.

April 16: Lower and middle lobes of the right lung completely consolidated. Patient says she feels well. No cough or expectoration. Report of the blood culture of the 15th showed a pure culture of gram negative diplococci.

April 18: Patient very restless with respirations labored, rate 50. Temperature and pulse remain high. There is now a slight cough at frequent intervals, with scanty expectoration. The sputum is milky white, extremely tenacious, and contains no blood. Smear and culture of sputum taken. Physical examination of the right chest revealed no change. In the upper lobe of the left lung there is slight dulness with numerous crepitant rales. Report of the blood culture taken on the 15th shows a positive growth of Gram negative diplococci.

April 19: Patient very restless throughout the entire day and considerably disturbed by severe cough. Sputum is still scanty, tenacious and milky white, and contains no blood. Report of the sputum smear taken on the 18th shows great numbers of gram negative intracellular diplococci, and also a few gram positive organisms.

April 20: At 1 P.M. patient's condition became worse; pulse weak and thready; respirations very labored, and 54 per minute. Extreme degree of cyanosis and venous congestion, with markedly dilated heart. Phlebotomy was performed with the withdrawal of 250 c.c. of blood, and resulted in immediate improvement. Oxygen administered.

April 22: Examination this day showed dulness over the lower and middle lobes of the right lung, with numerous moist rales over this area. Upper lobe of the left lung completely consolidated. Protracted cough, but scanty sputum. Patient upon oxygen since the 20th. Blood culture taken.

April 24: Severe grade of cyanosis. Respirations labored. Systolic blood pressure 160, diastolic 85. Marked venous engorgement. Bubbling rales and dulness at both bases indicative of beginning pulmonary edema. Phlebotomy performed with the withdrawal of 200 c.c. of blood. Sputum and blood cultures of the 22nd both showed pure growths of gram negative diplococci, with a tendency toward tetrad formation. Vaginal smear revealed gram negative intracellular diplococcus, although active discharge had ceased.

April 26: Respirations this P.M. became very superficial, rate 50. Pulse 136, Temp. 102.6°. Signs of pulmonary edema present at both bases.

April 27: Another blood culture taken this day again produced a pure growth of gram negative biscuit-shaped diplococci. Clinically the case is progressively worse. Patient again menstruating.

April 28: No change in condition. Menstruation ceased.

April 29: At the right base posteriorly there is marked dulness, with breathing somewhat amphoric in type. Numerous moist rales of a definite metallic quality add to the likelihood of pyopneumothorax. Expectoration is less tenacious and more abundant. This with an extremely offensive odor to her breath are indicative of pulmonary abscess or abscesses. Lung puncture performed. Needle inserted into the left chest at the level of the seventh rib, posterior axillary line. Five c.c. of a sterile bouillon broth were injected into the lung, the needle remaining in situ. At the end of one minute 2½ c.c. of the blood-tinged broth were aspirated and cultured. A few small abscesses on nose and ears noted. Cultures from these yielded on overwhelming growth of staphylococcus. Clinically patient is very much worse. Respirations are very rapid and labored, and the pulse is weak. She complains of generalized pains, which are, however, most marked in the right arm and back. There are no embolic or joint symptoms. No nervous or mental involvement. Heart sounds show no valvular lesion.

April 30: Patient has been sweating profusely. Breath has a distinctly fetid odor. Sputum culture of this date again shows gram negative diplococci in pure growth. White blood cells 14,000, with a differential of 82 per cent. Red cells number 3,500,000.

May 1: At 4 A.M. patient began to fail rapidly; respirations very shallow and pulse imperceptible; cyanosis extreme. At 4.30 A.M. she was reported dead. At 8 A.M. a needle, under sterile conditions, was thrust (post mortem) into the right chest with the withdrawal of a few c.c. of bloody fluid. Aspiration of the left chest produced a milky purulent fluid. The smears from both these specimens showed great numbers of gram negative diplococci, and a few gram positive cocci. Cultures proved to be contaminated. The report of the lung puncture (ante mortem) performed on the 29th of April, stated the presence of a pure culture of Gram negative diplococci.

Post mortem examination performed May 1 revealed the following: Both lungs were riddled with minute abscesses. Consolidation of the upper left lobe. In the lower lobe of the right lung was a large abscess containing about 400 c.c. of light-green pus. The right upper lobe showed a walnut-sized abscess cavity, with blackish green indurated walls. Fibrinous pleurisy of right side with dense adhesions.

Left kidney hydronephrotic, the left pelvis and ureter dilated, containing 50 c.c. of clear urine. The remaining viscera, aside from the intense congestion, were normal. Microscopically, sections of the lungs showed multiple minute alveolar abscesses, with great numbers of gram negative diplococci, and a few gram positive cocci.

Résumé.—The organism obtained from the blood, the sputum, and direct stab of the lung, was in each case a gram negative diplococcus in pure culture, while the patient was known to have an acute exacerbation of a chronic gonorrhea. It grew very sparsely, or not at all, on all simple media but with greater ease on those to which human serum had been added. Neutral preparations of meat-infusion broth or agar, with serum in the proportion of 3 to 1, were used. It was very sensitive to heat, but resisted the temperature of the ice box for two to three weeks before necessitating transplantation. Macroscopically the colonies appeared as delicate grayish growths with a pale suggestion of yellow, a definite wavy margin, and a slimy consistency. The only other organisms to be considered here are the *Diplococci catarrhalis* and *meningitidis.* The *Micrococcus catarrhalis* which is morphologically indistinguishable from the gonococcus, seldom gives rise to more than catarrhal inflammations, and is easily differentiated from the gonococcus in showing none of the fastidious cultural requirements of the latter. To differentiate the meningococcus from the gonococcus is more difficult, and, in the absence of agglutination tests, not conclusively demonstrable. However, complete lack of all nervous involvement, the greater difficulty of its cultivation, meningococcus growing more readily on all meat-infusing media, even in the absence of serum or ascitic fluid, its greater resistance to low temperatures, meningococcus dying out within a few days if placed in the ice box, all point toward the gonococcus as the causative agent.

As to the mode of entrance into the circulation not much can be said. Gonococcus septicemia often occurs following specific urethritis, with no other focus of infection. In this instance, the explanation may lie in the presence of a dysmenorrhea, in so much as, with the damming up of her menstrual

flow, and the existence of numerous atria of infection, the organisms might readily have been swept directly into the blood current.

Conclusions.—1. The patient admitted with an acute exacerbation of an old gonorrheal infection, superimposed upon a dysmenorrhea.

2. Lobar pneumonia following an atypical course.

3. Sputum scanty, very tenacious, milky white, with no trace of blood at any time.

4. Pure cultures of gram negative biscuit-shaped diplococci were obtained from the sputum, the blood and lung puncture.

5. Termination of the lung process in pulmonary abscesses.

1963 Seventh Avenue.

THE NEED OF CO-OPERATION BETWEEN THE MEDICAL AND DENTAL PROFESSIONS.

By S. HERDER, D.D.S.

MOUNT VERNON, N. Y.

It has been well said, that when a dentist treats a tooth, he should not only see that particular tooth, but the entire individual of which it is a part. In other words, in treating a tooth, he should take into consideration, whether normal or abnormal, the physical condition of the entire human body of which that tooth is an integral part. How can he do this unless he has a tolerably good understanding of the great number of diseases to which human beings are heir? That indeed, is the great pivotal question.

It is just exactly at this point where the great tragedy of present-day dentistry comes in. That diseases of the body very frequently have a deleterious effect upon the teeth, and that diseases of the teeth also have a similar effect upon the body are now clearly established, authoritative facts. Somewhat as follows do these facts make their mute, pathetic plea: "For the sake of human health, fellow dentists and physicians, do your utmost to get at least a tolerably good understanding of the inter-relation between diseases of the mouth and body!"

Simply because a great majority of dentists and physicians do not possess this much needed understanding, are they, therefore, justified in coolly and indifferently ignoring this heart-rending plea, with the assertion that they do not care or do not want to know these things?

Practising dentists and physicians should not only strive most energetically to obtain this much needed information, but they should give their patients the benefit of what little information they already possess upon this vital subject. "Co-operation between dentists and physicians" has been and must continue to be the sharp, shrill, impressive cry of the leading men of the medical and dental professions.

Almost at every turn this cry keeps ringing in our ears. In practically every phase of dentistry, whether it be pyorrhea, orthodontia, oral surgery, diagnosis, artificial dentures, or any other phase of dentistry, cooperation with the physician has very often been found to have been of inestimable value.

On the other hand, it has been conclusively shown that patients suffering from certain types of rheumatism, neuralgia, ulcers of the stomach and other organs of the body, insanity, and many other diseases and lesions of the human body, have regained their normal health after having their teeth and mouth properly treated.

In referring to asthma, Dr. Mark I. Knapp of New York said quite recently, in substance, that poor teeth or lack of sufficient teeth for the proper mastication of food may be definitely considered as a cause of asthma.

Dr. V. E. Mitchell, in discussing the subject of cleft palates before the Northern District Dental Society of New York last December, pointed out quite forcibly that a great many cleft palate cases have been operated upon surgically with most unsatisfactory results, when consultation with a dentist would have proven that very favorable results could have been obtained by the insertion of a proper dental appliance.

Dr. E. C. Rosenow of Minnesota, in his lecture before the First District Dental Society last March, said in substance, that the diseased condition of the teeth and their adjoining tissues has very often been shown to have been the direct cause of the extraoral diseases and lesions of certain types of patients. His concluding remarks consisted in advocating very strongly the great need of close cooperation between the medical and dental professions.

In the face of such facts as the above, one is often appreciably chagrined to learn of the great amount of ignorance upon these important matters that is shown by many physicians. For example, when treating certain types of disease, and suspecting that the teeth may be the seat of the trouble, some physicians have sent their patients to a radiographer to have their teeth radiographed. The radiographer being limited strictly to radiography, knows nothing about the clinical history of those teeth. The physicians having no dental training, are of course in no position to determine except in a general way, what the condition of those teeth are, whether normal or abnormal. Have those physicians a right, therefore, to formulate conclusions and opinions involving their patients' health, upon such meager and flimsy evidence?

Of course what these physicians should have done, when they suspected the teeth as a cause of their patient's ailments, was to send them to a dentist. By cooperating with the dentist rather than with the radiographer, a real intelligent understanding of the patient's teeth would have been obtained, if such an understanding was ever expected to be obtained.

The purpose of the joint medical-dental meeting held in Washington Irving High School, New York City, March 4, 1919, was to find ways and means of actually realizing, as early as possible, a closer cooperation between the medical and dental professions.

The idea brought out that the dentist ought to have a medical education, or that the physician should possess a dental education, does not enter into the question at all. In no conceivable way, does this idea prevent the physician from enlightening the dentist upon diseases of the body as it bears upon diseases of the mouth; nor does it bar the dentist from enlightening the physician

upon the diseased condition of the mouth and its possible effects upon out-of-the-mouth diseases.

Simply because we cannot learn, perhaps as much as we ought to upon this important subject, is there any just and honorable reason therefore, for concluding that we should not learn anything at all about it?

The upshot of the foregoing remarks is that the dentists and physicians should not wait until some vague future time, but should *act right now*, in this extremely vital matter of securing educational cooperation between them.

An excellent means of interchanging educational ideas between the two professions is the following: Let the dentists be invited by medical societies to medical meetings at which such subjects, as the important bearing of out-of-the-mouth diseases upon diseases of the mouth are being discussed. At these meetings the dentists should not only listen, but take an active part in the discussion. Similarly, by way of reciprocity, or irrespective of any invitations on the part of the medical societies, the dental societies ought to make it their business, to invite the physicians to dental meetings at which such subjects as the important relation of mouth diseases to out-of-the-mouth diseases is being discussed.

Here also, the physicians should not only listen but actively participate in the discussion. The publication of such discussions, in addition to other articles along similar lines, in the medical and dental journals of the country, would still further aid in obtaining a closer cooperation between both professions.

A determined effort to get the physicians and dentists together, for the purpose stated above, was made for the first time within my knowledge, on March 4 last, under the auspices of the Allied Dental Council of New York. It ought to be the forerunner for many others, to follow at an early date, wherever dentistry and medicine are being practised.

As Drs. M. I. Schamberg, Robert T. Morris, S. Danna Hubbard, Medical Inspector of the Department of Health of New York City, and others showed at the above mentioned meeting; and as Drs. R. Ottolingui, M. L. Rhein, H. Biggs, Health Commissioner of New York State, and many others have stated in the substance of their communications, the need of cooperation between these medical and dental professions is of vital importance.

In conclusion I wish to make the following indisputable and extremely pertinent statement: Physicians and dentists can never hope to give their patients the best that their respective professions offer, if they persistently and carelessly refuse to take advantage of the much needed cooperation between these two professions. Let us take advantage of each other's experience, fellow dentists and physicians, in the way suggested above. We shall thus materially assist in cementing together invaluable bonds of fellowship between the members of both professions. The inevitable result will be the conferring of a distinct benefit not only upon ourselves, but upon all mankind as well.

6 East First Street.

Medical and Surgical Lessons of the War.

IMMEDIATE ACTIVE MOBILIZATION IN THE TREATMENT OF GUNSHOT WOUNDS OF JOINTS.

By Lieut.-Col. CHARLES WILLEMS.

BRUGES, BELGIUM.

SURGEON-IN-CHIEF OF THE BELGIAN MILITARY HOSPITAL OF THE FRONT AT HOOGSTADE; PROFESSOR OF CLINICAL SURGERY AT THE UNIVERSITY OF LIÈGE.

No surgical rule is more firmly established or has been more universally followed than that which demands immobilization in all joint lesions, from the most insignificant to the most serious. At the same time the disadvantages of immobilization have been fully appreciated, for every one knows how rapidly the functions of the joint and of the muscles connected with it are thereby compromised. Immobilization of a joint for only a few days is always followed by more or less stiffness and muscular atrophy. It is well recognized also that these troubles, once established, are very persistent and often do not completely yield to massage, mechanotherapy, electricity, hot air, and other physiotherapeutic measures. Even in the most favorable cases these measures must be applied for weeks and months before bringing about any marked results.

If then, in spite of these serious disadvantages, the practice of immobilization has been continued for so long a time, it has been because it is regarded as indispensable—a necessary evil. It is regarded as the only means of easing the pain, of preventing an "aggravation of the lesions," of preventing "irritation" or "inflammation." And, indeed, it is frequently observed that the pain is increased and that very serious results do sometimes follow imperfect immobilization, and that all these troubles subside again as soon as absolute immobilization is obtained.

And with even more reason, apparently, the greatest care is taken to keep the joint absolutely immovable in case of suppurative arthritis in order to avoid a "scattering of the germs" and an extension of the infection to the still healthy parts of the synovia and to the periarticular tissues, not to mention the sedative effect of immobilization upon the severe pains of suppurative arthritis, an effect shown by the patient's apprehension of the slightest movement. In all these conditions immobilization has always been regarded as of such capital necessity as to justify the production of all the sequelæ which followed in its train.

It is to be noted, however, that a certain reaction against prolonged immobilization has manifested itself in recent years. It was especially under the influence of the writings of Lucas-Championnière relating to the treatment of certain fractures without immobilization by means of massage, that articular lesions—non-infected ones, be it understood—benefited by a shortening of the period of immobilization, and that surgeons had acquired the habit of saying, with significant unanimity, that an injured joint should be mobilized "as soon as possible." This formula is indeed a little vague, but it nevertheless indicates a modicum of progress.

I myself had been struck, in the surgery of industrial accidents, by the mediocre results of the classical treatment in case of traumatic effusion of the knee. One began usually by immobilization and compression and ended with all the forms of physiotherapy which is but too often invoked to repair the results of error or shortcomings of the surgeon. The results were far from brilliant. Even a simple hemarthrosis did not always get well with complete functional restoration, or did so only after weeks and months of treatment.

The works of Rochard and of Thooris had certainly improved matters a little in replacing immobilization by progressive resistive movements, but I assured myself that the true cause of functional impairment in cases of traumatic joint effusion was to be found in the distention of the synovia and that it would undoubtedly suffice to evacuate this effusion by puncture in order to bring about a *restitutio ad integrum*. From my very first case I felt that I was on the right track. As soon as the fluid was evacuated the function of the joint was immediately re-established. Not only did the joint movements cease to be painful, but even walking became possible. The injured man who could stand only with the greatest difficulty or who had been brought on a stretcher, found himself, to his great astonishment, relieved of his pain as if by magic and able to walk naturally, flexing the knee. Once he had thus begun he could go on indefinitely and could even continue to walk with impunity up to the point of fatigue as I counselled him to do. This immediate and complete use of the joint gave rise to no trouble; on the contrary, as one might *a priori* have foreseen, neither stiffness nor atrophy was experienced. The patients got well in a few days, even when slight return of the effusion called for a second puncture, which was exceptional. The cure was so perfect that when I saw the cases some months later some of the patients had forgotten which knee it was that had been tapped. In 1909 I was able to report to the German Surgical Congress some thirty cases of traumatic hemarthrosis or hydrarthrosis treated by this new method. All the patients had been cured in a few days, without the least mishap and with anatomical and functional integrity of the limb.

The method was widely adopted in Belgium and France, and I had knowledge of hundreds of cases in which, in the hands of surgeons treating industrial accidents, it had been followed by unvarying success without any untoward incident.

This initial success naturally led me to have recourse to the same method in the case of articular lesions more important than simple hemarthrosis. I used it in case of joint wounds by cutting instruments, and there also the results were excellent. Then in fractures of the patella, treated by *cerclage*, making the patient walk five or six days after the operation, and again the experience was conclusive. Walking was at first with the knee held stiff, but in a few days articular movement began to return and in less than a month walking was almost normal.

I was at this point when the war began. Since then the great frequency and infinite variety of joint injuries that came under observation in my service at the military hospital at the Belgian front at Hoogstade have enabled me to progress much further along the way of mobilization in case of injury to the larger articulations. In proceeding by steps and passing from the more simple to the more serious injuries, I mobilized immediately, first penetrating wounds with destruction of the soft parts but without osseous lesions, then wounds with projectiles in the joint, then all kinds of intra-articular fractures. I did not limit myself to fresh, non-infected wounds, but also treated purulent arthritis after the same manner, and it was especially in this so grave complication that the method gave the most astonishing results.

Before describing the procedures employed in these various cases it will be necessary to lay down the general rules of the technique.

The essential principle of the method and the object one must seek to obtain is to re-establish immediately and completely the function of the wounded articulation. One will readily understand, however, that this end cannot always be attained with equal facility, and this for various reasons. All joints have not functions of the same complexity. If we limit our observation to the knee and the elbow, we note that the function of the elbow may be regarded as entirely restored when we have succeeded in re-establishing in full degree the movements of flexion, extension, and rotation. In the case of the knee, on the other hand, we cannot speak of perfect restoration of function until, in addition to complete flexion and extension, we have succeeded in enabling the patient to walk. In other words, in the case of the articulations of the upper extremity mobility comprises the entire function, while in the case of those of the lower extremity mobility constitutes only a part of the function, another part of which consists in walking, that is to say, the possibility of the joint supporting the weight of the body during movement. On this account it is a more simple matter to restore the function of the elbow than that of the knee.

On the other hand the importance and the extent of the lesions affect equally the facility with which we can obtain a return of function. It is easy to understand, for example, that in the case of the knee, extensive intraarticular fractures will not allow of this immediate and complete restoration of function, since they will not permit walking, while similar lesions of the elbow may be regarded as capable of immediate and complete functional restoration, since in the elbow we have to consider only mobility.

There are, however, certain general rules to be followed in the restoration of mobility, and these rules are the same whether we have to do with the elbow or the knee. It is to these two joints, which are the ones most often affected, that we shall confine our study.

These general rules, which are, moreover, very simple, may be summed up as *immediate active mobilization*. Simple as they are, however, they are nevertheless often lost sight of. Each day I see surgeons obtaining imperfect results because they have not followed strictly enough the rules of this mobilization. One must not be satisfied with a partial result. The method will give much better results to the one who knows well how to execute it.

Technique of Immediate Active Mobilization.—

The term "immediate active mobilization" should be taken in its literal sense. The mobilization should be *active*, that is to say, made by the wounded man himself and obtained by the contraction of the muscles which normally move the articulation. Among the physiological movements of each joint there are those which are essential and those which are accessory. It is on the former that we must insist at first; in the knee and the elbow these are extension and flexion. Active mobilization cannot at all be replaced by passive mobilization which has no effect upon either the musculature or the nutrition of the joint, but only tends to restore motion. It is also very bad to combine these two modes of mobilization, adding passive movements to the active movements in the hope of getting along more rapidly and increasing the extent of the movements. I have seen deplorable results from this practice, such as inflammatory exacerbations which restricted the extent of the movements and rupture of extra-articular foci of infection into the synovial sac.

The mobilization should also be *immediate*, that is to say, begun without any delay as soon as the patient comes out from the anesthesia. One must therefore not let him "rest" at first for several hours or several days, as one is inclined to do. It is of the greatest importance to begin the movements immediately after the operation, as soon as the patient regains his consciousness. The patient can be made to do them much better at this time than if they are begun later, and they will also be of greater extent at the very outset.

This immediate mobilization in the strict sense of the word has really nothing in common with the so-called early or precocious mobilization of which much is said at the present time, and which, although constituting an advance over long continued immobilization, can never give the astonishingly rapid result of immediate mobilization; neither can it prevent atrophy of the quadriceps which is so readily produced and which absolute immediate mobilization alone is capable of preventing.

In addition to being active and immediate the movements should also be pushed to the greatest possible extent. This extent will often not be very great for the first movements, but by urging the patient to greater efforts the amplitude of the movements will be increased rapidly and will soon attain the normal or nearly so. We must not content ourselves with a partial result, as I have said. The surgeon ought to know how to induce his patient to make the necessary effort not only to preserve the degree of mobility already obtained, but also to increase constantly the extent of the movements. If we leave this to the patient to do he will always recoil from the indispensable effort necessary to increase the extent of the movements and will content himself with always reproducing the same movement and to the same degree. Finally, the movements must always be executed without any respite. I am often asked how many times a day I have these movements repeated. I reply "incessantly;" it is an essential condition to obtain complete success that the joint should never, so to speak, be immobile. Undoubtedly the wounded man will become tired, moving his joint so without any rest, but this fatigue is of no particular account. Continuous effort is necessary because the more the movement is repeated the easier and more extensive it becomes. If, on the other hand, one lets the joint rest for a time it will be seen that at each renewal of the movements there is a certain stiffness and a certain diminution in amplitude. This fact is noted especially after the repose of the night, and the patients declare in the morning that their joints are "stiff" and they know that it will be necessary for them to make a long series of movements in order to get the joints supple again and to regain the degree of mobility of the previous evening.

The technique of my method may be summed up under the brief formula of active, immediate, maximum, and uninterrupted mobilization. This treatment calls for an effort which the patient will make with the necessary perseverance only if he is constantly urged thereto. These patients ought therefore never to be left to themselves; on the contrary they ought to be constantly watched by a personnel well acquainted with the treatment. I can never sufficiently impress upon surgeons who wish to obtain good results the necessity of detailing to these patients an orderly or a nurse who will never, so to speak, leave them, and will be constantly urging them to make frequent and extensive movements, encouraging and stimulating them always to renewed effort. The orderly or nurse must be especially instructed to urge the patient to make by preference that movement which he makes with the most difficulty, the most incompletely, and the least frequently. This movement in the knee or elbow is that of extension. This is a matter of the greatest importance. I see every day surgeons who obtain only imperfect results because they have not been strict enough in insisting upon this, and success depends more upon this well-conducted and well-directed treatment than upon the operation itself. If we do not take care we shall see muscular atrophy appear in cases in which mobility is well preserved. Thus I have seen marked atrophy of the quadriceps in patients in whom the mobility of the joint was fairly good but in whom complete extension of the knee had not been obtained from the earliest moment. In order to avoid this atrophy of the quadriceps one has often only a few hours at his disposal; and once the atrophy has begun, complete extension later will be in vain, for one then cannot prevent this atrophy persisting and even increasing.

Moreover, as I said before, the movements become more and more easy in proportion as they are repeated, but on the contrary the patient who neglects these movements is confronted with more and more difficulty in making them and he makes them more and more infrequently because he has become discouraged. One fact of which we must persuade ourselves is that active, immediate mobilization is always possible. It goes without saying that it will not always be of the same degree, since the extent of the osseous lesion and the amount of destruction of the joint ligaments must evidently be taken into account. But other conditions also influence the ease of these active movements. In the first place we have to note the courage and good will of the patient. One man who is intelligent and energetic will have a pride in doing what is asked of him. Another, with less courage and a feeble will, must be constantly spurred on or he will make only partial movements. It is easy to understand that the

first one will obtain a complete result much more rapidly than the second. But courage is not the only requisite. The skill of the wounded man in contracting the individual muscles necessary to produce a given movement also enters into the success of his treatment. Some of the wounded exhaust themselves in vain efforts to contract the quadriceps and so raise the leg above the bed. They contract all the muscles except the ones they should contract. Others, on the other hand, from the very first and without special effort, project the nervous influence directly to the muscle or muscular group which is concerned in the action. Here, again, the education of the patient must be under the direction of the nurse.

When I speak of moving the wounded joint my hearers never fail to ask if the movements are not painful. This is a very natural question from surgeons who are convinced that pain cannot be avoided except by immobilization. In reply to this question I am accustomed to have the interlocutor see the patient move his wounded joint and I prove by him that these active movements are not painful in the strict sense of the word. But they are laborious. The limb seems heavy and in order to move it the patient must make an effort which will have to be energetic at the start but which will become more and more easy as time goes on. It is precisely because this effort is necessary that the patient must be urged to do it without ceasing. Without this urging he will not make the effort which he regards as burdensome.

Real pain is rare, and when it occurs it is only transitory. It depends then either upon displacement of the fragments of the fractured bone or on the occurrence of intraarticular effusion. It happens indeed from time to time, during very active mobilization, that pain suddenly occurs together with functional impotence, and on examining the joint one will find effusion present. It will suffice to evacuate the fluid by puncture in order to have everything become normal again. There will also be real pain if the movements cause displacement of a large bony fragment, but in this case, as we shall see, the movements must be restricted. We shall see also that in purulent arthritis actual pain appears when the evacuation of the pus has not been complete and that in order to cause this pain to disappear it will suffice to effect complete emptying of the sac by more energetic movements and of greater extent. But except in the cases mentioned active movements are not really painful. The best way of assuring oneself of this is to observe the patient when he is not conscious of being under observation. We shall then see that the wounded man treated by active mobilization uses his limb in all sorts of ways not included in the method, which he certainly would not do if the movements were painful even in the slightest degree, for the man who suffers from movements of the limb instinctively keeps this limb quiet. Furthermore, the patient himself will often tell you that when painful sensations appear from time to time the best way of quieting them is to execute some active energetic movements. This is a fact which often causes astonishment to those unacquainted with the method, because we all know the extreme sensibility of joints treated by immobilization and we know incomplete immobilization will then excite lively pain. Joints treated by active mobilization have not this extreme sensibility and they do not shrink from movements. An extremely interesting phenomenon and one hitherto unrecognized is that sensibility of a joint which has been actively mobilized is absolutely different from that of an immobilized articulation. Immobilization increases the articular sensitivity, while active mobilization maintains it at a normal degree.

1. Immediate Active Mobilization in Non-infected Joint Lesions.—We are going to review now the different classes of non-infected joint lesions and we shall see in what way it is necessary to apply to each of them the principles we have described above.

A. *Joint Lesions without Involvement of the Bone.*—The most simple type of these lesions is furnished by traumatic hemarthrosis and hydrarthrosis. We have already spoken of these. In war surgery all the joint wounds should be treated in the same manner as long as they are aseptic, whatever may be the extent of the destruction of the soft parts. We find here simple perforations and large, uneven wounds opening into the joint, loss of substance of the skin, of the ligaments, or of the capsule, and, except in cases of simple perforation by a rifle or machine-gun bullet—in which case we may abstain from any interference—one must always excise widely along the wound, whatever may be its extent. That is the way we transform an infected wound into a surgical wound. When the wound is probably aseptic, that is to say, when the patient is received within twelve hours after the injury, we must close the articulation by suture, hermetically sealing it without drainage. That is the practice to which we all arrived at the front and the French surgeons did much to establish it. It gives infinitely better results than any other mode of treatment. It is indeed in joint wounds that primary suture finds its best application. But this suture must be complete at all costs and hermetically sealed. I follow this operation by immediate active mobilization or rather by immediate and complete restoration of function Thus in cases of the elbow joint active mobilization alone is to be considered, but when dealing with the knee we must add walking to articular mobilization just as we have seen in cases of simple hemarthrosis. The same method must be followed in cases of articular wounds with a projectile in the joint. Intraarticular projectiles should always be immediately removed, whatever their nature and size. We do a vertical arthrotomy, unilateral or bilateral, and remove the projectile, excising the wound of entrance, and then close it completely. One can always remove a projectile by a simple vertical arthrotomy, provided the incision is of sufficient length; it is never necessary to make a horseshoe or curved incision cutting the patellar tendon. This is not because this section prevents immediate active mobilization, but because it necessitates an extremely careful suture of the tendon and it is always better to avoid this. When the projectile occupies the posterior intercondylar space or the posterior aspect of the condyle it may be impossible to remove it through the lateral incision. In such a case, instead of making the horseshoe incision, I have added to the two lateral in-

cisions previously made a third one passing across the popliteal space behind and exposing perfectly the posterior aspect of the articulation. The dissection of the popliteal space is rather delicate, but if the incision is long enough one can easily avoid

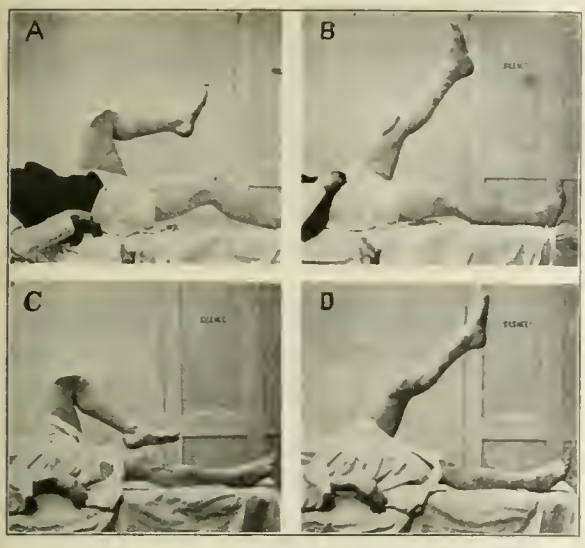


Fig. 1.—Maurice G. Wound of the left knee by a shell fragment passing behind the patella; projectile extracted and wound closed aseptically. A and B, flexion and extension one day after operation; C and D, flexion and extension after ten days.

the vessels and nerves, and after opening the synovial capsule the entire posterior aspect of the joint is exposed to view. This third vertical incision does not complicate the treatment by mobilization. I think this triple arthrotomy should be preferred to the horseshoe incision because it allows us to expose the joint cavity from behind just as well and even better, and because it has none of the disadvantages of a flap operation.

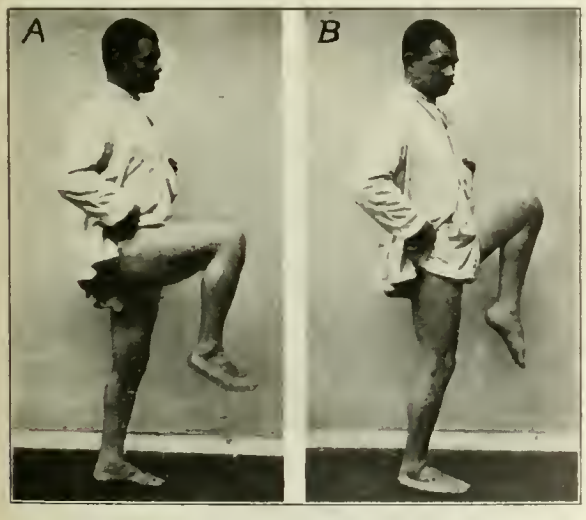


Fig. 2.—Same case as illustrated in Fig. 1. A, extension, the patient standing on the wounded leg; B, flexion, the patient standing on the sound leg; two months after operation.

After the removal of the intraarticular projectile the function of the joint should be immediately and perfectly restored just as it would be in case of lesion of the soft parts without enclosed projectiles. That is to say, the wounded man ought to begin to walk immediately in case of injury to the knee or begin immediately to make active movements when it is the elbow that is injured. These articular wounds with or without foreign bodies lend themselves perfectly to this mobilization and the results are just as good and just as rapid as in case of simple traumatic effusions. We obtain the restoration of function just as easily and the wound heals without complication. Thus wounds of this sort close in a few days, leaving behind them neither stiffness nor muscular atrophy. It is also true that the prognosis in lesions of this kind treated after my method is excellent.

There is one detail of the technique in arthrotomy for articular wounds which is important, and that is, we must suture the joint as far as possible in layers—synovia, capsule, and skin, in order to have a solid cicatrix which will not permit later a synovial hernia. It has happened to me to open the knee joint solely in order to get a better suture in this way. In case effusion occurs we must not stop the movements but evacuate the fluid and continue the mobilization. Of course it may happen that the joint becomes infected notwithstanding a careful and extensive excision of the wound. In war surgery one is never absolutely certain of having removed all the infected or contused tissue. The wounds of the popliteal space especially do not lend themselves readily to wide excision. If infection occurs we must reopen the wound or wounds and proceed as we shall describe below, but we must always bear in mind that when the surgical preparation of the wound is well made infection is rare. According to my statistics it is certainly not more frequent than when the articulation is immobilized after operation.

B. *Articular Wounds with Slight Osseous Lesions.*—In this category we find, first, simple perforations of the epiphysis, whether complete or incomplete, with retention of the projectile in the bone; secondly, erosion of the cartilage, detachment of chips from the surface of the bone, and more or less deep loss of substance, but limited in the surface extent. All these lesions have this in common, that they leave intact the greater part of the joint surface and that they are not accompanied by any line of fracture involving the epiphysis and delimiting a detached or detachable fragment. There is therefore no displacement, and the treatment is exactly the same as that of articular lesions without involvement of the bone, but completed by removal of the loosened or detached cartilaginous fragments, removal of bony splinters, extraction of the projectile and of the disorganized tissues due to it, the toilet of the osseous wound, and complete closure without drainage. Active, immediate mobilization must be at once instituted. In the case of the knee it will ordinarily at least be possible to have the wounded man begin to walk at once, unless the loss of substance involves some considerable extent of surface. A loss of substance of even considerable depth will be less disadvantageous than the detachment of a superficial chip of somewhat wide surface area. The most unfavorable condition for walking and also for final restoration of function is that resulting from an extensive loss of the cartilaginous covering, especially when two opposing surfaces are involved as, for example, the posterior surface of the patella and the anterior face of the condyles.

In such cases we have encountered considerable difficulty in the maintenance of mobilization, and an active collaboration of the patient alone makes it possible. These lesions are in this respect more serious than intraarticular fractures of greater

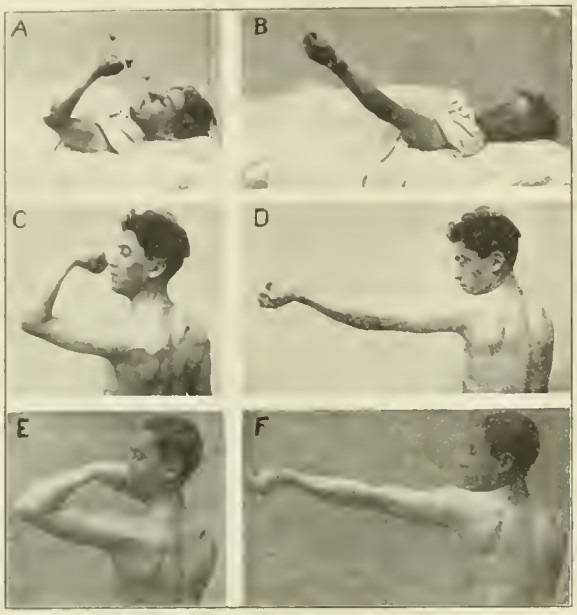


Fig. 3.—Georges de B. Penetrating wound of the left elbow by a large shell fragment lodged in the joint; no bone lesions; incision, extraction of the projectile, and closure of the wound; aseptic healing. The location of the projectile is shown in Fig. 4. A and B, flexion and extension on the day following the operation; C and D, flexion and extension after two weeks; E and F, flexion and extension at the end of one month.

gravity in which, however, the cartilaginous surfaces are less involved. We encounter sanguineous intraarticular effusions quite frequently in this class of lesions, due to the fact that the denuded surfaces are of considerable extent and continue to bleed for a while. It is important to puncture these hemarthroses immediately in order to prevent the blood from coagulating and the clots from attaching themselves to the roughened articular surface. Except when the involved surface of cartilage is extensive, active mobilization gives an infinitely more rapid cure than the classical treatment. The quality of the cure is also excellent. Articular movements are preserved intact and muscular atrophy, even if it is not entirely absent, is reduced to a minimum and does not interfere with function. It is in such lesions that immediate active mobilization excites the astonishment of the surgeon accustomed to immobilize all fractures. It also astonishes the patient who, like the surgeon, is imbued with the necessity of keeping a broken limb absolutely still.

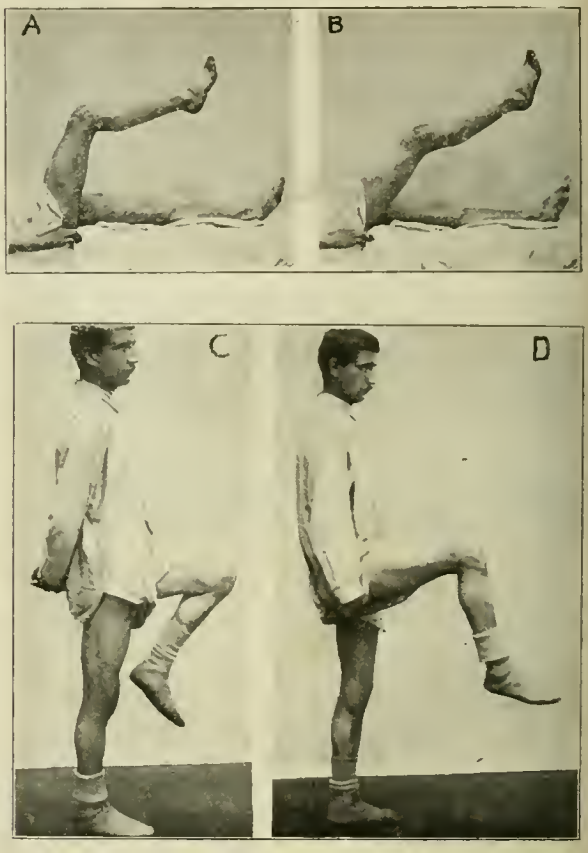


Fig. 5.—François H. Perforation of the right knee by a shell fragment with partial destruction of the patella; incision, esquillectomy, definite closure of the wound; aseptic healing, the patient beginning to walk after eight days. The injury to the patella is shown in the *X*-ray picture (Fig. 6). A and B, flexion and extension two weeks after the operation; C, extension after four weeks, the patient standing on the injured leg; D, flexion after four weeks.

Fig. 4.—*X*-ray picture showing the location of the projectile in the elbow of Georges de B. (Fig. 3)

Fig. 6.—*X*-ray picture of the knee of François H. (Fig. 5).

We must convince both of them immediately of the harmlessness of the method.

C. *Articular Wounds with Bony Lesions of Moderate Extent.*—By bony lesions of moderate extent I understand those that have caused detachment of a considerable part of the epiphysis or which will result in such detachment; such are the cases of transcondylar fracture. Even when the fragment is not entirely detached the joint line is interfered with and there is a lessened fixity of the epiphysis. The displacement would have the effect of modifying the form of the articular surface and so compromising its movements. Lesions of this class are therefore much more serious from the point of view of function than those of the first category. It is not that destruction of bone is necessarily more extensive; it is often less, but that which gives it the character of gravity is the danger of dislocation. It is this danger which calls for certain precautions to be taken in the treatment. This treatment calls for operative preparation of the joint just as in the case of the lesions described above, that is to say, excision of the contused soft parts, wide incision into the joint, careful toilet of the line of fracture, which one must separate somewhat in order to be able to remove by a small curette débris of all sorts which may adhere to the roughened surfaces, and finally a total suture, layer by layer, of the articulation.

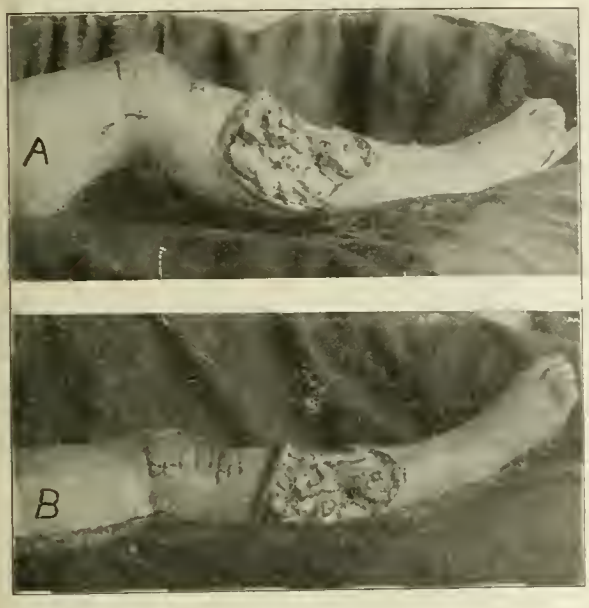


Fig. 7.—Jacques Van H. Multiple wounds of the right thigh and leg by grenade fragments; penetrating wound of the knee with fracture of the external condyle; comminuted fracture of the fibula; lesion of the sciatic nerve. (See Fig. 9.) Bilateral arthrotomy; total closure of the joint. Gaseous gangrene of the leg and phlegmon of the thigh, but between these two foci of infection the knee remained aseptic. A and B, flexion and extension two weeks after the injury.

Fig. 8.—Same case as shown in Fig. 7. A and B, flexion and extension two months after the operation; C and D, flexion and extension after five months.

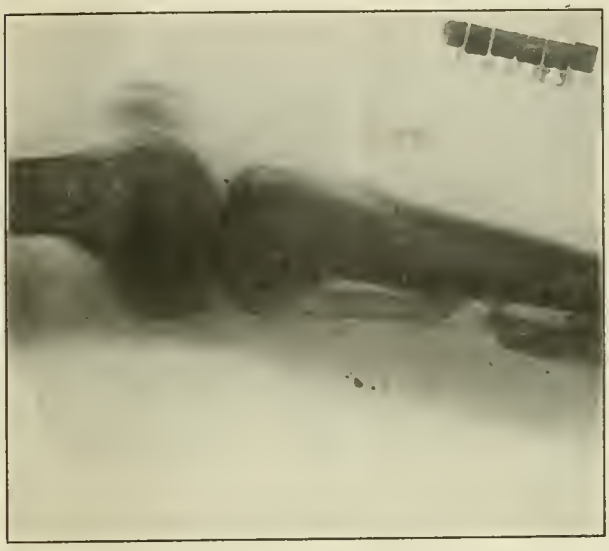


Fig. 9.—X-ray picture showing the joint injuries in the case of Jacques Van H. (Figs. 7 and 8).

If there are any foci of loss of tissue, they should be carefully cleansed as we have seen above, and if necessary we must practise esquillectomy. But I do not include in this group of moderate bone lesions those with a loss of substance of rather wide extent. I prefer to study these along with great bone injuries and to reserve the name of moderate bone lesions for those which simply modify the contour of the articular surfaces. After the operative preparation of these lesions, immediate active mobilization should be instituted, and it is no more difficult and no more painful here than in cases of joint lesions with injury to the bone which I have called slight. We can obtain the full extent of movement just as rapidly, and just as perfect results can be secured.

In cases of wounds of the upper extremity, especially of the elbow, there is no particular precaution to be taken and the limb can be immediately mobilized just as if we had to do with a slight bony lesion. The fracture heals within a short time and the function is perfectly preserved. An important point and one which is easy to verify by radiography

is that the line of fracture when the patient is making active movements does not become a point of departure of an interarticular exostosis as is too often the case in fractures of the elbow treated by immobilization. On the contrary the movements

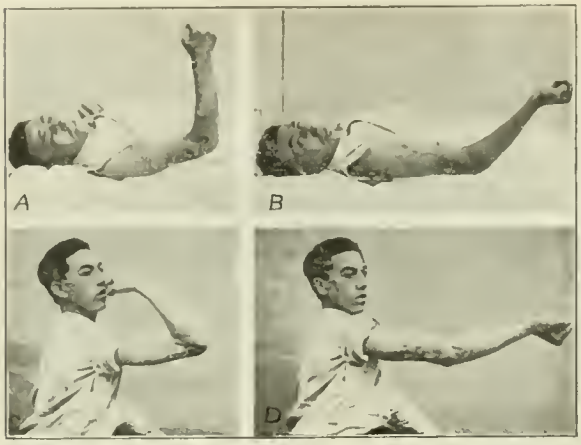


Fig. 10.—Georges Vander V. Extensive wound of the right elbow by a grenade fragment; two projectiles in the joint; almost complete destruction of the articular surface of the humerus. Foreign bodies extracted, esquillectomy, fixation of the external condyle to the shaft of the bone and to the internal condyle by means of a long screw (see Fig. 11). Wound completely closed; healing aseptic, though part of the cutaneous suture yielded as a result of too great tension; screw removed at the end of one month. A and B, flexion and extension after ten days; C and D, flexion and extension nine months after the operation.

direct the deposit of callus in an eccentric direction and drive it outside of the articulation. If occasionally some displacement of the fragment occurs it will never be toward the articulation but rather toward the shaft of the bone.

In case of the knee a certain amount of precaution is necessary and we must not permit immediate walking because of the danger of displacement. We must content ourselves first with mobilization

Fig. 11.—X-ray picture of elbow of Georges Vander V. (Fig. 10), showing the bone destruction and the fixation screw in position.

in bed; walking should be delayed until the time when the fracture is sufficiently solid to remove all fear of displacement of the fragment. The time required for this is about three weeks. After that time walking is permitted and the progress of the case is the same as in one with minor lesions. In all cases in which these rules have been strictly applied the patients have recovered with muscular integrity and without muscular atrophy.

D.—*Articular Wounds with Great Bone Destruction.*—In this group the anatomical lesions are extremely variable as regards form, localization, and extent, but as regards treatment we separate them into two groups, in one of which there is great loss of substance while in the other there is a comminuted fracture of the epiphysis. The lesion may involve one epiphysis or both.

1. *Great Loss of Substance of the Epiphyses.*—Here there is a loss of a considerable amount of one side of the epiphysis in such a way that there is no contact with the corresponding part of the other epiphysis—it is out perpendicular, as it were. The articular line at this place is interrupted by a considerable separation of the two bones. In the case of the elbow the function will not be greatly impeded since this articulation is not called upon to support great pressure. There will result simply a certain degree of curvature of the limb in the effort to approximate the two surfaces but the deformity will not appreciably affect the function. It is very different in the case of the knee where one has to fear that in bending toward the side where the loss of substance is great the articulation will lose the solidity necessary to bear the weight of the body and permit walking. This is one reason for the opinion held by many surgeons that since the result to be expected is bad we must not seek for a cure with preservation of mobility but rather resort to primary resection. This opinion does not seem to me defensible. I have resorted with success in these cases to conservatism with immediate active mobilization. I will not insist again upon the operative preparation of the joint and of the seat of fracture which ought to be done according to the usual way, and which will result here in the removal of a good part of the epiphysis. I will say, however, that I leave the bone cavities empty and do not attempt to fill them with any pastes. In the case of the elbow, the patient after operation can make movements of extension and flexion as [illegible]s if the lesions were slight, and the functional results will be excellent. At most there will be a slight lateral mobility but this will be reduced by use. In any case the result will be infinitely better than that following primary resection. Secondary resection will very rarely be called for if one has faithfully applied active mobilization.

The question is more complicated in the case of the knee. So long as the wounded man is in bed the procedure is exactly the same as in the case of less important lesions. Flexion and extension are equally well executed; but as soon as the patient rises and tries to walk the knee yields and the patient finds it impossible to bear his own weight upon it. This loss of power is, however, transitory and remediable. It is only necessary to get the patient some retentive apparatus such, for example, as a Thomas splint, articulated at the level of the knee, and then walking with flexion becomes possible again. Very often the apparatus can be removed after a few days and the wounded man will walk very well with a cane, and the lateral mobility which was present at first will be found

to diminish day by day until finally the patient will be able to discard even this support. In other cases the knee cannot be sufficiently fixed and the patient will need a leather articulated knee-cap to enable him to walk comfortably. It seems to me

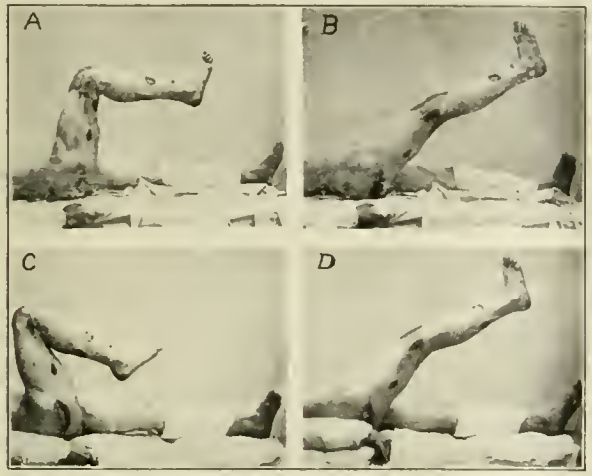


FIG. 12.—Georges S. Multiple wounds by bomb fragments. (1) Penetrating wound of the right hip with a long fragment impacted in the head of the femur and the border of the cotyloid cavity. The track of the missile was excised and the fragment extracted, the wound being left open. (2) Penetrating wound of the right knee. Excision of the wound surface followed by total closure of the wound. Immediate mobilization of the two joints was instituted despite the serious condition of shock. The wounds healed aseptically, the hip wound being completely healed after about one month. The patient was detained in bed for some time because of other wounds, especially of a fecal fistula opening beside the coccyx. A and B, flexion and extension two days after the operation; C and D, flexion and extension after five days. The final result is shown in Fig. 13.

therefore that primary resection is not indicated in the class of lesions which we are now considering.

It goes without saying that my method is not applicable when the bone destruction has passed beyond a certain point. We cannot absolutely fix the limits of this loss of substance, for one patient will get along quite comfortably with a knee which another one would be unable to use. There is, how-

FIG. 13.—Georges S. (Fig. 12); showing (A) flexion and (B) extension after five and a half months.

ever, a limit beyond which joint contact becomes manifestly insufficient, and in my experience this limit seems to be a loss of a little less than the lateral half of the epiphysis. In extreme cases such, for example, where the entire condyle or one-

half the head of the tibia has been lost, I advise trying conservatism and performing resection only secondarily when it is impossible to obtain sufficient joint stability. I advise the same in those cases of great loss of substance of both epiphyses

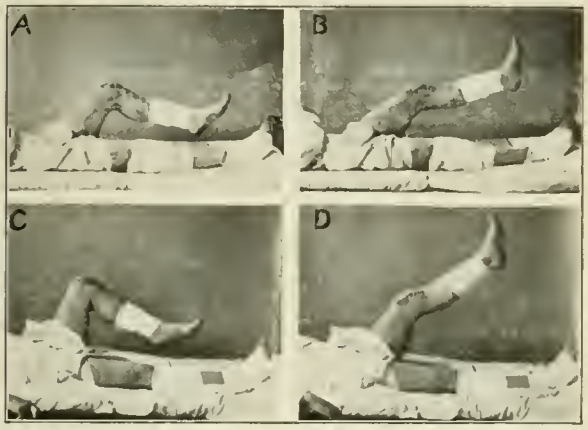


FIG. 14.—Emile C. Multiple wounds by bomb fragments; compound fracture of the left knee. Removal of the upper surface of the tibia, more than one-third of which was destroyed (see Fig. 17). Complete closure of the wound. At the end of one month the patient tried to walk, but the leg yielded laterally and he could not bear his weight on it; the application of a retentive apparatus (see Fig. 15) made walking possible. Later he was able to walk without this apparatus, and finally could dispense with the aid even of a cane. A and B, flexion and extension four hours after the operation; C and D, flexion and extension after five days.

where the anatomical conditions are even worse. It does not seem to me, however, in cases of this sort that it is the extent of loss of bone substance which is the principal factor to be considered; I think it is rather the condition of the crucial ligaments, and consequently the greater or lesser degree of union of the femur and tibia. When these ligaments are present I try to preserve the joint

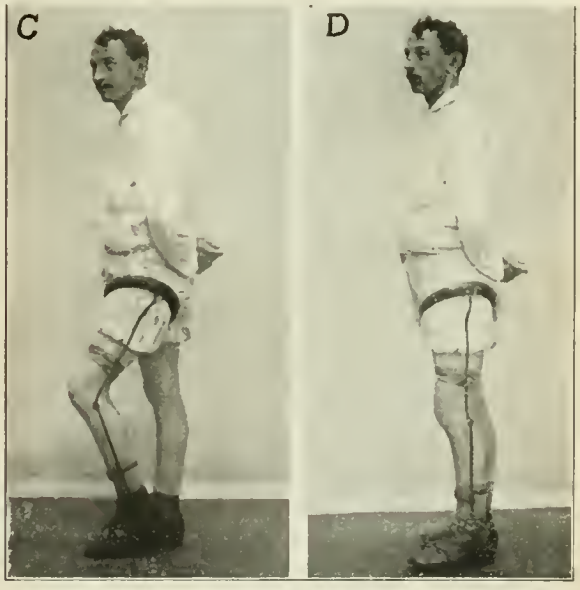


FIG. 15.—Emile C. (Figs. 14, 16, and 17); showing (C) flexion and (D) extension while walking with the aid of a light support, two and a half months after the operation.

by means of active mobilization. If this attempt fails there is always time to perform a secondary resection.

2. *Splintering of the Epiphyses.*—Comminuted fracture of the epiphyses constitutes a complex

lesion, yet may almost always be regarded as a T-fracture. There is a splintering of the condyles into multiple pieces, between which the upper fragment descends, with or without fracture of the patella; or longitudinal splitting of the tibial pla-

Fig. 16.—Emile C. (Figs. 14 and 15). A, extension; B, flexion possible several months after the injury.

teau with a pushing up of the shaft of the tibia; sometimes both lesions are present. These are, first of all, cases of fracture, and the articular lesion here occupies a secondary place. That is not to say, however, that active mobilization does not find its application here also. After incision into the joint, esquillectomy with removal of the detached splinters, and complete closure of the joint, we must

Fig. 17.—X-ray picture of the knee of Emile C. (Figs. 14, 15, and 16).

begin with the application of continuous extension. I employ for this a screw-extension apparatus which I devised during the war.

The extension brings into place the shaft of the bone and also restores to their proper position the adherent splinters. This reconstitutes the line of the articulation so far as the degree of bony destruction permits. From now on the wounded man, whose knee was absolutely powerless prior to the extension, can begin to make slight active movements. In order to render this possible the limb must rest simply on the hard surface of the bed and not be encased in a splint. The degree of mobility which can thus be obtained, and which will be preserved after consolidation of the fracture, will depend evidently upon the extent of the lesions and upon the measure of success attained in restoring the joint line by bringing together the dispersed fragments of bone. I may say, however, that mobilization gives excellent results, sometimes astonishingly so. I therefore do not advise resection in these grave cases, except as a secondary operation, after the attempt at conservation has failed either because of infection and resulting osteomyelitis, or because of secondary necrosis of a large number of the previously adherent splinters. One thing is certain, the surgeon who does not spare himself trouble—this treatment is long and fatiguing—will obtain astonishingly good functional results.

Much more even than in the case of the knee, comminuted fracture of the elbow should not, in my opinion, be treated by primary resection. Whatever the extent of the lesions, conservation with mobilization is always indicated. Undoubtedly we shall see cases of imperfect reduction of the fractures, of exuberant callus interfering with flexion, but one can always resort to a secondary operation of chiseling away a projecting fragment or an unduly large osteophyte. The functional result in such cases will always be infinitely superior to that obtained by primary resection. Indeed, I am convinced that primary resection should be absolutely banished from the treatment of comminuted fractures of the elbow.

My experience with osteosynthesis by means of transepiphyseal screws, or by plates in case of extensive destruction of the elbow joint, has not been very fortunate, although *a priori* such treatment ought to facilitate active mobilization by restoring at once the normal contour of the articular surfaces, and should insure a normal callus. After a first period, always short, in which the osseous fixation certainly facilitates the movements, I have generally seen the screws and the plates give rise to hyperostosis, and then the extent of possible motion is reduced, and I have had to remove the screws and plates. It is probable that this failure of a procedure which is *a priori* logical is due to the fact that in war surgery it is extremely difficult to render the seat of fracture immediately and perfectly aseptic.

The extremely conservative treatment which I advocate for extensive intraarticular fractures demands the expenditure of much time and great care. Consolidation is slow, and marked by numerous incidents, such as a constant struggle against infection of the wound, necrosis necessitating repeated sequestrotomies, difficulties in technique for obtaining active mobilization, etc. But one who will not let himself be discouraged by these difficulties, and who will devote to it the necessary patience, will obtain unhoped-for results.

(*To be concluded.*)

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, June 7, 1919.

PROPHYLACTIC VACCINATION AGAINST PNEUMONIA.

THE specific treatment of pneumonia is at present limited to the serum treatment of Type I infections, and while efficacious to a certain extent fails in a goodly number of cases, either because they come under observation too late to benefit by the treatment or because the toxemia is too virulent to be overcome by the means at our command. This infection is peculiar among the infectious diseases in that one attack does not seem to leave behind it any immunity to succeeding attacks and for that reason it has seemed unreasonable to expect good results from attempts to make use of prophylactic treatment. Nevertheless the attempt has been made and the published results of Cecil and Austin (*Jour. Exp. Med.*, 1918, xxviii, 19) show a distinct diminution of incidence of pneumonia due to Types I, II, and III during a period of ten weeks following the vaccination of 12,519 men at Camp Upton with a vaccine composed of these three types of pneumococcus. There was also a lowering of the incidence of pneumonia due to Type IV pneumococcus and to the streptococcus. These results were so encouraging that when the disease became prevalent in the Army Camps during this past winter, a more extensive trial of this procedure was made.

The report of the results obtained at Camp Wheeler is made in a paper by Cecil and Vaughan (*Jour. Exp. Med.*, 1919, xxix, 457) and certainly seems to justify great expectations from this method of protection, especially where large bodies of men are assembled together, where the opportunities for the spread of the disease are most favorable. There had been some trouble experienced with the use of a saline vaccine, in that three doses were considered necessary and that small sterile infiltrations occasionally followed its administration. It was found that a pneumococcus lipovaccine produced good immune reactions so this was adopted for use at Camp Wheeler. The preparation contained pneumococci each of Types I, II, and III, and was made up in cottonseed oil containing 2 per cent. of lanolin, a mixture found not to be irritating to the subcutaneous tissues. The population of the camp was vaccinated as soon as possible, and after that was accomplished most of the new recruits were vaccinated within 24 hours after their arrival in camp. All those who objected to taking the vaccine were passed by. In all 13,460 men received the vaccine, a number constituting eighty per cent. of the camp strength. The reactions were less marked than those produced by the triple typhoid lipovaccine. There were only five severe local reactions and only 0.7 per cent. were ill enough to be admitted to the Base Hospital. The symptoms complained of were chiefly headache, general aching pains, chill, and sore throat. The vaccinations were begun on September 21 and the observations were concluded on December 20. The period of observation lasted, therefore, from two to three months, for the new draft was completed by November 2. The total results without correction or classification are impressive. Among 13,343 vaccinated the incidence of pneumonia was 26.1 per 1000 and among 3,378 unvaccinated was 68.3 per 1000, 2.6 times as large. Certain groupings of these men show the results to be even more favorable than the total figures indicate. For instance, among seasoned men the rate was for vaccinated 7.2 and for unvaccinated 46.4 per 1000. It was shown that immunity against the pneumococcus does not begin to develop until the eighth day after the injection of the lipovaccine and if the above figures are corrected by deducting all those cases which developed during the first week after inoculation, the difference between the vaccinated and unvaccinated is most striking. It must be admitted that the figures presented in these two reports are most convincing as to the value of this procedure and the evidence seems to indicate that the immunity produced will last for at least two months. The figures are not, however, classified so as to show variations during successive periods following the inoculation.

In this connection it is interesting to recall the facts of the first extensive study of the results of the preventive inoculation for pneumonia published by Wright ("Preventive Inoculation Applied to Pneumonia in the African Native." New York, 1915). He obtained a reduction of about fifty per cent. in the incidence of the disease in very large numbers of natives employed in the mines. His was a saline vaccine, given in two doses of 1000 millions each. Its composition in respect to the types of pneumococcus now recognized, is of course unknown. One important observation of Wright's was that after two months had elapsed following inoculation, the incidence among the vaccinated and the unvaccinated was practically the same. The death rate was favorably affected over a much longer period. It will be seen that the results of this later work show a considerable advance during the intervening time. The classification of pneumococci into types has in itself assured more generally efficacious results and there is no reason to believe that in the future some of the strains now grouped in Type IV may not be separated out into independent types. Means for the detection of anti-

bodies in the blood of inoculated individuals have been refined and there is some reason to believe that the use of an oily base for the bacterial suspension leads to the development of a higher degree of protection. Surely there is much justification for the conclusions of Cecil and Vaughan that, "If methods can be devised for still further reducing the toxicity of the pneumococcus vaccine, and if active educational propaganda is instituted in its behalf, there is no reason why vaccination against pneumonia should not find a large field of usefulness in civilian as well as in Army life."

THE DIAGNOSIS OF THE SYPHILITIC CHANCRE.

SPEAKING in a general way, the diagnosis of syphilitic chancre is easy, yet in practice much difficulty may arise. No faith must be placed in the dogma that the hard sore is always single, because in a certain number of cases there are several. In these circumstances it is probable that autoinoculation is the cause, immunity not being complete until the lapse of about ten days, according to Queyrat. Next comes the question of size, which has been generally stated to be about fifteen millimeters in diameter, but in practice it is not uncommon to meet with the so-called giant chancre. Induration is always present, but the physician must know how to look for it. If large chancres are seized in their largest diameter, it may escape detection, so the sore should be palpated in its lesser diameter or at its edges. On the other hand, pigmy chancres are so indistinct and their symptomatology so very limited, that their diagnosis may not be made unless an ultramicroscopic examination of the secretion is made.

The satellite adenopathy is of great diagnostic value, but it bears no relationship to the development of the initial lesion. Polyglandular, indolent, and aphlegmasic, it represents, with the duration of the period of incubation, one of our best diagnostic elements, but if, as occasionally happens, these lymph-nodes suppurate, there is considerable risk of an error in the diagnosis. It must also be recalled that chancres of the meatus have, on account of careless examination, been diagnosticated as gonorrhea.

Among the complications which make the diagnosis difficult should be mentioned phimosis, in which case the prepuce is in a state of high-grade edema making palpation of the underlying sore a matter of great difficulty, and its induration practically impossible to detect. In phimosis cases there is not uncommonly a mixed infection with ulcus molle causing the clinical aspect of the case to become an intricate problem from the viewpoint of diagnosis. An ordinary herpes when treated with antiseptic lotions may frequently become indurated, a fact never to be forgotten.

Therefore, in all doubtful cases laboratory methods must be employed, be it the direct search for the treponema in the secretion of the sore or the specific reactions obtained from the patient's blood serum. In order to discover the presence of the *Spirocheta pallida* it must be rememberd that this organism is always deeply seated in the histological structures of the chancre and not on the surface of the lesion, and that the ultramicroscope must be used or the method of scraping the lesion be employed, the products being examined by the india ink technique. As to Wassermann's reaction, it is frequently difficult of interpretation, as is well known. The reaction will not be positive until the lapse of from fifteen to eighteen days and is more than likely to be very weak during the first phase of syphilitic infection. If at the end of this time it is found to be negative this fact does not in itself absolutely eliminate the diagnosis of lues. However, when it is positive, it is an absolute confirmation of the diagnosis of syphilis, at least in most instances.

These remarks are unquestionably commonplace, but nevertheless are practical and they would not be called for were it not for the fact that the medical profession at large often falls down most unpardonably in the diagnosis of the initial lesion of a disease which, in the twentieth century, should be thoroughly cognizable to all.

THE PHYSIOLOGICAL WEIGHT.

WORRY over underweight is common, but if the subject is healthy and efficient and receives his due share of nourishment, there seems no sound cause for worry when the problem concerns the individual. Such a one may be technically uninsurable, but this does not connote a bad prognosis for life. As a result of a special study, Leven, in the *Gazette des hôpitaux* for April 17, reaches the conclusion that any weight is physiological provided the subject is healthy as shown by thorough examination. In many cases of emaciation, in which latent cancer is suspected, treatment of indigestion, plus nourishing regimen will restore the weight of the subject. Excess avoirdupois does not represent physiological weight, if due to superalimentation, and many of this class are also technically dyspeptic, having many symptoms of that condition—some of course due to inability to digest the food excess. Dyspepsia then has no inevitable relationship to weight, and we simply have fat and thin dyspeptics along with those of average weight. The author does not refer to the remarkable fluctuations in weight seen especially in women, which seem conditioned chiefly by change in the ability of the tissues to retain water. He rightly eliminates the question of normal weight in subjects under 25, and it is during this period that paradoxical fluctuations are often seen. He cites the fact that mere over-eating does not fatten a man predestined to be thin, or, in other words, does not necessarily increase the phsiological weight. A man can overeat himself into dyspepsia and in time the latter may result in a loss of weight. Again underfeeding does not bring a man below his physiological weight

until a considerable interval has elapsed. Overwork does not necessarily cause lowering of the normal weight.

The subject is of interest because every man may be said to have a normal weight, although this may be and doubtless is ignored under ordinary conditions. Let the subject change his environment and occupation and diet and paradoxical results may be in order which are rationalized by the conception of an inherent physiological weight. One subject does not reduce under a more active life or underfeeding while another fails to gain under fattening regimen and sedentary existence. It might profit the average man to feel out his probable inherent weight, for this factor would possess considerable value in a diagnosis of suspected disease.

CHRONIC ALCOHOLISM IN SWITZERLAND.

SWITZERLAND has been described as a country without a drink problem, although private stills are in common use and certain city bars subsist entirely on the "early morning" trade. Now and then a local practitioner intimates that the damage traceable indirectly to drink is not inconsiderable, although he does not enter into particulars. In the *Correspondenz-Blatt für Schweizer Aerzte* for March 1, Koecklin states that the Swiss practitioner as a rule does not treat chronic alcoholism although he is very familiar with its phenomena. There must be reasons for this aloofness, and one is the disposition to ignore conditions brought on oneself. But there is contributory neglect in many other affections, so that this pose cannot be upheld consistently. A man ill from drink cannot draw sick benefits and cannot be regarded as other than a victim of viciousness rather than of illness in the ordinary sense. He is therefore left to the philanthrophy of uplift societies composed of laymen. The busy practitioner engaged in treating genuine illness should not be asked to cater to him. Again when he reaches a certain degree of alcoholism the institution claims him and the practitioner associates the alcoholic with institutional treatment. He is of course ranked in this and other respects with drug addicts.

But certain drink cures have taught that the alcoholic is amenable to ambulant treatment and need not be interned and isolated from his normal activities, and the practitioner must take account of this possibility in his daily routine. The treatment is very largely psychic although drugs are quite capable of an occasional cure. The author in this connection, with especial regard to prevention of periodical sprees, places his patients on a bromide cure. The daily dose must be small and the material selected with care. The patient must have full insight into his condition. Several cases cited by the author reveal severe endogenous neuropathy amounting practically to periodical dipsomania. Bromine was begun when the first depressive sensations were noted and served to abort the drink crises. In some of the cases epilepsy and circular insanity were at the bottom of these crises. Heroinism and morphinism showed a similar response to bromine. The author prefers the newer organic bromides to the alkaline salts. His ideas and practice are of course old with us, but his dependence on mere bromides to the disregard of powerful alkaloids is worthy of attention.

SACCHAROSE IN CONSUMPTION.

THE accounts hitherto published on this subject have either been tinged with undue optimism by the discoverer, Lo Monaco, and his pupils, or dismissed with finality by some of those who have tested the remedy for themselves. One author alone, Mestre, formerly of the Pasteur Institute of Paris, seems to share the enthusiasm of the discoverer and upon his recommendation to test the subject Dr. von Schulthess-Rechberg, a Swiss practitioner, has pursued an independent research, his finds being published in the *Correspondenz-Blatt für Schweizer Aerzte* for April 12. He was not the first Swiss to test the treatment, for Bodmer after a trial warned against too much optimism. The author treated 9 patients, all in the third stage; so that any possibility of cure was remote. The one thing which the treatment can be trusted to secure is a diminution in the daily amount of sputum. In the usual case this suppression varied greatly—from 20 to 88 per cent. This result would seem to justify further research along the lines thus far developed. The author was unaware when he composed his paper that saccharose has a powerful action in diminishing excessive secretions of all kinds, but later secured through Bodmer the literature of this extension of the subject. Saccharose is even under trial for gonorrhea.

CONTAGIOUSNESS OF A HEALED CHANCRE.

THAT a clinically healed primary lesion may be contagious is not impossible in theory for a few virulent spirochetes might persist in the fresh scar and be loosened by the friction of coitus. But actual cases of such transmission are not common in literature, so that an observation by Narbel in the *Correspondenz-Blatt für Schweizer Aerzte* for April is worthy of reproduction. On January 21 of the present year a man presented himself with a chancre in the balanopreputial fold, a hard chancre, which to the microscope presented many spirochetes. The Wassermann was then negative. The patient was at once placed on a series of injections of novarsenobenzol, and between January 22 and March 1 received 7 intravenous injections of the drug comprising in all 4.65 gm. The ulcer had completely healed by February 1. On February 16, while still under treatment, the patient had intercourse with his mistress. He believed himself well and flatly disobeyed his orders. On March 17, or more than a month later, the woman appeared with chancre of the vagina near the ostium and enlarged inguinal glands. Her lesions contained numerous spirochetes. The mechanism has already been suggested. During the healing process certain spirochetes become enclosed in the neoplastic cells of the healing chancre and are liberated during the act of copulation.

News of the Week.

Opposition to Compulsory Health Insurance.—The Medical Society of the County of New York, at its stated meeting on May 26, passed resolutions approving of the instructions against compulsory health insurance given by the House of Delegates of the Medical Society of the State of New York to its delegates to the House of Delegates of the American Medical Association, and confirming these instructions to such members of the House of Delegates of the American Medical Association as are members of the Medical Society of the County of New York. Vigorous objections to compulsory health insurance were voiced by most of the speakers at a meeting of the social insurance department of the National Civic Federation on May 24, where it was pointed out that compulsory health insurance had proved a falure in England and Germany, had enormously increased malingering, and had effected no decrease in the death rate.

A Proposed Discussion of Narcotic Drug Addiction.—A petition signed by fifty members has been presented to the president of the Medical Society of the County of New York calling for a special meeting of the society for the purpose of discussing the narcotic drug situation and especially the amendment to the sanitary code of New York City, which has been prepared by the health commissioner. The petition recites that, "although the text of this proposed amendment has never been submitted to the medical profession either by the commissioner of health or by the public health committee of the County Society, its reported provisions, as gathered from the newspapers and from public utterances of the commissioner of health, constitute a radical and serious extension of the executive and administrative powers of the Department of Health over the treatment of private patients by the practitioners of this city, and over the hitherto legally protected confidential relations between them and their patients."

Nurses as Anesthetists.—Mr. James Taylor Lewis, counsel for the Medical Society of the State of New York, urges the restriction of the administration of anesthetics to licensed physicians and the exclusion of nurses from doing such work during surgical operations. He points out that as the law now stands it prohibits any one without a doctor's license from giving ether or chloroform or other poisonous gas to a patient except when directly and continuously supervised by a physician. Mr. Lewis contends that criminal action should be brought to prevent the continuation of this practice in certain hospitals, not only because the law is being violated but because human lives are being endangered. He states that the nurse who gives an anesthetic, must keep the tongue up, must watch the pulse, must pass upon the strength of the pulse, the color of the lips, the color of the skin, the condition of the skin, and other symptoms, and that all this is diagnosing the physical condition, and even diagnosing the presence or absence of disease, according to the definition of diagnosis on our statute books. He says further, "The operating surgeon can give no attention to the effects of the anesthetic, and if the nurse notices symptoms that indicate that the patient is 'going bad' the responsibility of taking action is hers and she must prescribe." He states also that in a suit growing out of the death of a patient where the surgeon had voluntarily employed an anesthetist who was not licensed, he would in the event of his brother physicians testifying in this case certainly be held responsible. A hospital would also in turn be held responsible if it permitted unsupervised and inexperienced women to give anesthetics, whether they were graduate or pupil nurses, because the employment of such inexperienced persons cannot be pleaded by them as a bar to an action against such institution where damage or death ensues.

New York City's Health Record for 1918.—The annual report of vital statistics, made public by Dr. W. H. Guilfoy on May 21, shows that the death rate for the year was 17.30, an increase of nearly three points over that of the preceding year. This increase was entirely due to the influenza epidemic. There were only 196 deaths from typhoid fever, as against 229 during 1917, and there were no deaths from typhus fever. There was an increase of 230 deaths from measles over the preceding year, while the number of deaths from diphtheria decreased by 158. There were 665 deaths from whooping cough, as against 489 in 1917. There were 8,779 deaths from tuberculosis in 1918, as against 8,825 in 1917. The report states that 4,139 persons died from cancer, with a rate of 84 per 100,000 of the population as against 4,867 and a rate of 85 during 1917. The statistics show that influenza had no effect on organic, heart and kidney diseases. From these causes 17,374 died in 1918, as against 17,829 in 1917. The general infant mortality rate was 92 per 1,000 births, as against 89 per 1,000 in 1917. From September 14, 1918, to March 10, 1918, there were 15,000 deaths reported from influenza, 6,600 from broncho-pneumonia, and 10,775 from lobar pneumonia, 32,785 deaths all told from these causes. The annual death rates from these causes for the quinquenium 1913 to 1918 averaged 10,996. The number of births reported was 138,046, as compared with 141,564 in 1917, and 137,644 in 1916. The birth rate was 23.51 per 1,000 of population which is the lowest probably in the history of the city, the number of marriages was 56,733 with a rate of 9.66 per 100,000 of the population as against 59,212 during 1917. The lowered marriage and birth rates are attributed to the various influences exerted by the war.

Fordham Medical School Closes.—Due to lack of funds to maintain in operation a first class medical school, the trustees of Fordham University announce that the Medical School of that institution will not resume its classes next September. An effort will be made to secure an endowment fund and if this is successful the Medical School will be reopened. The institution since its organization has conferred the degree of Doctor of Medicine on 377 students. There are at present 297 students 68 of whom are in the graduating class and will receive their degree this month.

The Norwegian Hospital of Brooklyn, which was turned back to the hospital authorities by the

War Department on December 1, 1918, and later taken over by the Treasury Department for war risk insurance cases, is to be returned to the hospital authorities not later than July 1. This step has been taken because of the protests against the latest transfer of the residents of that locality because of lack of hospital facilities in that district.

Antituberculosis Campaign Launched.—The New York State Department of Health and the Tuberculosis Committee of the State Charities Aid Association has initiated a state-wide campaign against tuberculosis by instituting a series of clinics to deal with the examination of those who have recently become affected with or exposed to tuberculosis. Thirty-four counties will have these clinics at their disposal, the number in each county to be determined by the number of existing cases. The reason given for the vigor with which the campaign is to be prosecuted is that there has been an increase in the number of cases of tuberculosis since the influenza epidemic. In order that a sufficient number of medical experts may be on hand in any of the districts, the superintendents and other members of the medical staffs of tuberculous sanatoria will participate in the work.

County Laboratory at Auburn.—The Cayuga County (New York) Board of Supervisors have appropriated the sum of $5,000 for the establishment of a county laboratory at Auburn.

Fee for Reporting Communicable Diseases.—Reporting communicable diseases in the township of Islip, L. I., has been stimulated and made more efficient by observing the law authorizing the payment of twenty-five cents to physicians for each case reported. Islip has a population of 20,000 and the amount paid to twelve physicians for the year 1918 was $640, or an average of $53 to each physician.

Another County Tuberculosis Hospital.—Herkimer County, N. Y., has sold $150,000 worth of bonds for the building of the County Tuberculosis Hospital in the town of Salisbury. Bids for the construction of the hsopital will soon be asked for.

Employment Bureau for Nurses.—The Atlantic Division of the American Red Cross announces from its headquarters at 44 East Twenty-third Street, that it is endeavoring to find suitable employment for the thousands of nurses who are being returned from service in Europe. The division has created an employment bureau of national scope for this purpose, and all returning nurses are asked to register with the bureau as they pass through New York.

Physician Builds Hospital Without Aid.—Dr. Gedney Jenks of Hastings-on-the-Hudson has just completed a two-story hospital building which he began in 1916 and has constructed with his own hands. He first undertook to raise funds for a hospital by subscription, but as he did not meet with a hearty response, he decided to erect the hospital himself. The hospital contains wards and operating room complete in every essential. Dr. Jenks, when the war began, enlisted for overseas service. The people of Hastings being thus left without a doctor asked that he be returned. He was sent back and resumed work on his hospital.

Lieutenant-Commander Joel T. Boone of the Navy Medical Corps has been decorated with the Croix de Guerre by the French Government for bravery at Vierzy, Belleau Wood, Soissons, and other engagements. He has also received the Distinguished Service Cross.

Major General William C. Gorgas, head of the American Yellow Fever Commission to Ecuador, arrived in Panama with his party on May 31 en route for the United States.

Professor Pedro Chutro of Buenos Ayres, who during the war was at Buffon Hospital, Paris, where he gave his attention largely to plastic bone surgery, has been demonstrating his methods at the Polyclinic Hospital, New York. He came to this country for this purpose on the invitation of the United States Government.

Dr. Mary M. Crawford of New York is to head the second relief unit to Serbia which is being sent under the auspices of the American Women's Hospitals. The unit expects to sail before July 1.

Charitable Bequests.—Among the bequests made by the will of William A. Slater is a legacy of $100,000 to the William W. Backus Hospital at Norwich, Conn.

New York Entertains Foreign Guests to Meeting of American Medical Association.—The New York City Committee on Reception and Entertainment of Delegates to the American Medical Association formally received the foreign delegates on June 2 at the Hotel Waldorf Astoria. They were received by the Mayor of New York City, the Commissioner of Health, the Commissioner of Charities, the President of the Board of Aldermen, the borough presidents, and the deans of the New York medical schools. The program for the week included tours of inspection of the public buildings and hospitals of the city, and the institutions conducted by the Department of Health and the Department of Charities. Special clinics were arranged by the various hospitals for Wednesday, and many social entertainments were interspersed in the program.

Obituary.

JAMES EWING MEARS, M.D.

PHILADELPHIA, PA.

Dr. J. Ewing Mears died at the Presbyterian Hospital, Philadelphia, on Wednesday of last week, after a long illness. He was born in Indianapolis, on October 17, 1838, and was educated at Trinity College, Hartford, and the Jefferson Medical College, Philadelphia, receiving his degree in medicine from the latter in 1865. During the Civil War he served as captain and quartermaster of the Indiana Volunteers, and later as medical cadet and acting executive officer of military hospitals. He was lecturer on practical surgery, and later clinical lecturer on gynecology, at the Jefferson Medical College, and professor of anatomy and surgery at the Pennsylvania College of Dental Surgery from 1870-1898. He was a fellow, one time president, and for ten years editor of the Transactions of the American Surgical Association; a member, one time

president, and for fifteen years editor of the Transactions of the Philadelphia Academy of Surgery of the College of Physicians of Philadelphia; honorary member of the Lehigh County (Pa.) Medical Society and of the Medical Association of Georgia. He was for several years surgeon in chief of the Pennsylvania National Guard. Dr. Mears was the author of a work on "Practical Surgery," and was a frequent contributor of surgical and other articles to the medical press.

FREDERICK PORTEOUS HENRY, M.D.

PHILADELPHIA, PA.

Dr. Frederick P. Henry died at Philadelphia, on May 24, at the age of 75 years. He was born in Middlesex County, N. J., July 21, 1844, and was graduated from Columbia University, College of Physicians and Surgeons of New York, in the class of 1868. He was at various times professor of medicine in the Woman's Medical College of Pennsylvania, physician to the Philadelphia General Hospital, lecturer on medicine in Jefferson Medical College and physician to Jefferson Hospital, and professor of medicine in the Philadelphia Polyclinic. He was a member and one time president of the Pathological Society of Philadelphia; a Fellow and honorary librarian of the College of Physicians of Philadelphia; a member of the Association of American Physicians, of the Philadelphia County Medical Society, of the Society of the State of Pennsylvania, and of the American Medical Association. He was author of a work on "Anemia," edited one of the editions of "Flint's Practice of Medicine," and was a frequent contributor to medical periodical literature.

Correspondence.

THE NARCOTIC DRUG QUESTION.

To the Editor of the Medical Record:

Sir:—Two events of great importance to medical men during the last week in May were the meetings in this city devoted to the consideration of the Narcotic Drug Situation. The first of these was the stated meeting on May 26 of the Medical Society of the County of New York, at which meeting the entire scientific session was devoted to this question. From the program as here given it will be seen that this presentation was entirely devoted to the legal, judicial, and administrative aspects of the situation.

1. Digest of the Federal and the State Narcotic Drug Laws, by George W. Whiteside, Esq., Counsel of the Medical Society of the County of New York.

2. U. S. Court Decision on the Narcotic Drug Law, by Benjamin A. Matthews, Esq., Assistant to the United States District Attorney.

3. Rules and Regulations of the New York Department of Narcotic Control, by Walter A. Herrick, Esq., State Commissioner.

4. The Narcotic Addict in Relation to the Health Department, by Royal S. Copeland, M.D., Health Commissioner.

5. The Law and the Narcotic Addict, by Cornelius Collins, Esq., Justice Court of Special Sessions.

6. The Narcotic Addict in Relation to the Department of Corrections, by James A. Hamilton, Commissioner of Corrections.

No speakers were scheduled to discuss these papers. It was generally understood at this meeting that the health commissioner was contemplating certain amendments to the sanitary code relating to the control, identification, and classification of drug addicts. On this account the chairman of the public health committee of the society was asked from the floor for a report on this matter, to which he replied that he had none to make.

In the informal discussion that followed it was stated that the members of the society who had given time, labor, and thought to the narcotic problem were under obligations which they duly acknowledged to the purveyors of this program for bringing together an array of their legal coadjutors on this question hitherto unequaled in number and distinction. This situation was likened to one in this city some time ago, where an assistant district attorney was deputized by the Mayor to welcome a convention of merchant tailors, then meeting here for the first time. This he did on behalf of his superior, and then on his own behalf for giving him an opportunity to welcome under one roof the greatest collection of his creditors that he had ever had the pleasure of seeing assembled together at one time.

The other meeting was the much heralded one of the organization to be known as "The Mayor's Committee on Public Welfare," which was the outcome of a conference at City Hall to discuss ways and means of controlling or suppressing the sale of habit-forming drugs and the regulation and distribution of chemicals of a high explosive nature. The full account of this meeting published in the daily papers makes it unnecessary to give any of its proceedings in detail. A noticeable omission was the failure to connect the subject of drug addiction with that of high explosives. Drug addiction, it is true, has been associated heretofore with all forms of crime and depravity by the legal and police departments, but its connection with TNT and similar agents of destruction had never before even been hinted at. In all public movements at this time an "angel" is an absolute necessity. One was not lacking at this meeting, who promptly responded when his name was suggested as chairman of the finance committee.

Among the measures proposed at the Mayor's meeting was a revision of the sanitary code compelling the registration of all those considered as drug addicts by the health authorities before they could be treated by a physician. According to the corporation counsel, this amendment will not involve the violation of the privilege of professional secrecy contemplated by the health commissioner. It is this innovation that has compelled the call just issued for a special meeting of the Medical Society of the County of New York to give voice and a hearing to the medical side of this question, which has been completely ignored by the municipal and health authorities to the detriment of the public, of the practicing physician, and of the profession of medicine.

John P. Davin, M.D.

117 West Seventy-sixth Street.

THE HEALTH COMMISSIONER AND THE NARCOTIC DRUG SITUATION.

To the Editor of the Medical Record:

Sir:—At the hearings before the Whitney joint legislative committee the bulk of experienced and official testimony was strongly toward urging honest, reputable practitioners of medicine to try to the best of their ability to treat and care for narcotic drug addicts in their medical practices. The reasons given for this were that the practitioner of medicine was the most logical and natural one to care for a sick person, and that, especially from the standpoint of the United States Internal Revenue officers and others, illicit traffic in the drug by the underworld would be materially reduced if the average medical practitioner would take care of as many addicts as he honestly and legitimately could.

The report of the Whitney committee stated that "any physician who refuses to prescribe for an honest addicted sick person is not living up to the high standards of his profession." Judge Collins has joined in the appeal for honest, reputable doctors to undertake the treatment and care of addicts. A good many honest, reputable physicians have answered the appeal and are doing the best they know and can to help the addicted sick. They have done so because it has been asked of them, because it is their professional duty and obligation to attend to the needs of the sick, and because it has offered and presented a new and interesting disease study; and the United States Internal Revenue officials in charge in the city of New York have been very wise and conservative, and have encouraged the honest, reputable physician to do the best he knew how.

The result has justified the appeal. According to the reports of Judge Collins, the illicit traffic and peddling in the drug has been almost entirely eliminated. While a certain amount of abuse in the prescribing and dispensing of narcotic drugs on the part of some physicians to addicts has arisen, yet according to the statement of Judge Collins it cannot be compared in the seriousness of its menace and danger to the community with the evils of illicit traffic and peddling by the underworld. But this result and this encouragement of doctors to undertake this work promise to be negatived by the unfortunate and misleading publicity fostered by the attitude and statements of the health commissioner of the city of New York. The trouble is that not enough honest, reputable doctors have entered upon this work of caring for the addicts; and the preaching of the thunders and the terrors of the law and the ordinances by the commissioner does not conduce, to say the least, to encourage members of the medical profession to give that cooperation so much desired by the more experienced authorities, and to care for the drug addict.

Not that the members of the medical profession want to evade laws or ordinances intentionally or to be above them. Treatment and care of narcotic drug addicts as diseased persons constitute a new line of medical thought, a new line of medical endeavor for the great generality of the profession. Neither the principles underlying the nature of the condition nor the methods of treatment or lines of handling have been worked out in a form of general acceptance. Honest mistakes, based upon honest errors of judgment, in honest study and application to the problems involved, may unintentionally lead to a transgression of the line laid down by administrative officials who have no conception of or sympathy with medical thought and practice; and owing to the uncertainties of the interpretation and application of the laws and ordinances by various officials it is not a pleasing or encouraging prospect to be compelled to defend one's doings in this honest endeavor, in highly expensive litigation, with honor, prestige, fortune, and everything else one holds dear in this world at stake.

What is necessary, however, to gain—and which surely will gain—the cooperation of the medical profession, is a clear exposition of the medical aspects of the question, a clear exposition of how the medical profession can help in this question. To do this it is necessary to bring before the profession the medical facts of addiction, and the results of medical research, investigation and observation, in both clinical and laboratory work. The medical profession needs much enlightenment in these respects, and the honest, reputable doctor wants help and counsel and instruction.

This is where the commisssioner of health can be rendering the greatest service in his power. The department has extensive laboratories with full and complete equipment, where the medical problems underlying the nature of the disease condition and the principles of treatment and cure could be worked out in scientific experimentation, research, and observation. And it has facilities for education through which the results of this work could be brought not only before the medical profession but also before the public for the benefit of the large numbers of those suffering from addiction. Yet, so far, nothing has appeared in any of the publications of the department that could offer the help, the counsel, and the advice which the medical profession so much needs and wants; and the profession has the right to expect such from the department.

True, the department has opened a clinic and a hospital for the treatment and care of addicts. The commissioner is to be commended for this step, constituting as it does the first step ever taken by the department toward a real study of the medical problems involved. Yet it is only a beginning. The department is only beginning to learn, and the same mistakes, the same errors of judgment, and the same ill results that were made by the medical practitioners outside the department are to be found in these new ventures of the department. Still, the profession has hopes that something of value may yet come from it in a medical way.

To show how important is this phase of medical attention, let me point to the stress laid upon the ten thousand addicts of a criminal nature we have in our own city of New York. The menace cannot be belittled, but this number constitutes only ten thousand out of an estimated one hundred or two hundred or even two hundred and fifty thousand addicts in the city. This number contains people in every walk of life, from the highest to lowest—honest, useful citizens, even in the highest esteem, repute, and confidence of the people—who through unfortunate circumstances, through no fault or will of their own, have developed the condition of nar-

cotic drug addiction within their own bodies. They are crying for help and for relief from their affliction, and they are looking to the medical profession for this help and relief. There is no doubt that when the medical profession does give that attention to this that it has given and gives to the questions of pneumonia or influenza or poliomyelitis, the large majority of addicts will find that relief from their affliction they pray for. When that happens, then ninety—aye, ninety-five—per cent. of the problems offered by narcotic drug addiction will be solved; and the problem of the ten thousand criminal addicts will also have been put on a fair way of solution.

What has the commissioner of health to offer in a scientific way to help and relieve this ninety or ninety-five per cent.? Just to show what a field for medical research there is in the question of narcotic drug addiction, and to point out how useful the commissioner of health could make the laboratory facilities, I wish to report one case of a baby born of an addicted mother, addicted for over two years.

I attended the birth of this child last summer. The baby was born while the mother was practically in a condition of mid withdrawal of the drug; and she showed the ordinary symptoms of that condition superimposed upon the usual nervous, excited conditions attendant upon the final stages of delivery. After birth, the baby, a well-nourished, healthy appearing female child, was very restless, crying a good deal more than usual for a child immediately after birth. As time went on, this restlessness increased, and the child developed signs and symptoms identical in character, severity, and sequence with those shown by the mother in the condition of drug need. As the restlessness increased the child began to yawn and sneeze and sniffle. It drew up its legs, as if in cramps, and moaned and cried as if in pain. Its face became pinched and ashen hued. Its pupils were widely dilated. Its chin was in a constant tremor, reminding one of the chattering and shivering of an adult during a chill. Diarrhea set in, with collapse and convulsive attacks.

This child was a narcotic drug addict from the moment of its birth. Can the commissioner of health give the results of any investigations by the department to cast any enlightenment upon this?

It would be far better for the commissioner to utilize the facilities and powers of his department along the medical lines suggested. It would lead to a definite helpful somewhere, toward the ultimate solution of the main question at issue. His present propaganda results only in increased confusion and panic, driving fear into the hearts of honest people and giving consolation and encouragement only to the underworld traffic and peddling. Information is at hand from various sources that illicit traffic in the drug is again in great activity, numerous honest addict patients having been driven to the underworld for relief by the fear and uncertainty of status of their private attending physicians. The true job of the department is to study disease conditions affecting the public health, educate the public and the profession, and get the cooperation of all who can and want to help, instead of frightening and antagonizing them.

CHRISTIAN F. J. LAASÉ, M.D.

314 EAST EIGHTEENTH STREET.

OUR LONDON LETTER

(From Our Own Correspondent)

LONDON, May 9, 1919.

The Former Constitution of the Medical Parliamentary Committee.—At an important conference of the representatives of medical and allied societies, held in London on Friday, May 2, under the chairmanship of Sir W. Watson Cheyne, the Medical Parliamentary Committee emerged from provisional into formal existence. The conference took place in the following circumstances: At an open meeting of the medical profession held last Autumn, under the presidency of Sir Henry Morris, Dr. Christopher Addison, the medical man who is at the moment President of the Local Government Board and was then at the head of the defunct Ministry of Reconstruction, proposed the constitution of a body chosen to provide in the House of Commons the considered voice of the medical profession. A provisional committee was elected with a mandate to carry out the unanimous resolution in favor of Dr. Addison's views, and the committee were instructed to place before the profession a scheme for giving effect to the resolution. It was this scheme that the Conference was summoned to discuss and approve.

The scheme consisted of the following 7 resolutions: (1) That a permanent Medical Parliamentary Committee be formed for the purpose of: (*a*) supplying information of the trend of expert opinion on health questions; (*b*) supplying early information of impending legislation to the constituent bodies; (*c*) facilitating communication between the several bodies affected by the proposed legislation; and (*d*) assisting in increasing medical representation in Parliament. (2) That the Committee consist of (*a*) a representative or representatives of any society or association of those engaged in medical or dental practice having as its objective, or taking an interest in, medico-political activity; (*b*) two representatives appointed by the nursing profession; (*c*) a representative of midwives; (*d*) a representative appointed by the Pharmaceutical Society; (*e*) a representative appointed by the British Hospitals' Association; (*f*) the editor of (i.) *The British Medical Journal*, (ii.) *The Lancet*, (iii.) *The Medical Press*, (iv.) *The Medical World*, (v) *The Medical Times;* (*g*) all medical members of Parliament; (*h*) members, not exceeding 20 per cent. of the Committee, elected by the Committee itself; (*i*) directly elected representatives of the whole medical profession, to be elected immediately the Committee's financial position warrants the necessary expenditure. (3) That the Committee meet at least twice a year. (4) That the Committee appoint an Executive Committee consisting of not more than 20 members, of whom not more than a quarter should be engaged in consultative medical practice. (5) That the Executive Committee meet at least once a month. (6) That the Executive Committee have power to appoint subcommittees. (7) That a Committee be appointed to take such steps as may be necessary to carry out the decisions of this conference.

Of these the last five were passed in unaltered form. The only alteration in the first resolution, as accepted unanimously by the conference, was

to widen the reference of the permanent Medical Parliamentary Committee, so that its collated information should be at the disposal of all bodies who had the right to seek it, and not be communicated only to medical members of Parliament, who might not be in particular need of the assistance, though they were the most important channel for the distribution to the public of medical knowledge. The only alteration in the second resolution was to add to the Committee a representative of housing and town-planning activities. The conference was therefore an unmixed triumph for the provisional Committee, who have been doing unceasing work for the past 6 months, and who found their views substantially adopted by a very varied constituency of medical and lay authorities.

But now that the permanent Medical Committee is formed still more serious efforts lie ahead of it. Though formally constituted it is without an income, while the adherence to the movement of the British Medical Association, the largest and richest union of medical men in the Kingdom, has not been promised. The view of the Association is that all which the Medical Parliamentary Committee proposes to do, is either being done, or can be better done by the Association, and if the ruling powers of the Association make this into the official attitude the new body will have to start its work without much valuable cooperation. The chances of success depend on the practical results that emerge from its early activities. If the Medical Parliamentary Committee makes good as the center for the discussion and debate of health questions between medical men and laymen, it can be sure of receiving the modest income required for its office expenses from the subscription of the bodies interested in the work; while the British Medical Association will be promptly moved to rally itself beside an institution which would place their medical members rapidly and easily in touch with auxiliary workers of all sorts and with public opinion. But if the first moves of the young Committee do not appeal to the reason or imagination as being well directed, and necessary to the maintenance of a high national standard of public health, the necessary pecuniary support will be hard to obtain. There is room here for some lay endowment. The Medical Parliamentary Committee is absolutely required, and its work is purposed to assist the public, and especially the legislation, to give proper support to health measures. Whoever found the money needed at the start would accomplish wise economy.

The High Maternal Mortality of Child Bearing.—Before the Section of Obstetrics and Gynecology of the Royal Society of Medicine, Mr. Victor Bonney, obstetric surgeon to the Middlesex Hospital, has just read an address of remarkable vigor in which the instructional methods at our medical schools in the subject of obstetrics and gynecology came in for vigorous indictment. Mr. Bonney roundly declared that child bearing to women was made unduly dangerous by the faults of domestic environment, but also by the unprogressive nature of the medical care which the women received from doctors and nurses. All Mr. Bonney's arguments were not received unchallenged, but his main test, that sepsis which was a reproach to surgery appeared to be regarded as an inevitable event in much midwifery, led to a sermon whose truth no one attempted to controvert. Whether intestinal organisms can or cannot produce puerperal septicemia, and if so to what extent, is an open question, and one which the clinical research of the future might well set itself to answer; but all must agree that obstetric examinations, manipulations and operations should be treated exactly as any surgical procedures. This is how they may be treated in institutions, but how they are not treated in the homes of the people. Often, too often, in the present condition of housing, it is impossible to secure asepsis in the home, and for this condition of things the obvious remedies are improvement in housing, and the provision of many more lying-in hospitals. But over and above these things there is needed the proper education of medical men in scientific midwifery as a branch of aseptic surgery. This was the message of a valuable debate.

King Edward's Hospital Fund for London.—The Prince of Wales presided this week for the first time at the annual meeting of the supporters of the Hospital Fund for London, which was founded by his grandfather. Never did that most popular and democratic king do a wiser stroke for keeping his memory green, and green in association with beautiful ideals, than when he decided to use his enormous personal influence with the richer sections of his friends to extract from them the necessary capital and annual support for the great charity which goes under his name. From the start King Edward's Hospital Fund for London was a success, today its large income—the receipts for 1918, the fourth year of the war, were about £206,000, say, a million dollars—is a force in hospital administration and finance. The fund is a center, also, to which hospital committees can turn for advice when contemplating progressive measures, for if those measures entail capital expense (the cost of a building, for example) they will be discussed by the authorities of the fund before any grant in aid is made.

The American Hospital in London.—Quite unnecessary secrecy prevails concerning the foundation of an American Hospital in London. We here know which of our well-known physicians, surgeons and specialists are being invited to form the British part of the staff, but, though much private information is available, no public announcement has been made yet as to the American personnel further than that, as was always understood, the junior staff will be American. The initiator of the movement is Mr. Philip Julius Franklin who retains his American citizenship, but is a Fellow of the Royal College of Surgeons of England and the holder of important posts in aural surgery and laryngology at several London hospitals.

The Death of Dr. F. J. Smith.—Dr. F. J. Smith, whose death occurred last week at the comparatively early age of 62, had just been appointed consulting physician to the London Hospital, with which institution his admirable clinical and educational work was connected for many years. Dr.

Smith, at the time of his death, was President of the Medico-legal Society and had established a high position as an authority in forensic medicine and medical jurisprudence.

The Increase of Rabies.—The increase of rabies has been undoubted in Great Britain, and since I wrote last week at least a dozen new cases have been notified, cats now being attacked. The muzzling regulations have been extended, and vigorous precautions against the smuggling of dogs into the country from the Continent are being taken. The presence of rabies over large areas of the Continent has been verified.

Progress of Medical Science.

New York Medical Journal.

May 24, 1919.

1. The Training of the Personnel of an Evacuation Hospital for Service at the Front. Ellsworth Eliot.
2. Experiments Conducted to Produce Human Tuberculosis in Fish (Carassius Auratus). Randle C. Rosenberger.
3. The Perforated Zinc Inhaler in the Treatment of Respiratory Affections. Beverley Robinson.
4. The Danger of Pestilence in Europe and the Need of an International Health Commission. George A. Soper.
5. Memory as an Aid to Vision. W. H. Bates.
6. Epidemic Central or Basilar Encephalitis. B. Sachs.
7. Bone Transplantation the Ideal Method for the Correction of Saddle Back Nose. William Wesley Carter.
8. The Relation of Urinary Acidity to Specific Gravity. A. L. Benedict.
9. Experiences of a Urologist with the Fighting Forces in France. Edwin Beer.
10. The Administration of the Urological Department. E. L Keyes.

4. The Danger of Pestilence in Europe and the Need of an International Health Commission.—George A. Soper draws attention to the danger, not only of famine which is realized to some extent but of pestilence in Europe. War, famine, and pestilence have ever gone hand in hand, and though war has sometimes occurred, famine has never been known over a wide area without pestilence. Many factors enter into the spread of disease, but the most serious of all is the want of proper supervision over public health questions. Under circumstances of civilized and stable government, definite forms of administrative machinery exist for the prevention of disease, but a large part of Europe is bordering upon anarchy, civic and national governments are without capacity, crime is rampant and famine is not merely a menace but a reality. Cholera has already been reported at all the Baltic ports, in Germany, France, Sweden, and Spain. Typhus has been reported throughout the Balkan States, in Germany, Italy, France, Spain, Ireland, Scotland, and Russia. Plague has been reported in Spain, in the Ukraine, and in Russia. The prevention of epidemic diseases should therefore be one of the principal objects to be accomplished in the efforts which are being made to provide means where the demoralized populations of Europe may regain their industrial and commercial equilibrium. And more than this should be done. The less spectacular forms of disease should also be suppressed; tuberculosis, for example, receives very little notice among the peoples of southeastern and northern Europe, and the seriousness of infant mortality is not recognized at all. The detailed steps indicated can only be determined by a thorough investigation of the conditions. Opportunities and needs will vary in different countries, from place to place and from time to time. The first thing to be done will be to meet the present situation, the second thing to provide for the future. To do this it may be desirable to create an international health commission, whose duties would be investigating, supervisory, and coordinating. Its functions would not necessarily replace those of any existing body, but would assist and supplement agencies already exercising specific functions efficiently. Where no efficient local bodies exist, the commission might bring about their creation. The first object of such a commission would be the control of diseases of international import. The second object would be the standardization of administrative health procedures everywhere so far as local conditions would permit. Responsibility for results would rest wherever the authority was located. The author points out that a nucleus for such an organization already exists in the Office International d'Hygiene Publique, Paris. In 1903, at the international sanitary conference, which was held in Paris, an agreement was drawn up for the better management of plague, cholera, and yellow fever. This agreement was ratified in 1907. It specified, among other things, the procedures by which the epidemic diseases mentioned were to be handled, especially in the eastern countries, the object being to keep cholera and plague out of the commercial centers of Europe. An international office was established in Paris and has been functioning for eleven years; it is under the control of a committee of delegates from each of the contracting governments. The duties of this office include the receipt and notification to the several governments of facts of interest concerning public health matters and infectious diseases, particular attention being given to plague, cholera, and yellow fever. A bulletin is published each month containing a digest of laws promulgated in different countries concerning the management of transmissible diseases; information concerning the existence and progress of infectious diseases; information relating to sanitary works and measures; statistics, and bibliographical abstracts relating to the occurrence and study of disease. The scope of this bureau, however, is not sufficiently broad nor its authority and financial resources large enough, to undertake the work required at the present time. No matter what commission undertakes this work, it should have power to make investigations and reports on the existence of all forms of infectious disease and on the conditions which make for disease; it should draft and recommend the adoption of model health laws and the most suitable methods of enforcement; it should investigate the underlying principles for the prevention of disease and the promotion of health, and should announce the results of its investigations in publications to which all students and executives concerned in health work would have access. Not only in Europe are such measures necessary; it should not be left to private enterprise to stamp out yellow fever from a continent, to missionaries to control pestilences in the Near East, or to the vagaries of chance to control or stay the progress of disease. There are indications that the Red Cross may initiate an extensive health campaign throughout the world, and the Cannes conference will probably be followed by a general congress which it is expected will be held in Switzerland upon the conclusion of peace. Nevertheless, the problem is too great to be handled by even the biggest private humanitarian agency ever known. The author voices the hope that the nations will see the need and initiate the work, which ought to go hand in hand with the Red Cross program.

Journal of the American Medical Association.

May 24, 1919.

1. Rehabilitation of the Disabled. Frank Billings.
2. Some Observations on the Surgical Treatment of Gonorrheal Epididymitis with Technique of Operation. Arthur B. James.
3. Disseminated Necrosis of the Pulmonary Capillaries in Influenzal Pneumonia. E. R. LeCount.
4. Studies in Streptococcic Infections at Camp Custer, Michigan, with Special Reference to Influenza and Other Antecedent Infections. Wyndham B. Blanton, Charles W. Burhans, and Oliver W. Hunter.
5. Report of Throat Cultures in Measles. R. H. Knowlton.
6. Serologic Cure (?) in the Light of Increasingly Sensitive Wassermann Tests. Udo J. Wile and Clyde K. Hasley.
7. Sugar Tolerance in Cancer. G. L. Rohdenburg, Adolph Bernhard, and Otto Krehbiel.
8. The Nostrum and the Public Health. Arthur J. Cramp.
9. The Cost of Malaria. A Study of Economic Loss Sustained by the Anderson-Cottonwood Irrigation District, Shasta County, Cal. Harold Farnsworth Gray.
10. The So-called Doubtful or Partial Wassermann Reactions. A Plea for Quantitative Results and Description of the Writer's Method. Charles E. Simon.
11. Medical Education as Revealed by the War. Nellis B. Foster.
12. The Production of Indol by Certain Strains of the Pfeiffer Bacillus. Edwin O. Jordan.

7. Sugar Tolerance in Cancer.—G. L. Rohdenburg, Adolph Bernhard, and Otto Krehbiel refer first of all to certain well established facts in regard to the de-

velopment of cancer: that tumor frequently follows irritation, but that in addition to this irritation there appears to be a predisposition to the disease which becomes more evident at the cancer age. They then point out that although cancer development has been attributed to faulty function of the endocrine glands, no positive evidence in support of this hypothesis has been produced. Nevertheless, they consider it possible that there may be derangement of endocrine function not demonstrable by histological or surgical technique, and they draw attention to the fact that the functional activity of some of the endocrine glands can, to some extent, be measured by the sugar tolerance test first brought into clinical use by Jacobsen in 1913. This test has been applied in a number of conditions, among which they mention diabetes, nephritis, exophthalmic goiter, pituitary disease, myxedema, and thromboangiitis obliterans. In some of these diseases typical curves of no inconsiderable value in diagnosis have been established, though, unfortunately, they are not applied clinically with the frequency they warrant. The writers have obtained values apparently constant in cancer, which they believe may ultimately prove of value in diagnosis, by the test as described. In the morning, after a night's fast, the individual is given either 100 gm. of anhydrous or 115 gm. of syrup glucose dissolved in 300 c.c. of tea or coffee without milk or sugar, care being taken that the glucose is all dissolved and that the patient takes the entire amount. Just before giving the glucose and again forty-five minutes and two hours after its ingestion, blood is withdrawn and the amount of sugar in it determined by the Lewis and Benedict method as modified by Meyers. At the same time periods the urine is quantitatively examined for sugar by Benedict's method. The epinephrin method may also be employed by giving 1 c.c. of a 1:1000 solution of epinephrin hydrochlorid subcutaneously instead of administering glucose. The cancer curve, in contrast to the curve observed in other diseases, starts with a normal blood sugar, 100 mg. per hundred c.c. of blood, rapidly rises so that forty-five minutes after the ingestion of glucose 180 or even 200 mg. per hundred c.c. are present, and two hours after the glucose is ingested, the blood sugar is as high as at forty-five minutes or higher, reaching 288 mg., and in one instance 350 mg. The percentage of blood sugar gradually falls and approximates normal in from three to four hours after ingestion of the glucose. When epinephrin is used, the curve is identical with that following the ingestion of glucose. The sugar tolerance bears no relation to the location of the tumor. In the authors' series sugar appeared in the urine in only 41 per cent. of the cases. Two cases are cited in which the test was of diagnostic value. The authors state, however, that they prefer not to theorize on the etiological significance of the phenomenon with its numerous possibilities, but content themselves in recording it so that repetition in other hands may prove or disprove its value as a diagnostic test.

12. The Production of Indol by Certain Strains of the Pfeiffer Bacillus.—Edwin O. Jordan has found that the majority of strains of the Pfeiffer bacillus form indol promptly. The paradimethylamidobenzaldehyde method was used, the medium being a standard meat infusion broth to which 5 per cent. of sheep blood was added while the broth was hot (above 90° C.), the broth then being filtered through cotton or filter paper. In all thirteen strains of the bacillus were tested. They included two strains from fatal cases of influenza—one from heart blood and one from lung tissue; seven from normal throats and one from influenza sputum. The source of the others was not known. All showed the recognized cultural and morphological characters of the bacillus. Ten produced indol abundantly in twenty-four hours. Of the three that gave negative results, two were from normal throats. Jordan points out that advantage may be taken of this character in a rough preliminary differentiation or for a "presumptive test." He states that other bacteria commonly found in the throat do not appear to be indol-formers. Zipfel and others have reported finding no evidence of indol production by the various cocci and the author has tested thirty-six different strains of green-producing and hemolytic streptococci, pneumococci, meningococci and staphylococci from the mouth, with negative results. Although diphtheria bacilli were reported by some of the earlier workers as forming indol these results have not been confirmed by later investigation. The author found that the Pfeiffer bacillus was able to grow in competition with other organisms and that the mixture yielded a good indol reaction in twenty-four hours. Throat swabs were washed directly into the broth with positive findings in about 83 per cent. Seven out of forty-eight positive cases gave a history of influenza in the fall of 1918, as did also three out of the ten negative cases. On a second testing, seven out of the ten negative cases yielded indol; in three both tonsil and nasopharynx swabs were positive. It was also found that if a peptone phosphate medium was used in which *B. coli* and other indol-producing bacteria give abundant indol, no indol was formed after inoculating with throat swabs although good growth occurred. From the fact that parallel tests from the same throat at the same time have shown indol production in the blood, but never in the peptone phosphate medium, the author thinks it probable that a hemophilic organism is responsible for the indol production from throat swabs. He points out that, assuming that the indol production in blood broth inoculated with throat swabs is due to the presence of indol-producing strains of the Pfeiffer bacillus, it would seem that this bacillus is present in approximately 80 per cent. of normal throats. By the blood agar plate cultural method the bacillus was isolated in about 40 per cent. of cases, as compared with about 80 per cent. by the indol presumptive test.

The Lancet.

May 3, 1919.

1. Hunterian Lecture on the Significance and Surgical Value of Certain Abdominal Reflexes. Delivered before the Royal College of Surgeons of England. David Ligat.
2. Spinal Injury with Retention of Urine: the Avoidance of Catheterization. P. N. Vellacott. With Note by A. E. Webb Johnson.
3. Primary Syphilis: Comparison of Diagnostic Methods, with Remarks on Rational Treatment and the Syphilitic Clinic. Sheldon F. Dudley.
4. The Treatment of Gonorrhea Should Be Early and Vigorous. H. E. Gibson.
5. War Injury from Signal Lights. W. J. Rutherfurd.
6. Lung-Puncture in the Treatment of Influenzal Pneumonia. M Benaroya.
7. Panel Ophthalmic Practice. A. Freeland Fergus.

6. Lung Puncture in the Treatment of Influenzal Pneumonia.—M. Benaroya describes a method of treatment which was employed in the Royal Berks Hospital, Reading, England, in a series of 41 patients, many of whom were very seriously ill. The ages ranged from 10 months to 68 years and the patients showed all degrees of resistance. All the patients recovered with the exception of one, in whom there were septicemic complications, with prominent pericardial and endocardial signs and but few lung symptoms. The treatment described aims at determining a local accumulation of polymorphonuclear leucocytes and so stimulating phagocytosis by setting up a focus of irritation in the pneumonic areas. The author states that it is an application of the principle advocated by Kraske in the local treatment of erysipelas, and may be considered analogous to laparotomy in the ascitic variety of tuberculous peritonitis. *Technique.* The first step is to determine accurately by means of percussion and auscultation, the situation and area of the consolidated patches. A hollow needle or trocar about 2 inches long is then introduced in the direction of the patch and allowed to remain in the lung for about 30 seconds. If more than one patch is detected, it is preferable to select the largest and to neglect the others. If the base is entirely affected, as in lobar pneumonia, or several patches of considerable size are present, a second puncture may be necessary. In the present series of cases it was rarely necessary to repeat puncture, and then only for exacerbation of the morbid process. Strict asepsis is essential. As regards the seat of election, the axillary or scapula lines are, if possible, to be preferred. The author points out that as this method does not depend upon the type of organism responsible, it may be tried in every variety of pneumonia and the results in every type of case have been favorable. A steady fall of temperature is always to be expected, and in many cases it becomes normal in 24 hours. If,

within a few days after puncture, the temperature tends to rise again, a careful investigation is needed to determine the cause, and usually a new patch or some heart complication will be found. In the former case, a second puncture may be necessary; in the latter, some stimulant or heart tonic is indicated. If the puncture through injected or morbid lung tissue be made with a certain degree of rapidity, there is practically no pain. Results were most striking in early cases treated. Supporting medical treatment, of course, should not be neglected. The author also states that this method may be advanced as the preliminary basis of a new treatment of tuberculous pneumonia, especially if some means could be discovered to neutralize the toxins of Koch's bacillus *ad hoc*. Benaroya adds that he has tried various types of vaccines on an earlier and large series of cases with disappointing and illusory results. The explanation of this may lie in the pleomorphous character of the organism described by Donaldson (organism "D"), which may turn out to be the visible form of the filter-passer described by other observers.

British Medical Journal.

May 3, 1919

1. Disappointments after Gastroenterostomy. Robert Hutchison.
2. The Lumleian Lectures on Cerebrospinal Fever. Sir Humphrey Rolleston.
3. How to Read Statistics. A. S. Percival.
4. Remarks on the Pathogenesis of Deficiency Diseases and on Pellagra. P. Rondoni.
5. A Collective Investigation of Ten Thousand Recruits with Doubtful Heart Conditions. Third Report, compiled by S. Russell Wells.

4. Remarks on the Pathogenesis of Deficiency Diseases and on Pellagra.—P. Rondoni refers to the work of Colonel McGarrison on the changes in the organs of pigeons fed on polished rice and suffering from polyneuritis, and calls attention to the results obtained by himself several years ago when working on other deficiency diseases and published in the Italian review *Sperimentale* in the summer of 1915. He states that, after working for some years on the pathogensis of pellagra, he was unable to uphold the photodynamic theory of Raubitschek; nor could he find any precipitins in the serum of pellagra patients or demonstrate any positive complement fixation between serum of these patients and maize extracts. He did, however, find hypersensibility to the injection of maize extracts in patients suffering from pellagra and points out that Volpino has done a great deal of work on this subject. Later he adopted the view that pellagra should be regarded as a deficiency disease. Rondoni then resumes the results of experimental researches made on the maidism of guinea pigs. He refers to the facts that exclusive maize feeding rapidly brings about a pathological condition in guinea pigs, which die in about three weeks after having lost about one-third of their weight, suffering in the last period of their life from less of hair, weakness of the legs, and diarrhea; and that, when fed on cereal grains alone, these animals develop a typical scurvy-like condition with lesions of bones, bone-marrow, teeth, and blood vessels—the last occasioning a real hemorrhagic diathesis. After reviewing briefly the work of McCollum and other observers the author states that in 1913-14 he worked on the effects of maize feeding on guinea pigs, publishing his results in 1915 and 1916, his object being to show the differences between the more typical scurvy (oat feeding) and the conditions produced by feeding on maize; also between scurvy and pellagra and simple starvation. Like McGarrison, he measured the weights of various organs. He found that in all the conditions mentioned the adrenal glands were enlarged, though principally in oat-feeding and maize-eating guinea pigs, and that while the loss of body weight was only one-third, the relative weight of the adrenals was almost doubled. The spleen was reduced in weight, chiefly in the oat-eating and in the starving animals, and some evidence was found of an atrophic condition of this organ, as was the case in McGarrison's pigeons. He summarizes his histological observations thus: The organs which were the most affected in guinea pigs fed on maize were the spleen, the thyroid, and the suprarenal glands. The spleen showed sclerotic lesions with increase of elastic and fibrous tissue and reduction of lymphocytes in the folliculi. The thyroid showed, in the first days of the maize diet, hyperemia and often proliferation of alveolar epithelium, then hemorrhagic changes and later on sclerosis. He remarks that these changes, which he believes have not been observed before, may be compared with those noted by other observers in the thyroid of starving animals or of animals fed on special diets. The suprarenal glands showed hyperemia, enlargement of minute vessels, degenerative changes in the cortical cells with disappearance of the normal lipoids, perhaps slight proliferation in the cells of the outer cortical layer; the reticular fibers were thicker, and the reaction with chromium salts in the medullaries seemed to be less marked. Degenerative changes were prominent in the central nervous system. By means of Nissl's method, this observer was able to note signs of decay in the anterior horn cells of the spinal cord and in Purkinje cells of the cerebellum, and by Marchi's method frequent irregular fresh degeneration of all sorts of medullated fibers. Changes in the bone marrow were of the same nature but less in degree than those observed by Fröhlich and Holst as the result of other cereal feeding. Lesions of the liver, kidney, heart, and intestinal tract were less marked. In guinea pigs fed on oats the hemorrhagic lesions were more marked and the author is of the opinion that the hemorrhagic diathesis belongs to the typical scorbutic condition of the animals. It would appear from the author's experiments that the central nervous symptoms, fall of hair, sclerosis of spleen and thyroid are more marked in maize-fed animals. The differences between the effects of these unilateral diets and starvation are that in starvation there is no true sclerosis of organs, the disappearance of lipoids from the cortex of the adrenal glands is much more marked, and the bone-marrow conditions differ. Histologically, death from maize-eating is not death from starvation, but involves deep metabolic changes as in other real deficiency diseases and in some intoxications. In order to study the reason of the severe injury caused to the organism by maize feeding, the author attempted to supplement the maize meal or kernel with other substances. He found that the addition of casein, peptone, or animo-acids produced no definite improvement. One year later (1916) McCollum, Simmonds and Pitz showed that the maize protein contained all necessary amino-acids, but not all in the most favorable proportions, that the deficiency of maize could not be made good with casein, and that the protein factor had not the paramount importance for rats that it seemed to have for other animals. Hogan drew attention to the lack of salts in maize diet. The author points out that though he did not take into account the salts, he had already written that the protein deficiency of maize did not seem to have any great importance for guinea pigs in the development of maidism, and that Hogan's experiment of supplementing maize with casein had been made by him with the same negative results. Hogan stated that pigs were on a different basis and that here protein was the limiting factor; this had already been demonstrated by Passerini, whose experiments were unknown to the Americans. The author also made some experiments on the prevention of scurvy by supplementing the maize diet by green food and found that 10 grams a day of fresh cabbage produced a remarkable corrective action and materially lengthened the life of the animal. Thinking that possibly there might be in cabbage some lipoid-bound substance or vitamine-like principle, the author then tested the action of alcoholic extracts of cabbage with positive results, thus prolonging the life of the animals. In the light of McCollum's ideas, he believes that he partly supplemented the fat-soluble factor A, which is lacking in all cereal grains and maize and is abundant in all leaves. From the results obtained by Osborne and Mendel it would seem that the water-soluble vitamine B is absent in cabbage. An attempt to supplement maize meal with an alcoholic extract of maize bran failed, whereas, alcoholic extracts of liver prolonged the life of the animals a little. The author therefore came to the conclusion that in animal organs and in the green parts of plants there must be some alcohol-soluble body which diminishes the harmful action of maize diet on guinea pigs.

Book Reviews.

A Text-Book of Pathology. With a final section on post-mortem examinations and the methods of preserving and examining diseased tissues. By Francis Delafield, M.D., LL.D., Sometime Professor of the Practice of Medicine, College of Physicians and Surgeons, Columbia University, New York; and T. Mitchell Prudden, M.D., LL.D., Emeritus Professor of Pathology, College of Physicians and Surgeons, Columbia University, New York. Eleventh edition. Revised by Francis Carter Wood, M.D., Director of the Pathological Department, St. Luke's Hospital, New York. Director of Cancer Research, Columbia University, New York. With 15 full-page plates and 809 illustrations in the text, in black and in colors. Price $7.50. New York: William Wood and Co., 1919.

It is nearly eighteen years since the present writer prepared for these columns a notice of the sixth edition of this standard text-book of pathology. Even in this space of time the changes in the successive editions have been remarkable, but when one reviews the entire history of the work it affords an instructive commentary on the great extension in scope that the study of pathological anatomy has undergone. The first edition was a small hand-book of post-mortem examination, published in 1882 by Dr. Francis Delafield and containing less than 400 pages. The second edition, dated 1885, was the direct ancestor of the present volume, for on its title page appeared for the first time the name of Professor T. Mitchell Prudden, under whose coauthorship the work rapidly gained a preeminent position in the literature of pathology. This book covered about 600 pages and subsequent editions have grown at a rapid rate until at present nearly 1400 closely printed pages are offered to the reader. A third epoch in the development of the work is marked by the appearance of this, the eleventh, edition, which has been prepared by Professor F. C. Wood, who has added many pages of new matter and has rewritten much of the old. Owing to the wealth of knowledge that has been acquired through the growth of the related sciences of physiology, biological chemistry, and bacteriology, and the application of their special technical methods to the problems of pathology the latter has become a wonderfully complex subject instead of the simple morphological study it was a few decades ago. Accordingly much discrimination and restraint have been needed to prevent the text from exceeding the limits mechanically permissible for a treatise contained within the covers of a single binding, but despite these restrictions Professor Wood has found it possible to introduce such material relating to the pathology of function and to discuss each subject from the broad standpoint of physiological pathology. This is especially noticeable in the section on diseases of the kidney. This has been brought fully into accord with the modern investigations of renal function both normal and pathological, and the classification adopted shows the influence of the conceptions introduced by Volhard and Fahr. While the histological changes of diseased kidneys are still the same as those so carefully and accurately described by Dr. Delafield, the labels on the specimen jars have had to be altered in consequence of fuller knowledge gained through experimental work on animals and functional observations on human beings. The value of experimentation is shown also in the section on hydronephrosis, in which the modern point of view is well presented.

The very important chapter on the reproductive organs of the female has been largely rewritten and many illustrations have been added to emphasize modern views. The same thing may be said of the chapters on the bones and joints and on the nervous system, and especially to the latter extensive additions have been made. The presentations of the recent advances in the study of poliomyelitis, paresis, senile dementia, paralysis agitans, and cerebrospinal syphilis are particularly noteworthy. Owing to Dr. Wood's eminence in the field of cancer research one naturally turns with much interest to the chapter on tumors. This has been completely rewritten and forms a veritable mine of information in regard to the clinical and experimental pathology of new growths. Another chapter which shows radical revision is that on the general diseases, including the various forms of goiter and the disorders of the ductless glands.

The number of illustrations has been increased from 690 to 809, including many photomicrographs of unusual excellence. A striking addition is the colored plate showing the different types of melanotic tumors. The binding and general makeup of the volume maintain the high character which has made the volume a model for other publishers. It will undoubtedly continue to be the standard text-book for students and work of reference for the more advanced, not the less because of the valuable chapters on technique which it contains. Special comment is due to the references which are copious and timely, and are made infinitely more useful to the average reader because, instead of merely making mention of numerous articles in various foreign journals or "Ergebnisse" entirely inaccessible to physicians outside of the larger cities, citations are given largely to papers printed in English, and particularly in the more widely read journals of the United States, and for each topic the more important articles are systematically pointed out. For the readers of the present and future the book will be the same trustworthy and comprehensive guide that it was for those of former days when pathology was a comparatively simple and circumscribed science.

Estudio Clinico de la Litiasis Urinaria. Por el Dr. Angel Pulido Martin, Cirujano del Hospital de San Juan de Dios, Professor de Enfermedades de las Vias Urinarias en la Facultad de Medicina de Madrid, etc. Madrid: Imprenta del Sucesor de Enrique Teodoro, 1918.

This little work gives a clinical account of stone in the kidney, ureter, bladder, and urethra. The Hospital de San Juan de Dios is largely a urologic institute which supplies an abundance of material, and there is a detailed report of eighty-nine cases of stone of all kinds of comparatively recent date. Rather striking is the absence of reference to urologist colleagues. Guyon, evidently the author's teacher, is the chief exception. Nitze is the only authority named under cystoscopy, and a few other men are mentioned in connection with instruments or methods devised by them. Such silence in a book of this sort is at least unusual and ambiguous. The volume is but sparsely illustrated.

The Disabled Soldier. By Douglas C. McMurtrie, Director Red Cross Institute for Crippled and Disabled Men, Federation of Associations for Cripples, Editor *American Journal of Care for Cripples*. With an Introduction by Jeremiah Milbank, Vice-Chairman Committee of Direction Red Cross Institute for Crippled and Disabled Men. Price, $2. New York: The Macmillan Co., 1919.

No one knows better than Mr. McMurtrie the needs of the disabled soldier, sailor, and marine from the standpoint of rehabilitation, and no one, at any rate, on this side of the Atlantic, has done more to aid in the reconstruction physically and mentally of those injured in the war. Not only, however, does Mr. McMurtrie know his subject thoroughly, but he is able to express his views in terse, vigorous English. He is indeed a writer of no mean ability and brings to his task a healthy enthusiasm. Endowed with these attributes he has written a really good book on rehabilitation and one which can be read with the certainty that valuable information will be gained therefrom. The book is excellently illustrated, and in all respects is well worthy of its subject, than which there can be no higher praise.

Indigenous Drugs of India. Their Scientific Cultivation and Manufacture, with Suggestions for the Development of New Industries. By J. C. Ghosh, B.Sc. Manchester, F.C.S., Pharmaceutical Chemist, Government Medical Stores Department. Price, One Shilling. Calcutta: Butterworth & Co., 1918.

The indigenous drugs of India are considered in this little volume and it is pointed out that the native vegetable drugs should have in the future a great vogue. The war has not only impeded the manufacture of synthetic remedies, but has focussed attention upon vegetable preparations which had fallen into disrepute. Dr. Ghosh's book, which is written with the view of creating an interest for the wider adoption and use of indigenous Indian drugs on scientific lines, is very apropos and should have the desired effect.

Society Reports.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

One Hundred and Thirteenth Annual Meeting, Held in Syracuse, May 5, 6, 7, and 8, 1919.

(Special Report to the MEDICAL RECORD.)

SECTION ON OBSTETRICS AND GYNECOLOGY.

First Day—Tuesday, May 6.

DR. H. DAWSON FURNISS OF NEW YORK IN THE CHAIR.

THIS was a joint meeting with Section on Surgery, for a Symposium on Urology.

The Diagnosis of Renal Colic.—Dr. GEORGE WILLIAM STARK of Syracuse presented this paper, giving as his reason for selecting this subject the fact that renal colic or renal pain was too often overlooked in the human body. He stated that renal colic was caused by an obstruction in the urinary tract from the kidney to the bladder, accompanied by more or less pain. The most important causes were: Strictures of the ureters, kinks in the ureters, stones obstructing the ureters, tying off of the ureters, and pressure from without, such as tumors. Occasionally the ureter might be caught by an adhesion external to the ureter. The disease conditions that were usually confused with renal colic were appendicitis, diseased adnexa, gallbladder disease, duodenal ulcer, peritoneal adhesions, neurasthenia, pancreatic diseases, and lumbago. In appendicitis the rigidity and leucocytosis were more marked; in gallbladder disease, jaundice and turbid bile in the Einhorn bucket assisted in the differentiation; in duodenal ulcer blood on the string or blood in Einhorn's bucket and the *x*-ray assisted in making the distinction, and in pelvic disease satisfactory pelvic examination should help clear up the diagnosis. Any case with pain in either side that showed pus in the urine, or frequency of urination, or at some time in the course of the disease a history of a typical attack, should be investigated by a urologist. The severity, the location, or the radiation of the pain did not in any way distinguish the pathology of the kidney or ureter. It might vary from slight discomfort to veritable agony which could not be controlled by morphia. The duration of the pain might vary from a few minutes to hours, the most common type being that which began in the loin and radiated downward along the course of the ureter toward the bladder, to the ilium, sometimes to the leg, and at times to ovary or testicle. As to whether an obscure pain in the abdomen or back was caused by obstruction in the ureter or other pathology in the abdomen, a very accurate diagnosis could be made by means of cystoscopy, ureteral catheter, pyelography, *x*-ray, and functional test. The writer believed that most cases of pyelitis in which the infection had not extended into the substance of the kidney would get well. Strictures could be remedied, and the ptosis of the kidney, with kinks in the ureter, should be symptomatically cured by dilatation, drainage, and irrigation, plus a belt, and the results were uniformly more successful than those obtained by surgery, although the dilatation might have to be repeated. The writer reported his results in the treatment of a series of 146 cases, the majority of whom had been seeking aid in the profession for from four months to nine years, and yet 96 per cent. had been cured by lavage of the kidney pelvis and dilatation of the ureter. Only 11 per cent. had had to resort to surgery; ½ per cent. were doubtful, and 2½ per cent. were not cured.

Dr. F. W. ZIMMER of Rochester reported a case of stone in the pelvis of the kidney upon which he was requested to operate about one and one-half years ago. The time was set for the operation. Just before the operation he was shown the *x*-ray plate of the right kidney, which showed a stone the size of a green olive in the right of a considerably enlarged kidney. The operation was performed, the kidney with the stone removed, the ureter tied with fine chromic gut and dropped, and a rubber drain was placed and removed after five days. The incision was then practically healed. Some three months later the patient's physician informed him that she was again very ill with pain in the left renal region. The *x*-ray showed two or more large stones in the pelvis of the left kidney. This kidney was exposed and the stones removed the largest being the size of a small egg. The incision in the pelvis of the kidney was closed with fine chromic gut and a pad of fat sewed over the line of suture. There was practically complete anuria for seventy-two hours, after which the urine increased slowly in amount. The patient was very ill for three weeks. Six months after the last operation the patient had fully recovered and was still perfectly well and doing her own housework.

The Recognition and Management of Bladder Symptoms in Spinal Cord Disease.—Dr. ERNEST M. WATSON of Buffalo presented this communication, which was based on his experience in the urological service of the Buffalo General Hospital. He stated that there was definite evidence that sympathetic efferent fibers from all the nerves between the first thoracic and second, third, and sometimes fourth lumbar nerves were concerned in the innervation of the bladder and urethra. In addition, the sacral autonomics through their postganglionic fibers with their motor cells lying in the vesical plexus near the surface of the muscles they supplied were intimately associated with above. In the cord proper definite branches from the first, second, and third sacral nerves went directly to the vesical plexus, while along the paths in the cord were in the posterior portion the lateral columns near the pyramidal tracts which were believed to be the path of impulses from the higher cortical centers. From this multiplicity of innervation we could appreciate the difficulty in attempting to interpret the neuropathology of bladder disturbances. After discussing the mechanics of bladder tension and urination, he stated that any lesion which interfered with the integrity of the reflex arc might give one or more of the socalled group of bladder symptoms. Of the essential bladder symptoms encountered in spinal cord disease, incontinence and, less frequently, retention were the two predominating. The incontinence might be a true incontinence due to relaxed atonic condition of the musculature about the outlet of the bladder, including the internal and vesical sphincter, the intrinsic involuntary muscles of the posterior urethra, and probably also the external sphincter. In this type the bladder was usually of small capacity and there was usually little or no residual urine present. The other form might be of the socalled paradoxical variety in which there was really a retention present and the incontinence was the overflow of a greatly distended bladder. In this latter instance the bladder capacity might be normal, but was usually considerably increased. Before the onset of the above rather characteristic but late symptoms there was usually noticed a hesitancy or difficulty in starting the stream which frequently antedated the more serious complaint for months or years. Another of the early disturbances might be an increased frequency or in some cases, while the bladder was undergoing the process of gradual dilatation, long intervals between voidings. From the atonic state of the vesical musculature and from the not infrequent occurrence of varying amounts of residual urine the condition was one which was very prone to be complicated by infection. When this occurred there might be various degrees of burning, painful burning, and general dysuria. The early recognition of the vesical symptoms in disease of the spinal cord was of paramount importance, as much could be accomplished for these individuals under a careful routine of functional punctuality and rational therapy. In all cases in which there might be question of spinal involvement the deep and superficial reflexes should be carefully studied. In order to determine their exact status several examinations might be necessary. The pupillary reflex, the action of the biceps triceps, and periosteal radials of the upper extremity; the abdominal and cremasteric reflexes, the knee kicks, plantar responses, and ankle jerk were all of much value. The Romberg test should also be made. In the rectal examination one frequetly encountered a very definitely relaxed external sphincter, which was a very suggestive finding. The cystoscopic findings might also add much in the way of positive evidence. The study of a spinal case was not complete without the data furnished by the exami-

nation of the spinal fluid, which should include a spinal fluid pressure, cell count, globulin determination, the Wassermann and the colloidal gold tests. The management of the spinal bladder called for a well-outlined plan of procedure covering, in many cases, a considerable period of time. The first step should be to determine the presence or absence of infection, as evidenced by the finding of pus and organisms in the microscopic examination of the third glass of voided urine or of a catheter specimen. Infected cases should be given urotropin. Individuals with residual urine of over 100 c.c. should have systematic catheterization every two days, and the more advanced cases every day for a time. This should be followed by bladder lavage with nitrate of silver solution, ten drops of a 10 per cent. solution to a quart of water. In addition he had found it of distinct advantage to leave in the bladder a half ounce of 10 per cent. argyrol solution. Individuals who still had some degree of tonicity to the musculature about the bladder orifice might be given periodic dilatation of the posterior urethra once or twice a week. Certain aids might be given by the patient himself. From the beginning he should drink copiously of water. In addition he should be instructed to inaugurate a certain routine of voiding and passing urine at definite intervals, usually not longer than two hours apart. A further effort in the way of gaining voluntary control might be made by practising stopping and starting the stream. By far the most common lesion of the spinal cord one found giving early bladder symptoms was tabes dorsalis. In a recent detailed study of the course of bladder symptoms in tabetics under intraspinal therapy using mercurialized serum, it was found that of the cases having residual serum everyone showed a marked decrease in the amount, and in over 40 per cent. no residual was obtained after several treatments in repeated examinations.

Dr. Harry E. Wheelock of Jamestown said it was his privilege recently to observe seventeen cases of gunshot wounds of the spinal cord, involving almost every segment, at the Walter Reed Hospital. They were usually in bad shape and described as paradoxical incontinence. Since these cases had retention with overflow and residual urine, it was thought that blood urea estimation would be interesting and perhaps aid in determining whether there was impairment of the kidneys by back pressure or infection. The striking finding of 60 to 120 mg. of urea nitrogen per 100 c.c. was found with corresponding pathalein function. This led to the belief that possibly there was some mechanical injury to the kidney, but an autopsy in a case dying of asthenia revealed normal kidneys. A month later all the bloods were examined again and the urea nitrogen was normal. The best explanation of this they could think of was that the concentration of blood solids was increased due to dehydration. No matter where the cord was injured, the bladder symptoms seemed to be strikingly similar. It was the picture described so frequently in spinal disease, namely, dilatation of the posterior urethra, relaxation of the internal sphincter, atrophy of the trigone, patulous and fixed ureteral orifices, and irregular trabeculations. In addition to the method of management mentioned by Dr. Watson, they found that stimulation of the peripheral nerves produced favorable results. Massage over the bladder as well as massage of the prostate seemed to be beneficial.

Second Day—Wednesday, May 7.

Dr. H. Dawson Furniss of New York in the Chair.

Symposium on Diseases of the Uterus: Physiology and Anatomy of Endometrium Changes.—Dr. Lawrence Watson Strong of New York City presented this communication, in which he described the uterine mucosa in the proliferative and secretory stages. He stated that the secretion was mucous and that the presence of glycogen and trypsin had not been conclusively proven. He reviewed the theories of menstruation and cited the objections to them. In discussing the histology, he explained the variations in size and form of the uterine glands and stated that if the stroma was scanty the wall of the gland would buckle as it grew in length, thus producing the serrated form characteristic of the premenstrum. This might be absent when the stroma was abundant so that it was not diagnostic of the secretory stage. The gland might be dilated from accumulation of secretion if its lumen was obstructed; thus were produced variations in size and small cysts, which were not to be looked upon as pathognomonic of any specific condition. The number of glands was absolutely dependent upon the number in the basal layer, and these did not increase with the growth of the functional layer. This controverted the old idea of glandular endometritis. No mucosas from uteri removed by hysterectomy showed mixtures of the proliferating and secretory stages. The significance of various cell types was discussed and the amount of desquammation at menstruation. In discussing the pathology, he stated that endometritis showed only the same exudative destructive or reparative processes as were characteristic of inflammation in general, and it was only when these were present that a diagnosis of endometritis could be made. All the glandular variations and stromal changes formerly described as endometritis were now recognized as cyclic changes. A corollary of this description of endometritis was that it was practically always bacterial in origin. So it was chiefly puerperal and gonorrheal. Etiologically endometritis might be divided into bacteria, toxic, mechanical, and thermal. All these produced identical appearances, varying only in degree. The distinction betwen acute and chronic forms of endometritis from a histological point of view depended upon the different elements of the exudate and the effect of a chronic irritant upon the mixed elements of the tissue. Hyperplasia was an exaggeration of the normal and was not limited to the proliferative stage. Its histological appearances merged insensibly into neoplasms. The writer discussed hypoplasia, atrophy, and metaplasia, and coordinated the physiological, histological, and pathological data. He said that the uterine mucosa was resistant to pathological change. Inflammation did not destroy the menstrual cycle. Endometritis was not a frequent cause of menstrual disorders. Hyperplasia did not destroy the menstrual cycle.

The Distribution of Adenomyomata Containing Uterine Mucosa.—Dr. Thomas S. Cullen of Baltimore presented this paper, in which he stated that adenomyomata of the uterus might be found in the uterine horn, the round ligament, the utero-sacral ligament, the recto-vaginal spectum, and the umbilicus. The adenomyomata considered consisted of a matrix of non-striped muscle and fibrous tissue. Sometimes the fibrous tissue predominated, whereas in other tumors the muscular elements were more abundant. Scattered throughout this matrix or groundwork were isolated groups of glands, sometimes lying in direct contact with the muscle but usually in a characteristic stroma. The glands resembled in every particular those found lining the body of the uterus. In short, the adenomyoma resembled a diffuse myoma with islands of uterine mucosa scattered throughout it. Adenomyomata of the body of the uterus might be limited to the anterior or posterior walls of the uterus or form a mantle or zone just outside the uterine mucosa. When the uterus was cut open it was noticed that the anterior or posterior walls of both were thickened. This increase in thickness was due to a coarse striated condition of the muscle directly beneath the uterine mucosa. The histological picture in a typical case of adenomyomata was characteristic. It was not difficult to figure out to what symptoms an adenomyoma of the uterus would usually give rise. As a rule, we should have no intramenstrual discharge, since the mucosa lining the uterine cavity was perfectly normal. With the advent of a menstrual period, however, the patient would not only lose her quota of blood, but this would be greatly increased by the flow coming from the large areas of mucosa which were scattered throughout the diffuse myomatous growth. There would be a great deal of pain in the uterus, due primarily to the swelling of the mucosa which was scattered throughout the uterine walls. On bimanual examination one found a uterus that might be normal in size or it might be two or more times its normal size and slightly nodular. The introduction of a sound usually showed a normal cavity and on curettage normal mucosa was invariably found. From the clinical findings one could often make a fairly accurate diagnosis of adenomyoma. The removal of such a uterus was usually clearly indicated. In addition to diffuse adenomyomata of the uterus one found another variety,

namely, small adenomyomatous nodules in one or both uterine horns. These could hardly be looked upon as a clinical entity, but rather as a part of the end results of a mild inflammatory process. Some adenomyomata of the round ligaments could be removed very readily, while others were so intimately blended with the surrounding structures that they must be literally cut away. On histological examination they were found to be made up of non-striped muscle, fibrous tissue, and the characteristic uterine glands. Adenomyomata of the utero-ovarian ligament were naturally of little clinical significance and would only be recognized in the laboratory. The writer had reported one case. He knew of only one case of uterosacral ligament; his colleague, Dr. W. W. Russel, had also removed a nodule from the uterosacral ligament that showed the typical adenomatous picture. Dr. Cullen laid particular emphasis on adenomyomata of the rectovaginal septum. These, if overlooked, would in time cause the patient to become a chronic invalid, and in some instances would undoubtedly lead to her death. They usually started just behind the cervix, and on bimanual examination one could feel in this region a small, somewhat movable, nodule scarcely over a centimeter in diameter. As the growth increased in size it might involve the adjacent anterior rectal wall, the broad ligament, encircle the ureters, or envelop the pelvic nerves; it might push through into the posterior vaginal vault forming definite and well formed vaginal polypi, and, finally, it might break through into the vagina. In this type of adenomata the patient complained of much pain just before and at the beginning of the period, especially at the time of defecation. On bimanual examination a small nodule was felt directly behind the cervix. In the early stages it was possible to open up the vaginal vault and remove the tumor. As a rule, it involved the posterior part of the cervix and could not be shelled out. Where it was 1 cm. or more in diameter the abdomen should be opened the ureters isolated, and the uterus with a cuff of the vaginal mucosa removed. In cases in which the growth was widespread a preliminary permanent colostomy was imperative. Later the pelvic structures could be removed *en bloc*. Adenomyomata of the umbilicus were always small. In the writer's book an entire chapter was devoted to this subject. Removal of the umbilicus was all that was essential in these cases.

Cautery Methods in the Treatment of Uterine Cancer.—Dr. Victor Leo Zimmermann of Brooklyn presented this communication, in which he said that he should assiduously try to avoid the pitfalls which in the past had ensnared cautery and heat enthusiasts, and had even threatened to discredit them. He had had quite a good deal of experience in the treatment of uterine cancer with the cautery, beginning his apprenticeship under the great master John Byrne, but he had neither reached the stage of perfection in its handling nor acquired that faith in its infallibility which made him insensible to its shortcomings, nor was he blind to the value of other agents. In adenocarcinoma, beginning in the cervical canal, with general enlargement of the portio vaginalis, at the stage when by far the greatest number of cases were seen by the gynecologist he believed we would have a larger percentage of cures by the original high cautery amputation of Byrne than by any form of extirpation, and with a much reduced primary mortality. He had no patience with those who referred to the work of Byrne as done for the relief of hopeless cancer. While he did relieve symptoms and prolong life in comparative comfort for such advanced cases as came to him, his claim to recognition was based upon a much more important achievement, that of devising a distinct curative galvanocautery operation for the early case of cancer of the cervix. Byrne laid great stress upon the necessity of turning the heat on gradually after the knife had been applied cold. The incision was then carried through the mucous membrane around the cervix, care being taken not to make traction on the cervix until the knife had penetrated the submucous structures. This was to lessen the danger of injuring the bladder and rectum. It was a mistake to make the incision and attempt to dissect off the bladder as in ordinary vaginal hysterectomy, as this caused free bleeding which defeated the object of the operation. Care must be taken to keep the knife at a dull cherry-red heat; if the knife was too hot free bleeding would take place. As soon as the submucous tissue of the cervix was reached, gradual and firm traction was made upon the tenaculum in the canal, at the same time directing the point of the knife inward toward the internal os. In this way, by slowly pressing the cherry-red knife inward, searing well the cut surface and at the same time making firm and steady traction upon the grasping forceps, it was possible to complete the amputation well above the level of the internal os, leaving only a part of the body and fundus. The resulting cavern should be gone over again with the dome-shaped cautery until it was thoroughly charred and roasted. This was a very important point. The fact that this operation was devoid of hemorrhage and shock made it a particularly good choice for the woman who was weakened by previous blood losses, for the woman of advanced years, for those with thick abdominal walls and especially for those who on account of nephritis or cardiovascular disease were poor risks, and on whom a major operation was not advisable. Consent was easily obtained, convalescence was easy, the stay in the hospital was short, and mortality and morbidity practically nil. The objections to this operation were that the contraction of the scar following the burning away of the cervix might result in a stenosis causing dysmenorrhea or hematometra in women not beyond the menopause. It also had the disadvantage of destroying the cervix removed for microscopical examination. The writer of the paper reviewed the modifications of the Byrne operation. In speaking of the Percy method, he stated that it was not considered today as safe and simple a procedure as it was a few years back. On account of its apparent harmlessness and ease of application, every practitioner who had a case of cancer of the uterus purchased an outfit and applied the treatment. Many had never handled a cautery before, and operative deaths and troublesome fistulae followed as a matter of course. But all credit was due to Percy for putting cautery methods on a more scientific basis, teaching us to guide the vaginal work from the abdominal side, perfecting the water cooling specula, and encouraging hope of relief for patients formerly abandoned in despair.

Chronic Appendicitis; a Study of Postoperative End Results.—Dr. Edwin MacDonald Stanton of Schenectady read this paper, which was based on the analysis of the clinical histories of 110 patients operated on by him under a preoperative diagnosis of chronic appendicitis and definitely cured as proven by the end results records over periods of from one to ten years following their operations. Considerable confirmatory data had been obtained from the histories of an approximately equal number of patients operated for acute appendicitis but who after operation found themselves cured of a long standing tendency to attacks of so-called indigestion. A third group of histories studied was composed of cases not demonstrably benefited by appendectomies performed by the writer and by other surgeons. The point that he emphasized particularly was that practically without exception the cured cases in his series had presented a definite and constant group of symptoms. The symptoms which according to his experience had been characteristic of chronic appendicitis had been equally conspicuous by their absence from the histories of the uncured cases. He also emphasized the relationship of the characteristic symptoms of so-called chronic appendicitis to the well known symptoms of the acute attack. Taking the 110 cured patients as a group the striking fact was that 108 complained of attacks of epigastric or mid-abdominal pain or distress; 95 stated that they had one or more attacks in which the primary pain and nausea were also accompanied by pain or soreness in the right lower quadrant, a fact which aided materially in the diagnosis, but even in these patients the subjective symptoms directly referable to the region of the appendix constituted but a minor part of the total discomfort. On the other hand, their uncured patients almost without exception complained of pain in the right lower quadrant as their chief symptom. It was all together probable that the symptoms of appendiceal indigestion were caused by the same abnormal condition which was the predominating factor at the onset of the acute attack, namely, an obstruction interfering with the free

drainage of the appendix, and that as long as the lesion remained a mechanical one the pain or discomfort was referred to the mid-abdominal region. The uncured patient had for the most part fallen into two sharply defined groups. The larger group was typically represented by the young woman who haunted the surgeon's office complaining of right inguinal pain usually associated with varying degrees of constipation. In these cases a carefully taken history failed to reveal the two cardinal symptoms of appendicitis, namely, the cramp-like diffuse mid-abdominal pain and nausea. The great majority of the patients at operation presented a normal appendix and an enlarged movable cecum of the type described by Wilms. Dr. Stanton said that when he first reviewed his end results in appendectomy for chronic appendicitis he found errors of diagnosis in 36 per cent.; during the past eight years 86 per cent. of the patients he had operated on for chronic appendicitis had been definitely cured by the operation. In his experience chronic appendicitis had proven to be a rather sharply defined disease in which the symptoms might be recognized by the fact that they reproduced in miniature the first symptoms of the acute attack. The disease differed from acute appendicitis by the fact that the obstruction was incomplete or because it was habitually relieved before the acute inflammatory stage developed. These symptoms, characteristic of chronic appendicitis, might be present in gastric or duodenal ulcer, in gall-bladder disease, in chronic constipation and in enteroptosis. The points of differentiation were mentioned.

Dr. Gilbert David Gregor of Watertown said the term chronic appendicitis had become familiar not only to the profession but to the general public. Patients would even present themselves at the surgeon's office with a self-made diagnosis of appendicitis and demand operation, and he had even suspected physicians of sending their troublesome patients to the unwary surgeon in the hope that an appendectomy would be done and then the subsequent unsatisfactory condition of the patient would be attributed to an unsuccessful operation rather than to fault in the medical treatment. Dr. Stanton had well said that the pathological findings and the clinical symptoms did not correspond. This discrepancy was due to the fact that the appendix was a vestigeal organ and that retrograde involutionary changes were often mistaken for pathological conditions. He was fully in accord with Dr. Stanton when he demanded a distinct syndrome before he made the diagnosis of chronic appendicitis. Pain in the lower right quadrant did not constitute chronic appendicitis. For years he had told his patients that if there was no nausea there was no chronic appendicitis. The speaker also referred to the relationship between chronic appendicitis and gastric and duodenal ulcer. He believed that a chronic appendicitis was not only responsible for a type of dyspepsia resembling the symptoms of gastric and duodenal ulcer, but he believed that it was also responsible for the ulcer itself, and an ulcer that not infrequently persisted after the removal of the appendix. With the sclerosing appendix, the neurotic female, and the appendiceal hypochondriac a surgeon was in constant danger of doing an unnecessary operation, but Dr. Stanton had given a good working rule, "Not to operate unless we had the characteristic syndrome."

A Clinical Study of Preoperative and Postoperative Blood Pressure as an Aid to the Differentiation of Shock Hemorrhage.—Dr. John Osborn Polak of Brooklyn made this presentation. He concluded that there was a constant rise of five to fifteen points in the hemoglobin readings following anesthesia, when such anesthesia occupied more than 30 minutes. Consequently allowance must be made for this rise in using hemoglobin estimations as a diagnostic sign in internal bleeding. The erythrocyte count was also increased but its variation from the preoperative was so slight that it did not warrant any conclusions. In the majority of cases there was a moderate fall in both systolic and diastolic blood pressure following ether anesthesia. The blood pressure returned to the preoperative reading in 12 to 48 hours following anesthesia. The inhalation of oxygen after the withdrawal of ether vapor diminished this fall in blood pressure but was only transient in its effect. In cases of shock, especially where there had been much blood loss during the operation, the fall in blood pressure was greater than after long operation without blood loss, dropping from 10 to 50 millimeters. The pulse pressure was a better index of hemorrhage or cardiac failure than the systolic pressure. There was a constant rise in the leucocyte count in hemorrhage, while the leucocytes fell in shock. When the preoperative kidney function was low the pulse pressure must be relatively high to compensate for the deficiency, as it did no good to add saline by skin or bowel or infusion unless there was sufficient cardiac strength to take it up and carry it along.

Repair of Complete Perineal Lacerations.—Dr. Albert Scott Harden of Newark, N. J., gave a motion picture demonstration of the operative procedure in perineal lacerations.

Third Day—Thursday, May 8.

Dr. Thomas P. Farmer of Syracuse in the Chair.

Influenza as a Complication of Pregnancy.—Dr. William T. Getman of Buffalo reviewed the history and progress of former pandemics of influenza. He stated that it had not been shown either in previous epidemics or in the present one that the pregnant woman was more susceptible to influenza than the non-pregnant or males, but it had been shown that the present epidemic had been particularly fatal to the pregnant. This was largely due to the marked respiratory type of the infection, the frequency of pneumonia, and the high death rate of these pneumonias. In a series of 74 pregnant women in his own obstetrical wards of the Buffalo General Hospital and of cases reported by friends, 30 had influenza of either a mild or severe type. None of those having the mild type miscarried, but 16.6 of those having the severe type did. The mortality was highest and miscarriage most frequent from the sixth to the ninth month. He thought the exceedingly high mortality attributed to influenza among all classes, pregnant and non-pregnant, was erroneous, and that it should be attributed to bronchopneumonia, probably with a streptococcus (hemolytic and non-hemolytic) type of infection. There was a small number of influenza cases in newborn babies, to which he added three. In his service at the Buffalo General Hospital but one patient contracted the disease; two internes and four nurses also were affected. He thought their freedom from the infection was due to the wearing of gauze masks and the instillation of freshly prepared 10 per cent. argyrol solution into the nostrils of physicians, nurses, and patients twice a day. The women aborting or delivering themselves did not seem to have any harder time than those that had not had influenza, though in two instances the labor was protracted without cause. They had decided that it was better not to induce abortion of labor in influenza cases. As to the cause of abortion or premature labor in these cases, whether due to an infection of the endometrium and placenta, to death of the fetus from the same disease, or to general overwhelming toxemia, he had been unable to form an opinion. There seemed to be no routine treatment. Fresh air, digitalis in all its forms, small doses of morphine to allay coughing, and larger doses to prevent premature labor and for labor pains, were the remedies used. Atropine was used for the edema of the lungs but seemed to have no effect. As to what could be done to prevent such a heavy loss of life in the future nothing had been offered in the way of treatment, so they must try to prevent the pregnant woman from contracting the disease. They must be advised against attending public gatherings, riding in street cars, seeing friends and relatives with even a suspicion of a cold, and must use 10 per cent. argyrol twice daily in the nostrils. One well known physician had given it as his opinion that women should avoid pregnancy for the next two years, or until the subsidence of the present type of influenza.

Dr. Edward Parker Davis of Philadelphia stated that when Peary's party were going over the ice in the Arctic region during a southwest wind they were seized with influenza, so it seemed that cold did not destroy the bacillus of influenza. In Philadelphia they lost 11,000 citizens and probably had both the highest

mortality and the highest morbidity of any large city in the United States. In explanation of the high mortality not only among pregnant women but among the general population he felt that it might be attributed to the war. The entire population had been subjected to unusual stress and strain. The women had been working hard in Red Cross work, the pregnant women as well as others, and the men had not taken their usual vacations, so there was a general lowering of the resistance of the people. Among pregnant women there were two types of influenza, one which was comparatively mild and one that was deadly. He thought that what made the difference was the resisting power of the individual. Some patients if put to bed, given a purge, fed simple food, and prevented from coughing by atropine and codeine had a comparatively mild attack. On the other hand, a patient who was half-starved and showed no resisting power whatever, developed a massive bronchopneumonia. He saw no typical pneumonias in the whole series. The mechanical conditions of advanced pregnancy made it difficult to treat these patients. He saw no reason for placing any confidence in serum either as a prophylactic or curative agent and no especial reason for the use of any one drug. There was striking value in the absolute policing of the patient and in the treatment outlined above. In the presence of acute infection labor should not be induced because it opened up new avenues for the absorption of a new infection. Another point that might be noted was in reference to pulmonary embolism. After having had such a case he had made a study of this subject, and as nearly as he could find out the cause for this disaster was a preexisting pulmonary infection. He traced the cause of the embolism in his case to an influenza sometime before. Any pulmonary disorder exposed the patient to the danger of thrombosis and embolism, if any great disturbance occurred in the course of labor.

Dr. E. W. Belknap of Syracuse said he had had eight cases of influenza in pregnant women; five developed pneumonia and two of the five died. Two of these cases aborted and one went to term. The pneumonias were characterized by edema of the lungs. One of the pneumonia patients was doing fairly well at nine o'clock in the morning, she went into labor at four in the afternoon, was delivered at nine, and died at 11 o'clock that evening. She had an acute suffocative double bronchopneumonia. He had used the same treatment for his patients as was advised by Dr. Davis. Digitalis and strychnine did no good but he had heard several doctors say that whiskey and brandy were more effective.

Obstetric Surgery.—Dr. Edward Park Davis of Philadelphia presented this communication, in which he stated that the obstetrician in his effort to preserve life was contending against the most important enemies which confronted the surgeon, namely, hemorrhage, shock and infection. The obstetrician of today could not content himself with extracting the child and closing lacerations of the perineum but should investigate the condition of the birth canal, close all lacerations, and take additional precautions against shock and infection. After a forceps delivery under competent anesthesia reasonable time was given for the closing of the sinuses of the uterine wall, and then the placenta was expressed by Credé's method or manually. The patient was kept under anesthesia following the removal of the placental membranes, cord, and blood clots. The uterus was then irrigated with one per cent. lysol, or a weak iodine solution, or physiological saline solution, and packed with 10 per cent. iodoform gauze. Then all the cervical and perineal lacerations were closed. The obstetrician might elect immediate closure or he might wait a day, just as the surgeon might use his own judgment in selecting the time for the repair of lacerated or bruised tissues. The indications for delivery by abdominal and vaginal section had been extended in recent years. It was now recognized that abdominal section was the suitable procedure for fetal impaction with threatened rupture of the uterus which might make vaginal delivery in the highest degree unsafe. In some cases when the fetus was dead its vicious position was accompanied by septic infection and then the risk to the mother of vaginal manipulation was greatly increased and in desperate cases it might be necessary to sacrifice the uterus to save the life of the mother, and this could only be done by abdominal section. Ectopic gestation was recognized as a clear indication for abdominal section. Obviously in the early months of pregnancy the low implantation of the impregnated ovum required immediate emptying of the uterus with precautions against hemorrhage and infection. Where the viability of the child could not be ignored, if the placenta was laterally, marginally, or partially attached, mother and child might receive adequate care if the membranes were ruptured and the uterus made to press the presenting fetal part firmly against the placenta. If this pressure was maintained through labor and post partum hemorrhage could be anticipated and prevented, mother and child would do well with these simple precautions. When the placenta was centrally located or occluded the os the indication was for prompt delivery by abdominal section as soon after the hemorrhage as possible. An accidental separation of a normally implanted placenta was a condition analogous to that of a ruptured tubal gestation and here abdominal delivery afforded the only prompt and secure method of rescuing the mother from insidious danger. In complicated labor today embryotomy was justified obviously in the presence of a dead fetis in a genital tract too small to permit of its spontaneous delivery but large enough to warrant removal if dismembered. In a patient whose child was dead or dying a vaginal delivery would be difficult and dangerous, and if there was a possibility that sepsis complicated the situation the solution of the problem depended on whether the woman had living children and whether she and her husband consented to sterilization. Sometimes when the anatomical elements for a successful labor were present the normal physiological elements were absent, there being a pathological condition of the uterine muscle, which made recourse to surgery necessary. He had long ago abandoned abdominal section for toxic patients suffering from convulsions, except in a vigorous primipara with a shortened and undilated cervix who did not respond to eliminative treatment. There was a distinct field for elective abdominal section in the toxemia of pregnancy. If a pregnant woman had an infected appendix it should be removed as soon as the diagnosis was made, the earlier the better. Whether an infected gallbladder in a pregnant woman should be drained was not yet established, but certainly during pregnancy or the puerperal state surgical treatment of cholecystitis was often indicated and successfully carried out. In some cases of pyelitis of pregnancy drainage of the kidney by incision was followed by good results. In rupture of the uterus and pathological conditions of the pelvis which rendered vaginal delivery impossible or unsafe, abdominal section was indicated. The surgeon and gynecologist would assert that when the abdomen had to be invaded in pregnancy or labor the obstetrician should summon them. Conditions were sometimes such that this was impossible, and the important part of a surgical procedure was not its performance but an accurate diagnosis of the condition. Here the surgeon and gynecologist were not competent to decide properly upon obstetric procedures. The general practitioner might ask in what capacity he entered the field of obstetric surgery. The general practitioner of medicine did not always recognize that he had within his grasp the most important, attractive, and lucrative specialty in medical science, that of diagnosis. No man should undertake obstetric diagnosis who could not diagnosticate the presence or absence of engagement of presenting parts.

Dr. F. W. Zimmer of Rochester reported several cases of appendicitis during pregnancy which were operated on and the patients recovered; in one instance the patient did not recover. He also described a case of intestinal obstruction during pregnancy operated on through a McBurney gridiron incision on the right side, but failing to find the obstruction this incision was closed and a similar one made on the left side, where a torsion of the sigmoid was found. This woman made an uneventful recovery and did not abort.

Dr. E. A. Parker of Brooklyn said he was not

among the fortunate obstetricians who delivered the majority of their cases without lacerations and he often incised the perineum to prevent a more serious tear. A few years ago they began examining every woman at the time of her discharge and they found that the cervix either on the anterior or posterior wall almost invariably showed some laceration. It was his custom to repair these tears at once if they were extensive, but he usually did an intermediary repair. He thought that operative delivery in eclampsia had not been altogether abandoned, and cited an instance in which he had tried Dr. McPherson's conservative plan, but there was a recurrence of the convulsions and he did a cesarean section.

Dr. DAVIS, in closing, said the paper was written for the purpose of putting obstetrics on the proper plane in the interest of the women, the nation, and civilization. He was interested in the experience of one of the speakers with appendicitis in pregnant women and wished to call attention to appendicitis as a complication of late pregnancy which was very critical. For example he was called to a woman eight or nine months in gestation who had a bad appendix and the leucocytosis was high and toxemia pronounced; it was evident that an operation must be performed. It was a fact that in a woman you would almost never find the appendix in the usual place but would find it in one of three places. First, it might be attached to the uterus in the non-pregnant woman; second, it might be behind the sigmoid, and third, up as near to the liver as it could get. Hence when a woman at or near term got appendicitis it should be attacked through a large median incision and the uterus emptied first by abdominal cesarean section. Then the uterus should be closed as cleanly as possible before dealing with the appendix, because if the appendix was operated on first the contractions of the uterus might loosen the wall of the appendix and general infection might result. The gentleman who spoke of the question of immediate closure brought up the point of what success was obtained by immediate closure. With primary repair they got 80 per cent. complete primary unions, 10 per cent. partial unions, and 10 per cent. failures. He had yet to trace infection to any such manipulation. In regard to the question of Walcher's position, he felt that they should take advantage of every position that might be of use in the management of labor. Finally, Dr. Davis said he wanted to pay his tribute to the general practitioner of medicine who dealt with these complications of labor without the hospital facilities, skilled assistants, trained nurses, and paraphernalia, that the obstetrical specialist thought were essential. They had done nobly but it was at a cost of heavy responsibility and mental and physical strain that was unjust. As to what he meant when he spoke of a specialty of diagnosis for the general practitioner, the young man who left the hospital as a general practitioner and set up in a town to practise medicine should have had obstetrical experience, and in Pennsylvania every medical graduate was required to have a definite amount of obstetrical training. Now with a proper equipment there was no more delightful field in medicine than to be a diagnostician and live one's life as the trusted adviser of a community. Such a man might never do a surgical operation, but he knew when it should be done. Such a career offered a successful, honorable, and attractive life, and one which those who knew only one specialty would envy because of the opportunity for the study of human nature. The general practitioner did not want the bad cases of labor, but when he found himself with such a case on his hands he was man enough to meet the emergency as best he could. They were looking forward, however, to the time when every practitioner should first be a diagnostician, and he would not attempt obstetrical operations, because he would be able to diagnose the presenting parts and would know when there was danger ahead and get the patient to a hospital in time to have the obstetrical specialist summoned.

Anesthesia and Eutocia.—Dr. HENRY CARL DAVIS of Chicago presented this communication, which was read by Edward B. Jones of Syracuse. He said that today obstetricians were agreed that if the method of relieving pain during labor did not increase the danger to mother or fetus it should be employed. The choice and application of the anesthetic must vary with the patient and operator just as in other surgical work. The primary consideration was not one of pain but of safety. After reviewing the history of attempts to relieve pain during labor he said that the introduction of anesthesia had revolutionized obstetrical procedure, for prior to its introduction operative procedure added greatly to the suffering of the mother and was attempted only when absolutely necessary. The general use and abuse of anesthesia certainly had not favored eutocia. This, however, did not disprove their value, but showed that they must be used by skilled physicians in suitable surroundings. There were no statistics which would indicate that the proper use of chloroform, ether, or nitrous oxide-oxygen during labor had increased the number of still births or the number of infants dying during the first week of life. The use of chloroform was open to certain dangers and ether and nitrous oxide nitrogen were to be preferred. Ether, unless contraindicated, was thought to be the anesthetic of choice for long operations during pregnancy and labor. Nitrous oxide-oxygen analgesia had proved most satisfactory for the painful second stage of labor. For the administration of nitrous oxide analgesia a few details must be observed: (1) The patient must be assured that the pain could be relieved. (2) When first administered enough gas should be administered to cause deep analgesia or even slight anesthesia. (3) One should determine the number of inhalations necessary to cause deep analgesia and then increase by one or more as the contractions became more severe. (4) One should start inhalation at the first indication of an approaching contraction. (5) A continuous analgesia might be necessary over a few contractions, but should be discontinued as soon as acute pain was controlled. Nitrous oxide-oxygen reduced the oxygen content of the maternal blood, and when given continuously over a long period of time might add to the danger of the fetus whose blood supply had been lessened by violent and frequent uterine contractions. The intermittent use of nitrous oxide-oxygen analgesia during labor was thought to be free from danger to both mother and fetus. It was given only during the first part of uterine contractions when there was practically no interchange of blood between the mother and fetus. Both chloroform and ether were eliminated slowly and therefore had a cumulative effect on both mother and fetus. The chief objection to nitrous oxide-oxygen was the cost and bulkiness of the apparatus. In the Presbyterian Hospital of Chicago its cost was $2.50 an hour and the average time it was required was three hours. The class of patients who wanted this kind of analgesia practically all went to a hospital. When nitrous oxide-oxygen was not available ether might be administered in a similar manner with beneficial results. Scopolamine and morphine might be used in the first stage and inhalation anesthesia during the second stage.

Dr. P. T. HARPER of Albany thought that in the use of anesthesia in labor distinction should be made between eutocia and dystocia. He believed that anesthesia during labor was employed too infrequently and to a less degree than was desirable. He felt that it was a moral obligation to reduce pain to the maximum extent consistent with safety. There were certain clear-cut indications for the use of anesthesia, as in patients who bore pain poorly and where there might be a reflex inhibitory action which caused contractions to disappear and caused a condition of inertia which might lead to a secondary dystocia; where the contractions were atypical and came tardily or not at all, and where the uterus failed to relax completely between contractions. Many times an asphyxia that was attributed to the use of an anesthetic was due to the condition that called for the use of the anesthetic. The argument that anesthesia prolonged labor was evidence of poor judgment on the part of the operator.

Dr. W. T. GETMAN of Buffalo said he had been using gas and oxygen for four or five years and the longer he used it the more he became convinced that it was absolutely harmless. The only objection was the expense and the bother of carrying the apparatus, and

he had found that the latter was not a great inconvenience.

Podalic Version.—Dr. Irving White Potter of Buffalo read this paper in which he stated that he had studied the question of podalic version because he thought it was a subject upon which there were many mistaken ideas. He reviewed the history of version and described the method of Braxton Hicks presented in 1860. The time to do a version depended upon the condition of the mother, the amount of dilatation of the cervix, and the condition of the fetus. All cases of labor showed slight shock, and if that could be lessened or eliminated by shortening the second stage of labor it should be done. Early version often eliminated injuries caused by prolonged labor both to mother and child. A prolonged and persistent occipital pressure might cause cystocele or rectocele in the mother and injury to the child's head, which if the child did not die within the first week might be a cause of epilepsy or idiocy. Another type of cases in which version was an advantage was in those cases in which there was a complete or partial cessation of pain with complete dilatation of the os. It had advantages in women with pendulous abdomens. In a series of 500 cases he had done a version 12 times for pendulous abdomen. Version was also an advantage in cases of mildly contracted pelvis, the so-called borderline cases, and in cases in which something had to be done to shorten labor. The conditions operating on the child for which version was an advantage were abnormal implantations of the placenta, a vicious position of the child, and cord conditions. Among rules that should be followed in doing a version were the following: The cervix must be completely dilated before attempting version. Both feet should be brought down instead of one, and the operator should work carefully. No attempt should be made to deliver the arms until the scapulæ were outside of the vulva, and then the anterior arm should be delivered first. Many children would breathe before the head was born, but the obstetrician should not hurry and should not make too much pressure on the abdomen of the mother. The mucus that the child inhaled could be cleaned off its mouth as soon as it was delivered. The aftercoming head could be delivered with forceps if necessary. It was essential always to get a good idea of the position of the child before attempting version. If the membranes were not ruptured they should be ruptured high up after having first separated them from the uterus. The lithotomy position was not always the best, but it was often the more convenient, as the Walcher position required two attendants, though it might be used by placing the patient's feet on two chairs. The writer entered a protest against spanking the new born infant to make it breathe, and advocated giving a hypodermic of pituitrin to complete the third stage.

Corpus Luteum Extract in the Vomiting of Pregnancy.—Dr. James Knight Quigley of Rochester presented this paper, in which he reported observations made on 17 cases treated with corpus luteum extract for the vomiting of pregnancy. The results corresponded fairly well with those of others. Of these 17 patients, 12 were permanently benefited, four were benefited but relapsed, and in these it was probable that insufficient extract was given. There was one complete failure. The average number of doses was seven. The preparation used was 1 c.c. ampules containing 0.2 mg. of desiccated substance of the gland. In a case presenting the pernicious form of vomiting there was no relief. In one case there was relief from profuse salivation.

Grippe of Nurslings.—Achard states that the nursling as a rule presents a pulmonary localization, the picture being either congestion, bronchitis, or bronchopneumonia. Diagnosis is made by the dyspnea, the leaden hue, cough, and local signs. Transmission in these cases is obvious, for in twenty-eight of thirty-two cases the infant derived the disease from mother or nurse. In the other four cases it was not possible to trace the origin. Of the eight patients who presented symptoms of bronchopneumonia, seven died.—*La Presse Médicale.*

Therapeutic Hints.

Dressing for Non-syphilitic Ulcers.

℞ Balsam of Peru.
Bismuth subnitrate .....āā 5v
Ichthyol
Glycerin .....āā 5xiiss
Water .....q.s.ad 5viii
M. et ft. pasta.

The raw surface of the ulcer is first cleansed with alcohol and the edges cleared. Strips of gauze impregnated with this paste, heated, are applied over the wound. This dressing can be left in place for ten days or a fortnight. One or two dressings, according to the size of the ulcer, are required, and seldom more. To promote the formation of a good epidermal covering, the patient is allowed to get up and walk about at times, so as to obtain a mechanical action of the dressing, in the nature of a massage, upon the wound.—Morlet in *Journal de Médecine de Bordeaux.*

Hemorrhoids.

℞ Tannin 5ii
Powdered camphor ..... gr.x
Powdered opium ..... gr.v
Potassium iodide ..... gr.iij
Vaseline 5i
M. et ft. unguentum molle.

—DeWolf.

Dandruff.

℞ Beta-naphthol ..... gr.xx
Oil of bergamot ..... ♏x
Vaseline 5i
M. et ft. unguentum. Sig.: Rub into the scalp at night, and in the morning shampoo with mixture of green soap.

Or ℞ Resorcinol 5i
Castor oil 5i
Ether 5ss
Cologne water 5ss
Alcohol (90 p.c.) .....q.s.ad 5iij
M. Sig.: Rub into the scalp every morning for a week.

Whooping Cough.

℞ Peroxide of hydrogen (10 vol. solution) 5iss
Glycerin 5i
Distilled water .....q.s.ad 5vi
M. Sig.: Tablespoonful in half a glassful of water from 4 to 6 times a day.—Richardson.

Flatulence in Children.

℞ Tincture of belladonna .....♏v
Aromatic spirit of ammonia... ♏xv
Bicarbonate of soda..... 5i
Peppermint water.....q.s.ad 5i
M. Sig.: Teaspoonful every six hours to a child of 2 years.

Tapeworm.

℞ Pelletierine tannate ..... gr.vii
Simple syrup 5ss
M. Sig.: On rising take a teaspoonful of fluid extract of senna; an hour later a dessertspoonful of the syrup of pelletierine and the balance in another half-hour; half an hour later one ounce of castor oil. The patient should remain in bed during the course of medication.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 95, No. 24.
Whole No. 2536.

NEW YORK, JUNE 14, 1919.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

MEDICINE, A DETERMINING FACTOR IN WAR.*

BY ALEXANDER LAMBERT, M.D.

NEW YORK.

No one can be elected President of the American Medical Association and fail to appreciate the great honor conferred, nor fail to realize the responsibilities which may rest on him. In the recent past these responsibilities have at times lain dormant, but at other times they have actively exerted their full force, and the influence wielded by the President of this Association has had great possibilities for good or evil on the medical profession.

A year ago the problems before us were the great responsibilities of war, the conduct of that war, and the means whereby it could be pushed to a successful issue. Today, our problems still loom large, for they are those of rearrangement and reconstruction. It seems timely, therefore, to consider what the medical profession has done to fulfill its duty in the war, and what medical science has done to alleviate the dreadful horrors which, in the past, have followed in the wake of warring armies, hovering like terrible specters over the civil populations, and which sooner or later would take their death toll through epidemics of disease. We have also to consider the problems of the future and to base our actions on the lessons we have learned by the experiences through which we have so recently passed.

Response of Medical Profession to Call of Duty.—The medical profession of the United States needed no draft or conscription to answer the call to duty. About 20,000 of its members volunteered and thus expanded the small regular force of physicians in the Army and the Navy. At the outbreak of the war only 447 physicians as regulars, and about 1,600 of the Medical Reserve Corps comprised the entire commissioned personnel of the Medical Department in the regular army. In the navy, 329 surgeons, 161 naval reserve officers, and twenty-five contract surgeons comprised the medical staff. When the armistice was signed there were 35,000 medical officers in the army and 3,000 in the navy, practically 26 per cent. of the entire profession of the country.

This mobilization, added to those physicians who were taken by the draft, could not occur without great sacrifices, both by individuals and by communities, as was specially evidenced when the influenza epidemic swept over the country. But this is part of the price for war that peoples have ever paid. This mobilization of physicians was accomplished by the Surgeon-General's Office, aided by the Council of National Defense and the American Medical Association, both acting through the organized state and county societies of the American Medical Association. The wisdom and the necessity of these state organizations was never more completely demonstrated than in the last two years. Simultaneously, the justification of the necessity for The Journal of the Association, as a medium through which information could be quickly disseminated, and its great influence among physicians, was never shown more clearly. The men in the executive positions of the American Medical Association and the Council of National Defense deserve the greatest credit and deserve the acknowledgment of work well done. This tribute is but their just due, and it is with keen pleasure that I take the responsibility of speaking for the profession and publicly acknowledging it.

Work of the Local Boards.—In the work done by the medical profession in the war, one cannot pass by that accomplished in examining the young men drafted into the army. This work of the local boards was not done by picked specialists or by men previously trained for it. The physicians of the boards were at first usually the county and city physicians appointed by the local sheriff, and the figures form an interesting study. Of the 10,000,000 (9,952,735) called and registered, 6,750,000 (6,744,289) were not examined. Of the one-third who were examined—that is, of the 3,208,448—70.4 per cent. were found to be fully qualified, while 29.6 per cent. were found physically to be totally or partially disqualified. Of the 2,124,293 who were sent by the local boards to the camps and were then subjected to the careful and minute examination of experts, 91.9 per cent. were accepted and only 8.1 per cent. rejected. It is interesting to note that in the draft of 1917 the local boards rejected 29.1 per cent., and in 1918 they rejected 29.6 per cent. The more this work is studied, the more one appreciates its extent, its far-reaching influence, and the high value of the work performed.

Success of Preventive Medicine.—Few realize how crucial has been the test of preventive medicine in the war just finished. Appalling as has been the number of battle casualties, the death rate from disease has been held down as never before. The statistics available show conclusively that the great scourges and plagues of former armies have been held in check: that is, typhus

*President's address before the American Medical Association at the Seventieth Annual Session, Atlantic City, N. J., June, 1919, published by courtesy of the *Journal of the American Medical Association.*

fever, cholera, recurrent fever, typhoid, scurvy and malaria, and, not least important, smallpox. Influenza with pneumonia, occurring in an epidemic sweeping over the eastern and western hemispheres, has been the epidemic that has baffled medical science and stands out with startling distinctness as the one uncontrolled epidemic. The death toll of pneumonia has almost equaled the battle casualties of those killed and dying of wounds in the American army. In spite of the failure to control influenza and pneumonia, this is an extraordinary record of disease control, and never, in any previous war, has the knowledge of medical science and sanitation, and the application of this knowledge been able to accomplish so much. We saw typhoid start as an epidemic in Belgium, in 1914, spread with its old-time fury among the troops at that point, and then we saw it conquered by sanitation and vaccination. We have seen typhus spread with terrible fury in Serbia and in Austria, we have seen typhus and recurrent fever break out in Russia; and again we have seen the knowledge that these diseases are carried by body lice put into practical application and the epidemics controlled. Cholera has started and been controlled through sanitation and vaccination, by both Russians and Italians. Tetanus has been practically eradicated among the wounded. Smallpox, appearing among the recruits coming from civil life, has been so quickly controlled that there were, from January, 1917, to April, 1919, in the American army of over 2,000,000 men, but six deaths from this disease. To appreciate fully the meaning of this result of preventive medicine and what the American medical profession has accomplished, let us study the battle casualties and disease rates of former wars, and, by this contrast, appreciate the achievement.

Destructive Effects of Disease in Former Wars.—Of course, any accurate and minute comparison requires carefully kept statistics, and such records are available only for the wars of the nineteenth century. Surgeons and physicians have been with the armies since antiquity, but they were as part of the retinue of some king, general or noble, and were not assigned to troops. Charles the Bold of Burgundy, in the last third of the fifteenth century, was the first one that definitely assigned surgeons to the troops as well as to the officers. This seems to be the isolated instance of a single ruler, for it was not till a hundred years later that the first surgeons were supplied to the British army, in an expedition to St. Quentin. In the middle of the sixteenth century the armies of Charles V. did not possess surgeons or medical corps, for it is reported as an extraordinary occurrence that, in the siege of Metz, when Charles V., beaten by disease and famine, was forced to raise the siege of this town, his young opponent, the Duc de Guise, gathered the abandoned sick and wounded of the retreating imperial army and, contrary to the customs and traditions of the time, had them cared for by his own physician, the renowned Ambroise Paré.

However, it was not until the seventeenth century, in the time of Louis XIII. of France, that surgeons were regularly appointed to the French armies, and not till 1660, when a standing army came into existence in England, were surgeons first regularly appointed to regiments in the English army. Not till the middle of the eighteenth century, however, was there a well-organized medical service in any of the armies. Field hospitals were not thought necessary until Cardinal Richelieu installed them, in 1639, in villages behind the fighting lines.

It is not usually realized that some of the greatest wars of modern times were fought with practically no provision made for the care of the sick and wounded, that the decision of wars has at times depended more on the wastage of the armies by disease than on the valor of the soldiers or the genius of the generals. The Emperor Frederick Barbarossa, in the Middle Ages, saw one army in Italy annihilated by sunstroke. Ten years later, after he had succeeded in storming and conquering the city of Rome itself, a pestilence swept away another army, and he was forced to flee, a fugitive, to Germany. In the Thirty Years War, the Swedish army under Torstenson fought its way from the Baltic Sea to the very gates of Vienna, where the bubonic plague so decimated his forces that he was compelled to withdraw and lose the campaign so brilliantly won. In the middle of the eighteenth century the bubonic plague again so raged, this time among the Austrian and Russian armies, that these nations were forced to bring the war to an unexpected ending and to make an unfavorable peace with Turkey. In more modern times, the disorganization and discouragement produced by disease in the French forces before Sebastopol was not a small element in hurrying the government of France to conclude peace before the ultimate aims of the campaign were accomplished.

For a background of modern hygiene, let us consider the occurrence of disease in the Thirty Years War, 1618-1648, a war fought between Protestant Swedes and northern Germans, aided, toward the end, by the French, against the imperial Catholic armies of Spain, Bavaria and Austria. This war had all the bitterness of other religious wars. The armies were often an unpaid rabble of mercenaries greedy for loot, who lived on the country, but who deliberately burned and destroyed all they could not use. They methodically wasted entire districts, thus adding famine to pestilence, for wherever these armies went they took with them and spread typhus fever. The numbers engaged, relative to modern times, were small, an entire army representing no more than one or two modern divisions, the strength of either side averaging from 20,000 to 30,000, occasionally more, often less. Bodart sums up the battle casualties of the thirty greatest engagements of this war as averaging 15 per cent. for the victors and 30 per cent. for the defeated antagonist. These losses were small indeed compared to loss by disease. The sick and wounded were uncared for except by their comrades or by the camp-followers; or they were left in villages or cities to be aided by the civilians, and were universally the foci of infection from which typhus fever spread far and wide. Smallpox was ever present in the communities. Dysentery and scurvy added their toll of death in the armies; typhus fever never ceased its virulent devastation, and, after 1632, bubonic plague imposed its terrors on the armies and stricken peoples alike. Great as was the destruction of life among the soldiers, whether from battle or by disease, the loss of

life was always greater among the noncombatants, not only because of famine and pestilence, but also because of the brutal and barbaric conduct of the war. Prinzing records that the population of the city of Wurtemburg lost by war, famine and pestilence, in five years, 300,000 persons, or three quarters of its inhabitants. In the Electorate of Saxony, bubonic plague, typhus and dysentery, in two years, carried off 934,000 of the inhabitants. Three quarters of the entire population of Germany, over whose fields the war had been chiefly waged, were blotted out of existence, for the population dropped from 16,000,000 to 4,000,000, the logical consequences of barbarous warfare and no sanitation.

By the middle of the eighteenth century the armies of England and France had regularly organized medical corps. With its increased responsibilities the medical corps of England had been given an equivalent increased authority and independence, but the French medical service, from the eighteenth century even through the war of 1870, had neither independence nor authority, but was a subordinate part of the intendance, or quartermaster's department. In spite of the improved ideas of care of the sick and wounded in the armies of the eighteenth century, the mortality rate diminished but little. The hospitals were still only shelters for the very sick. Two, four, or even six patients were still crowded on a single bed. Overrun with vermin, with absolutely no ventilation, filthy beyond description, they still propagated typhus, plague and dysentery. Sir John Pringle, in discussing the causes of mortality in war, names hospitals as an important factor. And Turpin de Crisse declared that in the wars of the decade from 1731 to 1741 more men died in hospitals from lack of care than lost their lives in combat.

Typhus fever still raged as an epidemic among the armies in the Wars of the Spanish Succession, and in the Seven Years War of Frederick the Great. It was not till the nineteenth century, after the Napoleonic Wars, that the French hospitals showed any improvement. On the other hand, it was because of the experiences in the Napoleonic Wars that the English were able to improve the sanitary care of their wounded. This the historian Napier realizes, and he pays tribute to the success achieved:

> The extraordinary excellence of the medical officers may be said to have decided the day at Vittoria, for their exertions undoubtedly added a full division to the strength of Wellington's army, and without these 5,000 it is doubtful if his Lordship, with his unrivaled talent, could have carried the day.

Their efforts were directed more toward cure than prevention, although Jenner had, by the end of the eighteenth century, shown the first means of control, by preventive vaccination, of one of the decimating plagues, that of smallpox. In strange contrast to his habitual indifference to the fate of his sick and wounded, Napoleon seized on the discovery of Jenner, and by 1809 had succeeded in having his entire army vaccinated. There seems to be a general agreement that no man ever was more indifferent or cared less for the salvage of the sick and wounded of his armies than Napoleon. Duncan says that abandonment of the wounded was the rule by the French in the Napoleonic Wars. When not abandoned, they were huddled in buildings of every sort and left to die.

It is of more than passing interest that during Napoleon's war against Prussia, 1806-1807, typhoid seems to have been recognized. The French physicians at this period differentiated and accurately described its symptoms and lesions. From this time epidemics of typhoid are recognized and separated from the real typhus, which still ravaged both armies and population.

The retreat from Moscow and the Russian campaign of 1812 was probably the greatest military disaster of modern times. From recent authoritative French figures Bodart estimates that 680,000 crossed the frontier with Napoleon. Dysentery severely attacked the armies after they had crossed the Polish frontier, 80,000 men being down with it at one time. Of the 612,000 fighting strength, there returned to the frontier, according to Bodart, but 112,000 men. Lemazurier says that the great majority of the 30,000 French prisoners left at Vilna died. Faure claims that all of the French soldiers who fell into the hands of the Russians succumbed to typhus fever. It seems probable, therefore, that there were 100,000 men killed in battle, and at least 350,000 perished from starvation, cold and disease. Prinzing says that the instinct of self-preservation had kept the army together in a common line of march from Moscow to Vilna and on to Niemen. He adds:

> After crossing the river, however, at this point, the few unfortunate soldiers who had survived the awful misery of the march, hungry, with clothes in rags, with torn shoes, alive with vermin, with frozen and gangrenous limbs, scattered in all directions, some going home and others to strongholds that were in the hands of the French. Thus typhus fever, with which all parts of the army were infected, was spread in a comparatively short time over a large part of Germany.

The pursuing Russians did not escape free from the scourge, for in the three months from October to December they lost 62,000 soldiers, most of whom died from typhus. It is stated that the Russian armies in this campaign lost 200,000 killed and 150,000 wounded. The total of death by disease is not recorded.

The German campaign, a year later, was no less disastrous, and among the French and their allies there seems to have been some 60,000 killed and 196,000 wounded during 1813. Duncan thus describes the result of this campaign:

> But a few fragmentary battalions followed the eagles of Napoleon across the Rhine in November. The army lay scattered amid the villages on the route from Germany, the men dying by thousands and spreading a pestilence among the inhabitants. Reliable observers say that the retreat from Leipzig was no less ruinous than the retreat from Moscow, although there was no cold nor famine. The utter ruin of the army was the legitimate fruit of utter neglect of the sick and wounded.

Prinzing, studying the epidemic of typhus fever of 1813 and 1814, following the Russian campaign, believes that between 2,000,000 and 3,000,000 people contracted this disease, spread broadcast by the scattered armies of Napoleon, over 10 per cent of whom died.

The Spanish War, in its six years' duration, 1808-1814, cost France over 90,000 killed. The deaths by

disease are variously estimated as from 300,000 to 460,000 among the French army. We know that typhus fever was widespread and virulent. We know that yellow fever, in 1810 and 1811, raged furiously in the southern portion of Spain. It is known that in the siege of Saragossa, for example, of the 100,000 inhabitants, 54,000 died of typhus; and of the 30,000 soldiers, 18,000 died of the same disease before the city was forced to capitulate.

In striking contrast to this was the work of the English in the peninsular campaign during 1808-1811, under Sir James MacGrigor. This surgeon had been in the Walcheren expedition on the coast of Holland in 1809, when the English attempted to take Antwerp from Napoleon. This ill-fated expedition, of a strength of 42,000, lost 206 men killed and dying of wounds, but lost 8,000 through disease. Impressed by his experience on that expedition, MacGrigor made a most determined endeavor to rectify the conditions in the English army in the peninsula, and especially to fight typhus fever in the hospitals. He insisted on accurate medical statistics, so that, for the first time, the relative loss from the different causes might be known. In the two and a half years under this surgeon there were 2,699 deaths from wounds, and 14,269 from disease, which gives a death rate of killed or dying of wounds of forty-two per thousand per year, and 118 dead of disease. Typhus fever was controlled, but dysentery and typhoid caused 11,000 of the 14,000 deaths.

The Medical Corps of the American army, modeled more on English than on French lines, had not, in the Mexican War, 1846-1848, advanced far in the prevention of disease nor improved the waste of life of the Napoleonic era. The mortality from disease was 110 per thousand per year, and the battle loss was fifteen per thousand. Seven times as many men died of disease as were killed in action.

The Crimean War, 1854-1856, shows the highest loss from battle casualties among the Russians, and from disease among the French, of all wars of which we possess accurate records. The battle death rate among the British was sixty-nine per thousand per year, among the French seventy, and among the Russians 120. The disease death rate was 230 per thousand among the English, 341 among the French, and 263 among the Russians. The medical and human lessons do not lie in these mere figures, extraordinary as they are. They can be brought out only by a comparison between the mortality from disease in the English and French armies.

In the beginning of the Crimean War, the English were sent out unprepared. They had forgotten their lessons of the Peninsular War, they had discarded the knowledge so obtained, and they were absolutely unprepared for the war and went out with insufficient equipment, food, and clothing. The first winter was terribly severe. The French, on the other hand, were much better equipped and better prepared for war, were better rationed, better clothed and had good equipment. The two armies were living and fighting together, side by side in camps, under the same conditions in the same climate. They both suffered from two epidemics of Asiatic cholera, which cost the English 4,513 deaths and the French 10,044. Comparing the French and the English death rates, excluding deaths from wounds and cholera, we find that in the first eight months of the war the English lost from disease alone 9,762, and the French 9,523. But here the story changes. Intense indignation in England at the frightfully unsanitary condition and the terrible death rate of their forces produced a tremendous reaction. England rushed the military necessities of food, equipment and transport to the Crimea, and, as a consequence, from May to August, 1855, the English losses dropped to 923, but the French rose to 10,545. From September to December, 1855, the English losses were 463 and the French 8,473. In the last four months the British losses by disease were 218 and the French 17,129. Comparing the mortality of the autumn of 1854 with that of the same period in 1855, we find that there was a decrease of 80.5 per cent in the rate of the British mortality, and an increase of 62.8 per cent in the rate of the French. Comparisons of the deaths occurring from January to April, 1855, and those from January to April, 1856, reveal that there was a decrease in the British mortality of 97.05 per cent. and an increase in the French mortality of 57.43 per cent.

The details given by Garrison of these figures are even more striking. For example, during the first winter the British lost 164 men from typhus fever, and the French ninety. During the second winter the British losses from typhus were only sixteen, those of the French 10,278. The French lost 145 men from scurvy and the British 175 during the winters of 1854 and 1855; during the following winter the French lost 964, but the English had but one death from this disease. Florence Nightingale, from whose work in this war the modern system of nursing arose, describes the situation as follows:

> . . . the most complete example in history of an army, after a great disaster arising from neglect, having been brought into the highest state of health efficiency. During the first winter the mortality rate was 60 per cent., which exceeded the rate of the great plague of London. But during the last six months the mortality was not more than among the healthy guards at home, and during the last five months it was two thirds of that among the healthy troops at home. It was the most complete experiment in army hygiene, as complete as a chemical experiment in a laboratory, but which should not be repeated, even for the benefit of inquirers at home.

The cause of the French deterioration is plainly seen from a study of the correspondence of their medical inspectors and a study of the increase of sickness in the army. Surgeon-General Longmore of the English army, reviewing the medical lessons of the war, states that "the French medical officers were completely subordinated to the intendance, or direct administration, and had no authority beyond that of ordinary civil practitioners at the bedside. Even the control of hospitals, ambulances, and medical service in battle was directed by the intendance." This quartermaster's staff, having no medical training, were quite incompetent to advise on the means necessary to preserve the health of the troops, and quite incompetent to give directions on matters of hygiene and sanitation. This situation led to the development of scurvy and typhus, with

a constantly increasing virulence of these diseases, until at last their diffusion took place in such overwhelming proportion that all available resources were powerless to cope with the situation.

The short war of seven weeks' duration between Prussia and Austria, in 1866, is interesting from a medical point of view for two reasons: first, its statistics show that no improvement had been made in the Prussian army in safeguarding the health of troops or in checking the spread of disease; and second, because of this fact, within the year, the Prussian government had completed a reform of the medical service in their army, and turned it into as effective a machine to obtain the results for which it was organized as the military machine proved to be four years later in the Franco-Prussian War. This Austrian War is also noteworthy as being the first one in which the organized aid of the Red Cross societies, under the Geneva Convention of 1864, seems to have acted.

In the Franco-Prussian War of 1870, the Prussians reached the highest standard of protection against disease that any army had yet attained. The ratio of their battle casualties was fifty-five per thousand to a rate of death from disease of twenty-five. The French, however, were just the opposite. Still hampered by the quartermaster control of medical organization, in a demoralized, defeated army, they suffered battle casualties of sixty-eight per thousand and a rate of death from disease of 141. The average strength of the German army seems to have been 725,000, and their total losses were 28,500, of whom but a little over 12,000 died through disease.

Three infectious diseases had a plague-like spread in this war: these were smallpox, typhoid, and dysentery. For the first time in a large European war, typhus fever did not break out in the armies. The incidence of typhoid fever in the Prussian army was as high as ninety-three per thousand. The incidence of dysentery was forty-nine per thousand. Though smallpox occurred in only 6.1 per thousand of the fighting strength, it occurred in an army that was supposed to be vaccinated. Among the French prisoners of war, however, smallpox broke out as a plague, about 14,000 cases occurring in Germany and about 25,000 in the interned army in Belgium. The incidence was fifty-four per thousand among the prisoners in Germany, which is nine times that of the German army and shows the difference between the vaccinated and unvaccinated army. Up to this time, in Germany, the population was supposed to be vaccinated, but as is usual under noncompulsory health laws, many had neglected the precaution. Smallpox followed as an epidemic in Germany, causing the death of 170,000 persons after the war. This produced a most beneficial result in causing the passage, in 1874, of a compulsory vaccination law, the workings of which have practically eradicated the disease.

To appreciate the death rate from disease in the French army one must compare its rate of 140.8 per thousand with the death rate from disease in the German army of 24.5, or with the death rate of sixty-five per thousand in our Civil War. No accurate French statistics have been published, the situation being so bad that all have wished to forget it.

The death rate in our Civil War of killed and dying of wounds is given as thirty-three per thousand, the disease death rate as sixty-five. In the Spanish War the death rate from battle is five and the death rate from disease 30.4 per thousand. In the present war, taking the statistics up to March 28, 1919, we find the rate of death from wounds received in action is 14.191 and that of death from disease is 14.797 per thousand. This includes the army on both sides of the ocean. The statistics of the American Expeditionary Forces, with an average strength of 975,716, reveal a rate of death from wounds in action of 31.256 per thousand and a death rate from disease of 11.233. Of those who died of disease, pneumonia claimed 9.146 per thousand.

Studying comparatively the diseases of the American armies during the Civil War, Spanish-American War, and the recent war, we find that malaria was one of the chief causes of disability in both the Civil War and the Spanish-American War, though it caused but 6 per cent. of the deaths in the Civil War and but 10 per cent. in the Spanish-American War. But in the recent war malaria has caused such a small number of deaths that it is not given in detail, but is put into the aggregate term of "other diseases." Typhoid fever, with typho-malaria, so called, was the chief cause of death from disease in both the Civil War and the Spanish-American War, causing 22.4 per cent. of the deaths of the Civil War, and being the one great uncontrolled epidemic of the Spanish-American War, causing in the fighting period of the latter war 60.5 per cent. of all deaths. But in the recent war only 0.4 per cent. of the deaths are chargeable to this scourge. Pneumonia, on the other hand, causing only 13 per cent. of deaths during the four years of the Civil War and only 3 per cent. in five months of the Spanish-American War, has become the dreaded epidemic of the recent war, causing in the American army 85 per cent. of all deaths from disease. In the Civil War meningitis caused 2 per cent. of the deaths, and 2 per cent. of the deaths in the Spanish-American war, and it caused 4 per cent. of the deaths in this war. Smallpox caused 4 per cent. of the deaths in the Civil War; in the Spanish-American War one man died of this disease; in this war, one man died of smallpox in the United States and five in France. In 1918 and in the first months of 1919, there were 102 patients with smallpox admitted to the hospitals in the United States. These patients came into the various camps from civil life, for the disease developed among the recruits before they could be vaccinated and thus protected, but it has not developed at all among the vaccinated troops in the United States. Dysentery caused 28 per cent. of the deaths in the Civil War, and nearly 30 per cent. (29.3 per cent.) of the 5,600,000 cases of disease reported in that war. In the Spanish-American War it caused 5.6 per cent. of the deaths. But it caused only forty-one deaths out of 48,000 cases, or 0.08 per cent. of the deaths in the recent war. The transmission of yellow fever by mosquitos does not come into consideration in the recent war, though there were small epidemics of this disease in both the former wars, there being about 1,300 cases in the

Civil War and about 1,100 in the Spanish-American War.

There is one achievement by the Medical Department of the United States army after the Civil War which stands as a lasting monument to the industry and genius of the surgeons of that time; it is the "Medical and Surgical History of the War of the Rebellion." This was the first great medical history ever published of any war, and remains still the standard to be attained.

As a result of the scientific medical work during and after the Spanish-American War, the investigations of three American army surgeons, Jesse Lazear, James Carroll and Walter Reed, who gave to the world the solution of the problem of the transmission of yellow fever by mosquitos. With this knowledge came simultaneously the power to control this dread disease, which for centuries had been the scourge of the West Indies, and had time and again spread in devastating epidemics to this country and even to southern Europe. Lazear and Carroll laid down their lives to gain this knowledge, and paid the ultimate sacrifice in order that thousands, through their work, might be protected and live. The sanitary control of mosquitos, and thus of tropical malaria and yellow fever, and the wise administration of this knowledge, made possible the building of the Panama Canal. It was an American army surgeon, William C. Gorgas, who seized this great opportunity and transformed a pesthole of tropical diseases into a healthy and safe terrain, that the engineering genius of the United States army might be free to construct the canal. The French under De Lesseps had failed because of the epidemic and tropical diseases which were at that time uncontrollable. Disease had defied and overcome engineering skill and genius. Preventive medicine controlled and conquered.

Ten years ago the practical application of the knowledge gained from the study of the epidemic of typhoid fever of the Spanish-American War brought about the compulsory inoculation against typhoid in the United States army. It had been shown by the Vaughn and Shakespeare Board that nearly 65 per cent. of the typhoid fever of that war was transmitted by contact of man with man, and was not water borne. Hence sanitation could only reduce typhoid to a certain level and not eradicate it. The introduction of compulsory typhoid inoculation in the army has practically eradicated the disease. Following the work of the English medical corps in the Boer War, a United States army surgeon, F. F. Russell, made possible the practical application of this method in the U. S. army and proved conclusively that typhoid fever could be completely controlled. The American Army Medical Corps has, in the recent war, discovered the transmissibility of trench fever by body lice, and thus has shown the means of prevention of this new disease which, while killing no one, rendered thousands of men useless for weeks and ineffective for fighting. This discovery came to save thousands of men for the fighting lines at a time when they were urgently needed.

Modern Control of Destructive Diseases.—Medical science has today, therefore, within its grasp the power to control the diseases which, in former times, decimated warring armies and spread out from these armies among the noncombatant populations. Formerly, when war broke out, it was almost inevitably followed by some dread pestilence among the civil populations of the countries in which the war was waged. By proper sanitation and preventive inoculation, dysentery and cholera can be abolished; by vaccination armies can be protected against smallpox. Body lice disseminate typhus, recurrent fever, and trench fever, and by proper disinfestation of these vermin these diseases cease to occur. Through sanitation and preventive inoculation, typhoid fever, the scourge of the two previous wars, is absolutely controlled, and this includes also paratyphoid, which has been recognized as a separate entity only since the Spanish-American War. In the Spanish-American War, 60.5 per cent. of all deaths were caused by typhoid, and in the present war 85 per cent. were caused by pneumonia. The typhoid of the Spanish-American War was due to local causes and local epidemics. The pneumonia of this war was beyond control, and was part of a world-wide epidemic that swept over both hemispheres, and the morbidity and mortality of some of the cities of this country exceeded those of the camps. Subtracting the death rate caused by pneumonia from the total death rate by disease in the recent war, we have 2.2 per thousand for the entire army on both sides of the water, which is practically a peace-time death rate. Meningitis has caused, in this war, ten times as many deaths as typhoid fever; pneumonia has caused two hundred times as many. Mumps and scarlet fever, of the infectious diseases of the young men, remain as yet to be controlled, but they are not of great import in the armies in war. The disabling type of disease coming under the head of venereal disease has, in this war, been so controlled that the number of cases brought from civil life was greater than the number occurring in the American Expeditionary Forces in France, which was reduced to twenty-two per thousand per year, a rate only one eighth as high as the incidence among recruits coming from civil life, and only one third as high as the best that ever had been accomplished in the army before.

Influenza, measles, and pneumonia, in the respiratory group, still stand as baffling problems, and their control has not been accomplished. Measles appeared and spread until it no longer had material on which to spread, as one attack confers immunity to a second. Pneumonia, following influenza or originating as a primary disease, still eludes control. But the knowledge which we have gained in this war of the methods of its spread, of the various infectious organisms which produce it, and their various types and varying virulence, of its occurrence as a secondary complication to measles and influenza, has enormously increased. The value of the facts thus learned are incalculable, and belief is justified that the problem is better understood than ever before, and that we soon shall see the solution of these problems.

The occurrence in the camps of meningitis, another disease of the respiratory group, as far as its portal of infection is concerned, has been forty-five times as frequent in the army as its occurrence in civil life among the same age group. This has been

due to overcrowding and the diminution of air space allowed the individual soldier in badly ventilated barracks. The responsibility for these sanitary sins rests upon the General Staff and not on the Medical Corps.

Value of Lessons Learned in Determining Action in Future.—What then are the lessons that we can draw for future action? There is no question but that the salvage of human beings, the protection of troops from disease in an army, renews and saves the fighting forces. Until recently, until medical science could control disease during war time, armies had been more decimated and injured by disease than through battle casualties. Now that except for epidemic spread of respiratory diseases, the communicable and epidemic spreading diseases can practically be controlled, the medical corps of an army has become an essential part of the fighting organization. Whole nations must now go to war. No longer can they mobilize a selected portion of volunteers and send them to fight the war and defend the nation. Since all the youth of the nation must mobilize and turn to war, it becomes the duty of a general staff to save its man power and to salvage it to the greatest extent possible. The history of the Crimean War, of our Spanish-American War, and our experience in the recent war have clearly shown that only through proper representation on the general staff by those men trained in such salvage, and by experts in such knowledge of sanitation, can this duty be performed. When the General Staff of the United States Army comes to realize this fully, one cannot conceive that it will fail to give proper representation in its councils and organization to the Medical Department. The practical necessity for this was finally recognized in the A. E. F. by General Pershing and three medical officers were detailed at General Headquarters as substantive members of the General Staff. Responsibility and authority cannot be separated, and only by such organization can adequate authority equal the inevitable responsibilities.

In the mobilization of the industrial forces of the nation by the Council of National Defense, the health of the nation and the protection of both nation and its armies was regarded of such importance that it demanded direct representation of the medical profession on this board. This is also true of the navy, for its Medical Department is represented on the General Board. Oddly enough, the anachronism still exists that in the General Staff of the United States Army the Medical Department is regarded as an outsider. The safeguarding of the health and fighting vigor of an army, the salvage of its wounded, the saving of man power through protection from disease are still regarded as foreign to staff organization. The medical and sanitary formations are still regarded as noncombatants, although those serving with the troops often go forward and mingle with them in the combats, that the morale of the men may be better sustained. Duty demands it, and they have shown themselves willing, in this war, to be unarmed combatants, not noncombatants. The ratio of the medical officers killed and dying of wounds has been exceeded only by that of the infantry and artillery, which branches necessarily bear the brunt of the battles. The pro-rata death rate of the medical officers has exceeded that of aviators and of engineers.

This subject is a matter for congressional action, but the profession of this country, while the experiences of this war are still vivid in its mind, must turn to the Congress, must make an intelligent exposition of these facts, and must bring about, by legal enactment, an adequate representation of the Medical Department on the General Staff of the army.

Educational Needs of the Medical Profession.—One lesson of the war which stands out with great distinctness is the necessity for the American Medical Association to continue its unceasing struggle to raise the standards of medical education in this country. Such are the increasing demands made on the medical profession that the young men entering it to-day must realize that the broad and excellent education obtainable is none too good. It is not asking too much to require that all medical schools which are permitted to continue should soon be raised to the A Class.

There is another urgent educational need in this country that should be taken up immediately: that is, increase in the postgraduate opportunities for medical study. The opportunities that are presented in this country are practically undeveloped. It is for the profession to develop them, and every member of the Medical Corps of the army should be given an opportunity to avail himself, for a certain number of weeks each year, of the chance to study some branch of medicine or surgery at some medical center—not required to do it at his own expense, but detailed by the government to take up, for a definite number of weeks, his chosen branch of study. Physicians acquire their knowledge best by daily contact with opportunities which broaden their experiences. The opportunity to do this at short intervals, rather than at intervals of two, three or five years, would produce better results.

Need of Improved Organization.—One very important duty to be performed soon is the reorganization of the Medical Reserve Corps and the rearrangement of the Medical Reserve officers and of the medical officers of the National Guard into one National Reserve Corps. This must be done when a realization that the medical profession in the regular Medical Corps and in the Reserve and National Guard Corps are all members of one and the same profession, united in desire to serve and obtain a single objective. Those in the Regular Corps have specialized in the study of medicine in its application to military requirements. The Reserve and Guard Corps have specialized in clinical medicine, with sufficient knowledge of military requirements to permit of their early adaptation to military environment when war comes. Equal ethical responsibilities rest on all alike, since all are called together for the common purpose of caring for the sick and wounded of the army; but the amount of practical responsibility must be unevenly distributed among individuals, that proper organization may be perfected.

Authority of the individual must always equal his responsibilities. Military authority is always expressed by rank and cannot be separated from it. Hence rank, authority, and amount of responsibility must coincide. The Reserve and Guard Corps

should not be discriminated against in rank, as they have been in the past, because it invariably prevents authority from equaling responsibility, and thus cripples efficiency. One solution would be to have all Reserve Corps officers of equal rank, such as captain, and have the office held bestow the authority in proportion to the responsibilities contained therein. The administrator of each hospital unit must always have supreme local authority, but there should be an appointed group of clinical consultants in the different specialized branches of medicine, surgery, and sanitation for the proper correlation of clinical procedures, that there may be uniformly good treatment and care given equally to all sick and wounded in all hospitals. Medical and surgical specialization was developed in the army for the first time in this war, and beyond question it must remain permanently. These consultants should be utilized as medical and surgical advisers on clinical subjects to the Chief Surgeon, with direct access to him without intervening mechanism of departmental heads. It is axiomatic that these consultants must have sufficient rank and authority to equal their responsibilities, and necessarily higher rank than the commanding officers of the hospitals under their supervision. These are but suggestions, and it is unnecessary to go further into details at this time, but some solution of this problem must be found soon.

Relation of Red Cross to Army.—The relationship of the Red Cross and the army is not generally understood. The Red Cross is not a private society supported by private contributions, but is a governmental body incorporated by Congress, with a definite function, that of giving voluntary aid to the soldiers and sailors of the army and navy during war. It differs from other governmental functions in that it is not supported by congressional appropriations, but by voluntary contributions. Many of its functions and their limitation are defined in international treaties with other nations. Originally conceived to give aid to the sick and wounded in battle, and to place them and the attending medical and nursing personnel safely into a special noncombatant group, its functions have broadened and grown until they ramify, in war time, among civil and military populations alike.

When, two years ago, the war began with us, the popular idea in the army, among the majority of medical and line officers alike, of the full extent of Red Cross duties, seemed to be that the Red Cross workers were to be kept as far in the rear as possible, to hold the little hot hand of the homesick convalescent soldier, and, on off moments, make comfort bags for soldiers and sailors. The idea of the average person eager to go into Red Cross work was to make as many surgical dressings as possible and, with armfuls of these, keep as far forward in the advanced zone as possible, ready to rush on the field of battle and stem the hemorrhages of the wounded and gasping soldiers. Stern reality soon effected a compromise, and time only permits here of a short reference to some of the medical activities in their relation to the army.

The war has shown that the Red Cross has proved an excellent stop-gap for supplies, and a source of all kinds of emergency and surgical supplies and relief, even to complete and extensive hospitalization, when the situation called for them. No more satisfactory and cordial relationships could have existed between two departments than did exist in France between the Medical Department of the Red Cross and the Chief Surgeon's Office of the American Expeditionary Forces. Because of this relationship, the Red Cross was able to supply opportunities to the medical men in France which could not otherwise have been obtained. Through the broad-minded policy of Major Grayson Murphy, Red Cross Commissioner to Europe, there was formed a research committee, with American, English, and French medical men, which fostered research and secured progress in medicine even during the war. The discoveries of the origin of trench fever and its transmission through body lice was the direct result of this. The standardization of blood transfusion, the striking progress of surgery of the chest, and the continuous study of surgical shock are other examples of work accomplished by this same committee. Through the Red Cross Research Society, whose membership consisted of all members of the Medical Corps in France, this research committee furnished a forum in which was discussed and given out the knowledge of medicine and surgery of the war, gathered in the years just previous to our entry. It proved to be the intellectual center for the medical portion of the American Expeditionary Forces, and here, discussion by the Medical Corps of the British and French armies in its meetings gave to the members of the American Medical Corps the knowledge gained in the hard and cruel experiences of the three years previous to our entrance. It was by this means that the American Medical Corps started with the medical knowledge of 1917 instead of with the knowledge of 1915 or 1916. It thus trained and prepared thousands of officers by reinforcing their practical experience with knowledge of the experiences to come.

The Red Cross also published a medical journal, a digest of all war articles of the Allied countries, and disseminated these broadcast in the American Expeditionary Forces and among the medical corps of our Allies. It further disseminated knowledge by means of a library and a medical intelligence department that furnished, on request, any information regarding scientific subjects. It thus supplied medical knowledge, and prevented medical stagnation and deterioration through lack of kwowledge.

One of the unforeseen but logical sequences of the Red Cross Research Society was to establish a liaison with the medical corps of our Allies. Instead of a slow and gradual acquaintance, there arose a rapid amalgamation and a rapid fusion into a frank and trusting friendship between the medical men of France, England, and America. This proved to be one of the really valuable contributions which the Red Cross made to the war. Another contribution of great value was the making and furnishing to the army of the nitrous oxide for general anesthesia. Researches with this gas showed that, in the seriously wounded suffering from surgical shock, it did not increase this shock, as chloroform and ether did, nor did it tend to send into shock the seriously wounded. The death rate, with this general anesthetic, was 20 per cent. less among the collapsed and seriously wounded than with the other anesthetics. The Red Cross brought over to France

a plant to manufacture this gas; it manufactured it and placed it up in the front hospitals of the advanced zone. The practical proof that such an anesthetic, in huge cylinders, could be carried forward to the advanced hospitals, and used in practical abundance back of the battle lines, was a successful accomplishment. The lives saved justified the expenditures, for its advantages were so definite that its use meant the purchasing of the lives of our wounded.

Another real contribution by the Red Cross, in administrative matters in the war, was the founding of the base hospital organizations on the advice of Gen. J. R. Kean. These organizations brought together from various hospital groups of medical and surgical men and nurses who were accustomed to work together and who knew each other's ideas and ways of work, and had them fully equipped and prepared for service before war broke out. The Spanish-American War had shown how difficult it was to gather men quickly into efficient organizations with no previous acquaintance which accustomed them to work together. The base hospital units produced a homogeneous structure instead of a heterogeneous mass thrown together by haphazard, and even when members of the hospitals were taken out later and sent as leaders of other units and teams, there still remained the basic continuity, which proved of the greatest value. It is of the utmost importance for future preparedness that the Red Cross should have these base hospital groups ready to go at all times, and nothing should be allowed to stand in the way of this or of some similar plan. As is known, the Red Cross gave up these units to the army as soon as they were called to active duty.

It is a question, and one that should be fully discussed, whether or not it would be advisable for the Red Cross to retain control of the base hospitals in the rear zone of the army. This has been done in Italy, by the Italian Red Cross, with pronounced success, and the chain of hospitals continued up even into the advanced zone; but where they touched the advanced zone they left the control of the Red Cross and proceeded under the control of the army. The Red Cross can often obtain its supplies quicker than the army, and can often act independently in emergencies in which the army must proceed along more slowly acting established lines. The American Red Cross has shown conclusively in France that, with its own or with army personnel, it can furnish, equip, and efficiently run hospitals in the advanced zone, or in the rear as base hospitals. This has proved advantageous in an emergency. Would it not prove equally advantageous as an established policy?

National Control of Preventable Disease.—I desire to draw but one more logical deduction from the medical lessons of this great war, and that in reality is the climax toward which all points. That is, if this nation, through its present medical knowledge, has within its grasp the power to control communicable, and hence preventable, diseases, there must be established a nation-wide controlling organization for this purpose, a National Department of Health. Over 33 per cent. of our young men were disqualified from the draft for physical defects. There is need of wider supervision of our growing boys and girls to build up a more robust nation, and it is especially urgent in rural districts. If we are to have some form of universal military service, the very necessity of its universality demands some general supervision of the health of the youth of the nation, through protection against the transmissible diseases, and to oversee the giving of health to the people as we now give education. This war has taught that there remains economic value in the maimed and wounded, and it is our duty to develop this value to its fullest extent. The maiming and injury of our workers, in the everyday work of industry, far exceeds each year the battle casualties of this war, and there is an economic necessity and duty to be performed in the salvage and reconstruction of the industrially injured.

Malaria still prevents the use of large areas of our southern states, and saps the energy of a large portion of the population. Typhoid fever still rests as a blot on the rural hygiene of this country. The control of epidemics between states is already in the hands of the Public Health Service, and within States, if State authorities request aid. Quarantine from outside infection is also under federal control. There are many other federal activities partially supervising health and disease through the various departments of the federal government. But it all lacks the efficient power of central correlation, and there remain many public health activities that should be undertaken by central action, from some of the problems of infant mortality to the problems of the increase of degenerative diseases of late middle life. It is the duty of the American Medical Association, and of each member of each State association, to urge on Congress the establishment of a National Department of Health.

SACRAL ANESTHESIA: A PRELIMINARY REPORT.*

By PARKER SYMS, M.D., F.A.C.S.,

NEW YORK

I REGARD sacral anesthesia as such an important addition to our surgical technique that I feel that it is my duty to bring it to the attention of the profession.

By injecting about an ounce of a proper solution of novocaine into the sacral canal, one can produce complete anesthesia of the parts supplied by the sacral nerves. This makes it possible for one to perform a surgical operation in the neighborhood of the perineum, and around the anus, without pain and without the risks that attend local anesthesia on the one hand, and spinal anesthesia on the other. And of course the patient is spared all the discomfort and risks which accompany and follow the administration of a general anesthetic. Moreover, he is relieved of that peculiar dread which many people have of being rendered unconscious.

Today a large percentage of rectal cases are going to the quack because the quack has developed local anesthesia and temporizing methods, while the general surgeon has adhered to the more formal methods of operating involving the necessity of a general anesthetic.

Sacral anesthesia should do away with the quack

*Read before the Medico-Surgical Society, May 17, 1919.

in this line of work. It makes it possible for a competent operator to perform a minor operation or a major operation without pain to the patient and as far as we know with less risk than attends the ordinary methods of anesthesia.

Injecting into the sacral canal is not injecting into the spinal canal. The needle does not penetrate the dura so the fluid is entirely epidural. The nerves lying in the sacral canal are bathed with the novocaine solution, so this is a true instance of nerve blocking as distinguished from infiltration.

The use of local anesthesia by infiltration methods in the region of the anus—in the neighborhood of the hemorrhoidal plexus—is notoriously dangerous—many sudden deaths from poisoning are on record.

Hypodermic injections in an area that cannot be surgically sterilized are always liable to give rise to infection. This is one of the reasons why local anesthesia around the anus is not satisfactory.

Local anesthesia in the region of the perineum and anus has always restricted us to minor and other unsatisfactory or insufficient operative procedures.

Minor operations are often more dangerous than are larger operations for the same diseased condition—for instance—the injection of a hemorrhoid is more dangerous than the radical cure of hemorrhoids by the clamp and cautery method.

Sacral anesthesia makes it possible for us to operate in a deliberate and scientific manner on certain classes of patients who are not fit subjects for a general anesthetic, and who, therefore, would have to be condemned to endure their ills or who, at best, could have but partial relief offered to them by some incomplete method of operating.

Where it is applicable, sacral anesthesia makes it possible for us to perform a radical scientific procedure with deliberation and precision, exactly as we would proceed if the patient were under a general anesthetic.

Thus far my clinical experience has been limited, but it has been most gratifying in its results.

I have not failed to find and enter the sacral canal in every case in which I have made the attempt.

Anesthesia has been complete and satisfactory in every case, in which the technique has been properly carried out, that is to say, in every case except one. In this case an improper solution was used of insufficient strength and the anesthesia was not complete.

Dilatation of the sphincter ani is a supreme test of anesthesia. If a patient is not profoundly under ether, dilating the sphincter will make him struggle. Whenever I have attempted it with sacral anesthesia, I have been able to dilate the sphincter fully and without resistance on the part of the patient.

I have employed sacral anesthesia for hemorrhoidectomy by the clamp and cautery method—for opening prostatic abscesses—(perineal section) and for perineal prostatectomy. In these cases, it has worked with uniform satisfaction, except in the one case cited above.

Several of these patients operated upon were bad surgical risks—they were patients who in my judgment were unfit for a general anesthetic, having arteriosclerosis with advanced cardiovascular and renal lesions. By employing sacral anesthesia, these patients were taken out of the class of inoperables.

Of course, one has always the psychology of the patient to deal with. A nervous and timid patient requires a good deal of careful handling in this particular, but that will depend upon the surgeon. Some operators are not qualified to use local anesthesia—they lack the ability to properly inspire and assist their patients. Of course, this will apply to sacral anesthesia quite as much as it would to any other form of local anesthesia.

Method of Procedure.—I have followed strictly the method as described by Doctor James E. Thompson of Galveston, Texas. He has worked out the technique in a scientific manner on the cadaver as well as clinically, and has placed the procedure on a very definite footing.

The object is to introduce a hypodermic needle into the sacral canal, so one must familiarize himself with the anatomy of the sacrum, and with certain landmarks. The lower opening of the sacral canal is found at the hiatus sacralis. Of course, this is found a short distance, but a variable distance, above the upper end of the coccyx. If the coccyx is movable, it will be quite easy to locate its upper end and thus the lower end of the sacrum. If the two bones are ankylosed, it will not be so easy, but there is always an angle at the point of junction. Usually, the hiatus can be plainly palpated and recognized by the two prominent points which mark its sides.

After the needle is introduced, one can feel his way along the bone, especially if the needle is a little higher than, and a little superficial to, the hiatus, but parallel to the canal. By withdrawing the needle slowly and pressing its point against the bone, it will drop into the hiatus and can then be pushed into the canal. Of course, the needle must be introduced in a direction parallel with and posterior to the canal. In other words, it must be in the proper axis. The lower end of the canal is closed by dense fibrous membrane. One can usually feel the needle plunge through this membrane. After the membrane is penetrated the needle should not be introduced much further. Three or four cm. are sufficient. Thompson has found that the lower end of the dura is on an average 5.8 cm. from the hiatus; the shortest was 4 cm., the longest was 7 cm. The needle should be introduced detached from the syringe, so as to tell whether its point has entered the spinal canal or a blood vessel. In either case, injection should not be made. If blood flows it will show that the needle is in a vessel, probably a vein. If cerebrospinal fluid escapes, it will show that the needle has penetrated the dura. In either case, the needle should be withdrawn sufficiently and then the injection be begun. If the needle is properly within the canal, there will be no resistance to the flow of the fluid. It will be as though one were injecting into space. If the needle is not in the canal, but is in the fascia outside the canal, there will be resistance felt to the flow of the fluid. Of course the skin and superficial tissues must be anesthetized before introducing the large needle.

Thirty (30) c.c. of fluid should be employed. Three (3) No. A tablets of novocaine in this amount make the proper strength. To this should be added 10 minims of a fifty (50) per cent. solution of calcium chloride. In other words, this is about 6 grains of novocaine to an ounce of fluid.

Anesthesia should be complete in the region of the anus in twenty minutes, and it will last two or three hours. Sometimes I have injected three or four patients and then have proceeded to operate on a hernia or an appendicitis case, after finishing which the first sacral anesthesia case was taken up and then the others. By that time I have found the anesthesia was complete for the first case, and I found it had not passed off or diminished in the last case.

Thus far I have found this method to work most admirably. Instead of leaving the operating room a sick man, with hours of nausea and vomiting before him, if he has had ether; perhaps with headache and vomiting and other distressful symptoms, if he has had spinal anesthesia, the patient goes from the operating room in good spirits, with apparently no untoward symptoms. He is conscious and able to take care of himself. Most of my patients have been laughing and joking after the procedure was over and have been able to eat a meal upon returning to their beds.

361 Park Avenue.

HOW SHALL ANY COMMUNITY RID ITSELF OF TUBERCULOSIS?

By RICHARD COLE NEWTON, M.D.,

MONTCLAIR, N. J.

CONSULTING PHYSICIAN TO THE MOUNTAINSIDE HOSPITAL, MONTCLAIR; FORMERLY PRESIDENT, NEW JERSEY STATE BOARD OF HEALTH.

THE first step is unquestionably to ascertain positively how many cases of the disease are present in the community. The recent tuberculosis survey at Framingham, Mass., demonstrated, amongst other valuable truths, the futility of accepting as final the estimate of the total number of cases in a community, compiled, as is usually done, from the cases reported to the health boards by local physicians, and from the mortality returns. Whereas, there were twenty-seven cases of tuberculosis known to exist in Framingham when the demonstration started, there have been in that town under observation and treatment approximately two hundred and fifty cases since January, 1917, many of *which have become arrested and are following normal industrial pursuits.* (Italics mine.)

This work having brought to the attention of the local authorities many cases that *would not have* been discovered through the ordinary town machinery at a time when the disease *was in an early stage and when it could be cured* (Italics mine).—(D. B. Armstrong, M.D., executive officer, in Bul. Nat. Tuberculosis Ass'n, February, 1919.)

Here then is a town, the authorities of which, before trying to rid it of the curse of tuberculosis, first took the pains to ascertain definitely the nature and extent of the task before them. They knew to begin with that they had twenty-seven cases of tuberculosis to cope with, and they must have been considerably startled to find that that number was only about a tenth of the total and that while one case of tuberculosis was receiving proper care and supervision, nine were unrecognized and might be spreading the contagion in the community, while the cases themselves were passing beyond the curable stage in the development of the disease; what a valuable object lesson for every community in the United States! More than this, it is a demonstration of the only sure and scientific method of dealing with this terrible scourge. So far as the writer knows, there is no reason to suppose that the results of a demonstration in any community would conform any more nearly to the assumed number of cases in that locality than did the cases in Framingham.

If we take the City of Newark for example the alleged number of cases, as given the writer by two prominent health officials, varies between 8,000 and 20,000 and there seems to be no way to determine whether either or neither of these figures may be correct except to make an actual count of the cases present in the town. The magnitude of the task in a city of nearly half a million inhabitants is naturally very great. But if it should be done, one can not help wondering whether the actual count will show ten times as many cases to be present as the health authorities had estimated. If it should do this, taking the lower estimate as correct, it would give the city 80,000 cases to handle. Yet whether the total might reach this enormous number or not, there is no other course to pursue if permanent and satisfactory results are to be achieved.

The details of the drive in Framingham have already been published, but we will not take them up in detail here, except to quote again from Dr. Armstrong's summary of what has been accomplished in that town. He says, "Perhaps the most conspicuous result of the work has been the success which has marked the demonstration's efforts to have the community meet its own obligations along health lines. The results in this regard have demonstrated that the average American community may be depended upon to do its part in such a plan." Until this spirit can be aroused it is doubtful whether such a drive will succeed in any community. As another writer on public health puts the case, "The necessary funds to meet the expense must be assured and the community must realize that where we have been spending 15 or 25 cents per capita on health work we must spend $1 or $2 per capita if we are going to meet our obligations." Every inhabitant of Framingham got interested in the demonstration, so must every inhabitant of Newark get sufficiently interested to do his part of the work and contribute his share of the cost. In other words the fight against tuberculosis must be changed from an academic and official question into a living, earnest, domestic problem intimately affecting every household, every industry, and every individual in the community.

The first thing to do is to attack tuberculosis in a hand-to-hand combat and the only chance of success is to fight it to the death in the same manner that we fought the Germans. In this latter conflict no treasure, no life, no effort of any sort was withheld. The world must forever admire and wonder at what has been accomplished by an unprepared, non-military nation against an army alleged to be the largest and most effective ever assembled since the beginning of history. And can our people not show equal vigor, courage, and patriotism in stamping out tuberculosis, our great-

est and most ruthless foe, which has probably killed and maimed as many people in the past four years as the German nation has been able to do with its submarines, its poisonous gases, and its other diabolical agencies of destruction. Our efforts to subdue this plague have hitherto, for the most part, been unavailing because they have been too meager and because they have often been misdirected. We have, generally speaking, waited until tuberculosis has actually manifested itself, in a particular case, by the presence of physical signs in the lungs before we have begun active treatment. A fire company that waited until the house was actually enveloped in flames before starting to save the property would not accomplish a great deal. The very first indications of a conflagration must be carefully watched for and met while the fire is still controllable. How then shall we go to work to quench the fire of tuberculosis which is smoldering always in our midst and constantly attacking new victims? As said above, we must first inaugurate a demonstration to find out just how many cases there are in the town, where they live, what their surroundings may be, and all the ascertainable facts in each case.

The community must be ransacked and studied in every possible way and every case of latent or incipient tuberculosis must be brought to light and must be treated when treatment will be both effectual and economical, when the tuberculous working man need not leave his job, nor the mother her children. Even a potential case of tuberculosis is to some extent a menace to the community, and the public welfare demands that such a case shall be prevented from becoming an open and contagious case. To make this work of prevention effective our principal efforts must be directed toward the children. Not long ago there was a great movement carried out to weigh every child in America. Whether any practical use was made of the information so obtained, I do not know. But if the cases were properly tabulated and recorded a great deal of use could be made of such a mass of information. All the data so obtained should be turned over to the local health authorities for their information and guidance. As has been said above, it is not at all probable that successful drives against tuberculosis can be carried out except by intensive community effort. However, no agency must be despised and no opportunity slighted to put the work through, and whatever aid the State or general Government may be willing to render must be taken advantage of. Still the main reliance in this municipal house cleaning must be placed on the townspeople themselves. School children, churches, lodges, the police, social workers, factories, and every agency must be pressed into the work of gathering complete and accurate information. The physical status of every child in the community must be determined and recorded. Why should we wait until the child shows unmistakable symptoms of tuberculosis? As Macgown says (*Brit. Journ. Tuberculosis*, October, 1918), loss of weight in a child who should be steadily gaining should, especially if a cough is present, arouse suspicion in every case. Even if a growing child does not lose weight but merely fails to gain, the case should be investigated and every means of diagnosis should be employed to determine whether active tuberculosis is already present. MacGown's main diagnostic reliance in doubtful cases is the subcutaneous tuberculin test and this is probably our most accurate test.* Those clinicians who decry it and deny its accuracy have not mastered the technique of its application. The *x*-ray as a method of diagnosis is constantly showing itself to be more valuable, as the machines are improved and the observers grow more skillful in taking the pictures and interpreting them. The stereoradiographic examination of incipient and doubtful cases frequently gives a positive diagnosis when the physical signs are negative or inconclusive. Having then these two invaluable diagnostic methods, is it not short sighted and futile to allow, as in Framingham before the demonstration, eight or nine cases of tuberculosis to go unrecognized and untreated, in any community, for every one that is brought under observation and treatment?

Stating the proposition in this way makes it seem almost unthinkable that such a state of things should obtain at this stage of the world's history. Yet to the best of our knowledge and belief it is precisely what is going on today in nearly every city and town in this country.

The practical details of the investigation may be roughly stated as follows: First and most important will be to secure a competent director who shall be commander-in-chief of the entire antituberculosis forces. The town must be districted and a tuberculosis clinic must be established in each district. A district should contain not more than 30,000 people. A good diagnostician and administrator should be in charge of each clinic who will report directly to the director and receive orders from him. A good *x*-ray machine with an expert operator should be accessible for each clinic. Perhaps one operator and one machine could do duty for two or more clinics. A laboratory with an expert bacteriologist should be accessible in the same way for each clinic. The number of nurses and assistants attached to each clinic should be determined by the work required. Volunteer workers of all kinds should be encouraged to attach themselves to the various clinics and place themselves under the orders of the chief of clinic. One or more statisticians should be available to codify and correlate the investigations of the clinics and to oversee the statistical work. The patients should report at the clinic to which they may be attached, as often as required for observation, for instruction, and whatever treatment may be indicated in each particular case, etc. The weight and height of each patient should be recorded at least monthly, and strict watch be kept of the patient's progress. If this should be unsatisfactory every possible means should be employed to demonstrate the unfavorable factor. Classes of patients should be formed similar to those of Dr. Pratt of Boston, who has at-

*Hamman & Wolman (Tuberculin in Diagnosis and Treatment, p. 270) say: "Excellent results with tuberculin are seen in children who have been exposed to infection in their homes, whose physical signs are negative, but who are pale and weak and who give positive cutaneous or conjunctival reactions (to tuberculin tests). Such children probably have tuberculous glands concealed somewhere. At any rate they do splendidly under the treatment."

tained such marked success in treating consumptives by rest in their own homes. Enough summer camps should be established to continue the work of the open air schools, and enough Rollier institutes should be established to treat all the cases of surgical tuberculosis, and such other cases as may not be doing well, by means of the extraordinary help afforded by the sun's direct rays. The play of the children and exercises of the adults should also be carefully supervised. Food both for the anemic and incipient cases and for the advanced cases must be furnished in suitable quantities. Enough sanatorium beds should be found for the advanced and hopeless cases so that the spread of the contagion may be curtailed as far as possible. The living apartments of each suspect as well as each active case must be supervised and those tenements which are hopelessly unwholesome must be abandoned. The most important aid to the propaganda, viz., the education of the teacher and the scholar, the clergy and the laity, the medical profession and the patient must be relentlessly prosecuted. Lectures, moving pictures, concerts, and picnics must be steadily carried on and every means employed to induce the populace, high and low, learned and simple, to attend regularly. Tracts, leaflets, cards and buttons or badges should be freely used. Some little prizes should be offered to sections showing the greatest improvement in cleaning up and following out hygienic directions and bulletins should be regularly published showing the extent and the results of the work.

Such a movement can not succeed without the active cooperation of the medical profession, consequently nothing should be done to alienate the doctors. On the contrary. There should be a diagnostic clinic where any doctor could send his patient for a diagnosis; the patient to be returned to the family doctor with confidential information regarding his exact condition and the treatment recommended. The clinics should be open to the public and every step of the treatment explained. A special clinic for instruction should be regularly held for doctors and nurses. A great effort should be made to enlist the clergy and the school teachers in the work. Lectures, clinics, and demonstrations should be held for this part of the population especially, and lastly women's clubs, Red Cross workers, church and benevolent societies, the Salvation Army, and the police must be brought in. Sermons must be preached to these different classes, mass meetings must be called, and musical and social entertainments must be provided. The newspapers, the department stores, and all places where labor is employed must be interested. If any community can be induced to undertake and carry on a work of such magnitude, the result of stamping out tuberculosis will finally be achieved. If on the other hand the people of the town or city are not yet willing to pay the price, they can not expect to secure the result. No outside agency can take the place of community work and if the people will not do their part, our only recourse will be to push the propaganda of education until they realize their danger and are ready to do the necessary work and make the necessary sacrifice to overcome the ever growing menace of tuberculosis which lurks at every fireside and is proceeding in its ever stealthy march to thwart every human enterprise and render desolate every human habitation.

It was to get this question on a basis for a practical solution that the Framingham demonstration was undertaken. From this movement we now realize that no community is doing its duty to itself and its citizens that does not undertake without delay a tuberculosis demonstration and that does not prepare to follow up the demonstration with proper preventive and curative treatment of the potential and actual cases of tuberculosis. The preventive treatment is the more important and must be put into practice, as intimated above, as a police measure. Lloyd George has recently said, "Care for the health of the people is the secret of national efficiency. It is the secret of national recuperation." If the spread of tuberculosis in America shall not be arrested in a generation or two from this date, the present appalling ratio of one defective recruit for the army out of every three drafted will be indefinitely increased. In fact, we shall become a nation of invalids, passing gradually down to a state of national inefficiency and decay.

The key to the situation is *hygiene* in every form —national, public, family, personal, and individual hygiene, moral and physical righteousness. This can never be attained in a community until all the inhabitants are aroused. The school teachers must awake out of their lethargy and do their part. Every school should be an open air school. Every bedroom should have at least two windows, every purveyor of unwholesome food should be imprisoned, the enormity of in any way imperilling the public health should in every case be shown up and punished. Women who can not bear and suckle healthy children should not be allowed to marry. All this may sound utopian and unattainable. But to a man like the writer who has keenly observed for fifty years the progress of public and private health movements, it does not by any means sound impossible. In fact, if there shall be as much progress made in the advance of health regulations and the spread of the knowledge of hygiene in the next half century as in the past, very great improvement in the health and vigor of our people seems assured. We have made great progress in scientific health knowledge. The application of this knowledge is only now becoming general. The future is by no means so dark as many writers imagine, but it will take great sacrifices and persistent, unremitting efforts before we shall see this knowledge made to bear fruit in the life of the average citizen. At the present moment the fight against tuberculosis is the most pressing civic duty for all our citizens. If we can win in the conflict we can save the world; if we shall lose, the future seems dark, indeed.

42 Church Street.

Typhus Fever an Accident.—According to the decision of a tribunal in Holland, typhus fever is to be regarded as an accident in insurance medicine, the argument being that if one's occupation expose him to such accident as in the case of a physician or teacher the contraction of the disease is looked on as a hazard of the insured's calling.—*Nederlandsch Tijdschrift voor Geneeskunde.*

THE ARMY LABORATORY AND THE PREVENTION OF INFECTIOUS DISEASE.

By RALPH G. STILLMAN, M.D.,

NEW YORK.

FORMERLY MAJOR M. C., U. S. A., IN CHARGE OF LABORATORY, BASE HOSPITAL NO. 9, A. E. F.

THERE are two reasons for the selection of this topic for discussion. In the first place there has been much publicity given to the general subject of bacteriology and immunity so that every layman is able to talk to a certain extent about "bugs" and antitoxins. The newspapers give space to bacteriological announcements but unfortunately show a tendency to emphasize the spectacular aspect at the expense of scientific accuracy and conservatism so that the ideas of the general public are apt to be erroneous in many details. As a result there has arisen an impression that the immunologist is a sort of miracle worker, except among those who consider him more or less of a fakir. Even in the medical profession there are men whose ideas are very hazy concerning some of the developments of immunology and who are uncertain as to just how far published results can be relied upon.

Second, never before has the Medical Department of the Army enjoyed such power or played such an important part in military affairs as it has in this struggle. Its activity has not been limited to the surgical care of the wounded, for large numbers of men have been gathered into camps where they suffered extensively from infectious diseases and in our own army especially there was a period of nearly a year before there were wounded to be cared for.

The selection of men for the United States Army was carried out so carefully that there was a minimum of cases of chronic disease and the patients in the hospitals could be divided roughly into three groups; cases of civil surgery, so-called, including such conditions as appendicitis, hernia, etc.; the wounded; and the great group of the infectious diseases. Of course, it is understood that by infectious diseases we mean those that are caused by microorganisms.

The group of civil surgery needs but little consideration in this place. Such conditions as are due to infection are not preventable in the light of our present knowledge. Many of the others are due to mechanical faults or congenital defects and with them the laboratory has but little to do.

It is with the infectious diseases, especially those which are generally considered "medical," that the laboratory has been actively engaged. As you know, the first attempt of the bacteriologist is to discover the cause, the microorganism whose activities produce the disease. This has been done to a limited extent. The causative organisms of diphtheria, tetanus, pneumonia, and typhoid fever are well known and their various activities have been thoroughly studied. In many diseases the cause has not been satisfactorily determined although it is certain from the character and symptomatology of these affections that they are bacterial in nature. Such diseases are measles, mumps, typhus fever, and scarlet fever.

But the discovery of the cause would be a sterile accomplishment did it not lead to some effective means of therapy. The attempts to establish satisfactory methods of treatment are based upon the observation that an attack of an infectious disease generally leaves the victim more or less immune to subsequent attacks of that disease. The object of the immunologist then is to discover a way in which the man can be made immune without being subjected to the often dangerous and always disagreeable experience of passing through an attack of the disease. An immunity produced artificially may be either active or passive or a combination of the two.

An active immunity is one in which the animal produces his own immune substances in response to the introduction of some material into his body. Thus, inoculation with an emulsion of killed typhoid bacilli stimulates the production of an immunity against that organism. Smallpox vaccine is not killed, but is a virus which has been weakened in virulence by passage through the calf. Nevertheless the custom has been established of calling emulsions of killed bacteria "vaccines." An attempt is being made to popularize the term "bacterin" for these preparations but it has not yet been uniformly successful. Theoretically it would seem possible to produce an active immunity against any known bacterium by the use of a suitable vaccine. Practically this is not so. In some instances the method appears to be almost ideal but in others seems to have no effect. Typhoid fever, of course, is the disease in which the effects of the use of vaccine have been most striking. As a prophylactic procedure it has no equal and it has been repeatedly demonstrated that this disease can be very largely controlled by the use of this one measure directed by sufficient authority. At Base Hospital No. 9, A. E. F., for instance, out of 15,000 patients treated during a period of sixteen months there were but three cases of typhoid fever, and of these but one was an American soldier who had received the prophylactic treatment. Where typhoid did occur in epidemic form it was due to an overwhelming dose of infection, usually because of the presence of a "carrier" in the kitchen force. It should be emphasized that no claim should be made for absolute protection as a result of typhoid inoculation. We are not even agreed as to the intervals at which it should be repeated Still the protection afforded is of very high degree.

The value of prophylactic vaccination against pneumonia is not exactly determined. Wright found it gave some brief protection in Africa and recently Cecil and Austin and Vaughan have been able to reduce the incidence of the disease by 50 per cent. in some of our army camps by the use of a polyvalent vaccine. Vaccination for the prevention of dysentery is possible and is quite successful but was not practised as a routine because there was little need for it. The cases of bacillary dysentery were few in number and it at no time constituted a menace to the health of the troops.

Vaccines are also used in the treatment of localized infections such as furuncles, empyema, etc. The effect in this class of cases is very variable. Emulsions are made from cultures of

the pus and where the infection is a mixed one it may be very difficult to determine which organism is the one causing the trouble. When proper selection of a causative organism is made and a proper mode of administration is chosen, the results are on the whole quite favorable. There is some evidence which points to the intravenous method as the proper one for administration.

Paratyphoid fever must be considered as identical in its significance with typhoid and the prophylactic vaccine includes both organisms in one preparation.

A serious objection to active immunization, which is accomplished by the use of vaccines, is the length of time required for the development of an immunity. It is ten days after the first dose before a high degree of immunity is produced and this naturally bars this practice as a method of treatment in acute diseases. Therefore resort is had to the production of a passive immunity which is accomplished by the introduction into the patient of immune bodies produced by the active immunization of another animal. Animal immunization is obtained by inoculation with bacterial emulsions or toxins and the blood serum is used as the medium for the transmission of the immune bodies. This method confers upon the patient an immediate immunity but one which is not lasting, for the serum is broken down in the body and excreted within ten days or two weeks. So far then we can say that, as a rule, vaccines are better suited for prophylaxis and sera for treatment, though the rule is not an invariable one and is better exemplified in the more acute infections.

The two forms of immune sera which are in most general use are those for the treatment of tetanus and diphtheria. These are both antitoxins as their common name indicates. Tetanus antitoxin is used principally in a prophylactic manner though it has a definite value when the disease has once manifested itself. This is because tetanus does not produce symptoms until the infection is rather firmly established in the body. In the American Expeditionary Forces a protective dose was given to all wounded "whatever the nature or severity of the wound, as soon as possible after the infliction of the wound," and at least one subsequent dose was given at the expiration of seven days. Further, a dose was given before operation whenever the nature of the wound was such as to lead to a suspicion that it might harbor latent infection and also whenever the rectum was included in the operative field. It will be seen that while this is prophylactic treatment, it is so in a different sense than that adopted for typhoid fever, for the serum is given after the entrance of the infection though before its development. The result of the above practice was that tetanus was practically unknown in the A. E. F., just as it would be practically unknown in civil life were it possible to enforce the same regulations in as strict a manner.

Diphtheria antitoxin was given to a patient as soon as the diagnosis was made, or if it seemed that that would require too long a time, it was given to every patient who had a sore throat whose appearance was at all suspicious of diphtheria. The diagnosis can be made in the laboratory within about six hours after the receipt of a throat culture, but naturally with troops in the field it is not always possible to be so near a laboratory as to get prompt reports. As is known, clinical diagnosis of the condition is not always easy, and when in doubt it is much safer to give antitoxin. When given at the onset of the disease, antitoxin is practically a "sure cure" for the trouble. When its administration is delayed, not only must much larger doses be given but the outcome is less certain and it is often impossible to prevent the development of complications.

Diphtheria was always present in the French cities and towns so our soldiers were liable to present cases of this disease at almost any time. When a case appeared it was the practice to administer to those men who were closely associated with the patient, the "contacts," so-called, small prophylactic doses of antitoxin. When the contacts were many and conditions permitted, it was the custom to determine by means of the Schick test which ones were naturally immune and to give antitoxin only to those who were susceptible. The Schick test consists in the administration of a minute dose of toxin into the skin. Those who are immune present no reaction and number about 80 per cent. of adults. Those who are susceptible to diphtheria infection, show about the site of inoculation, within twenty-four to forty-eight hours, a small red reaction. The use of the Schick test effects a great saving of antitoxin and also avoids the necessity of sensitizing needlessly a number of men against horse serum.

It is in the prevention of diphtheria that there is used a combination of the active and passive immunization. That is, there is injected into the susceptible contacts a mixture of both toxin and antitoxin. It has been found that such a procedure results in a good degree of active immunity so that the individual may retain his protection against this infection for a relatively long period of time.

An immune serum is also used in the treatment of meningococcic meningitis. It has been administered chiefly into the subdural space, but investigations during the past two years have shown that this disease is often, if not always, a general infection at the outset and it is therefore becoming more generally a practice to give the serum intravenously as well. This treatment has brought about a distinct reduction in the mortality of the disease but there is still ample room for improvement. One reason is that meningococci can be divided into four or more groups and the serum administered should offer especial protection against the group to which the infecting organism in that case belongs. Without good laboratory service it is not possible to obtain this information within a sufficiently short time to help in the treatment.

Attempt has also been made to treat with immune sera the infections with that group of organisms known as "gas bacilli" or the bacilli of gas gangrene. The problem was a very diffi-

cult one and a very important one also, for when the infection once became well developed it was almost surely fatal. In spite of the difficulties, the laboratories of each of the armies produced sera for which were claimed good results. The claims of the French were especially remarkable. The American serum was under trial for a comparatively short time before the signing of the armistice and the results of its use are not available. The serum was to be given to all wounded in the same manner as the tetanus antitoxin and was also to be used in the treatment of the disease. The most important preventive treatment of gas gangrene still remained the surgical treatment in the advance hospitals, a subject to which we shall refer later.

The treatment of pneumonia with immune serum is practised with distinctly beneficial results but only when the infecting organism is a Type I pneumococcus. During the past winter there have been a comparatively small number of the cases which have been caused by this type of organism and for that reason the serum has not been employed as extensively as formerly. So far as our experience has gone, the anti-pneumococcus serum has no value in the prevention of the disease.

Passive immunity has also been employed in the treatment of some of the diseases whose cause is as yet unknown. This is accomplished by the use of serum derived from patients in the early stage of convalescence. The treatment has been followed principally in scarlet fever and although the results have not been remarkable they are nevertheless sufficiently good to demand serious attention.

No discussion of serum therapy can be finished without some attention being paid to anaphylaxis. It is well known that symptoms of sensitiveness may appear on the administration of serum, whether it be the first dose or a later one, and that the history of the patient is not always helpful. It is much more apt to appear when the serum is given into the vein than under other conditions. What is not quite so well known is that the appearance of the symptoms of anaphylaxis can almost always be avoided by the slow administration of a diluted serum or by a preliminary desensitization of the patient. The presence of sensitiveness can be demonstrated by the injection of a minute amount of serum into the skin, and if a reaction appears, the proper precautions may be taken. Anaphylaxis rarely results in death though the symptoms are often very alarming.

One of the most important duties of the army laboratory is to determine when a patient is in a safe condition to return to association with his organization. That is to say, the detection of carriers. For this purpose the stools of patients convalescent from typhoid and para typhoid fever and dysentery are examined culturally. Also cultures are made from the throat or pharynx of those who have had diphtheria or meningitis. These cultures must be negative before the man can return to his outfit. In those few cases in which the carrier state seems to be permanent it may be necessary to place the men so that they will furnish no menace to their associates or even to discharge them from the army. A vigorous and thorough hunt for unsuspected carriers is always a part of the investigation of an epidemic of any of the above diseases.

When specific causes are unknown one is forced to fall back upon general sanitary measures and these were usually more or less under the control of the laboratory staff. There was necessity for frequent examination of the drinking water and its careful disinfection. Then some diseases have recognized modes of transmission although their actual cause is unknown. Thus typhus, trench, and relapsing fevers are carried by lice, and infectious jaundice is spread by rats, so that it was necessary for the laboratory to supervise, to some extent, the destruction of vermin. Epidemics were carefully studied and sanitary surveys frequently made.

In the venereal diseases the services of the laboratory were limited practically to diagnosis and treatment was controlled largely on the basis of these reports.

The most remarkable therapeutic accomplishment of the war, the Carrel-Dakin treatment of wounds, depended for its greatest success upon laboratory examinations. Gas bacillus infection was largely prevented by the surgeon by thorough and complete removal of all foreign bodies and devitalized tissue at an early operation. The time of the closing of that wound then depends upon the report of the laboratory as to the variety and number of organisms which were present in the wound. Since the successful early closure of the wound not only shortens the patient's stay in the hospital but also lessens his ultimate deformity it is of the utmost importance. That the treatment is successful is shown by the published figures, that in all of the principal armies, from eighty to ninety per cent. of the wounded were able to return to combat duty. It will of course be some time before we shall be able to know the number of permanently disabled among our wounded, for the reconstruction work is still going on and will be continued for months. Still it is possible to say that the number will be exceedingly small when measured by the standards in existence before this war.

The results thus obtainable by a powerful Health Department such as the Medical Department of the army was, can be equaled in peace times but only if we are willing to give our health authorities the necessary power. In the realm of the infectious diseases it is peculiarly true that their incidence depends in large part upon the forcefulness and wisdom of powerful Health authorities. The conclusion to be drawn therefrom is obvious.

221 West Fifty-seventh Street.

Kant on Influenza.—In April, 1782, the Königsberg philosopher, expressed himself on the mode of diffusion of the influenza of his day. His view was a broad one—the infection was transmitted both by the air and by insects. These two methods of diffusion were necessary to explain the diffusibility of influenza, by land and by water, whereby alone the spread of the malady could be visualized.—*Norsk Magazin for Laegevidenskaben.*

Medical and Surgical Lessons of the War.

IMMEDIATE ACTIVE MOBILIZATION IN THE TREATMENT OF GUNSHOT WOUNDS OF JOINTS.

By Lieut.-Col. CHARLES WILLEMS,

BRUGES, BELGIUM.

SURGEON-IN-CHIEF OF THE BELGIAN MILITARY HOSPITAL OF THE FRONT AT HOOGSTADE; PROFESSOR OF CLINICAL SURGERY AT THE UNIVERSITY OF LIÉGE.

(*Concluded from page* 962)

II. Immediate Active Mobilization in Suppurative Arthritis.—My treatment of purulent arthritis consists in very extensive bilateral longitudinal incisions into the joint, followed by immediate active mobilization. In the case of non-infected lesions, absolute hermetic closure of the wound is indicated, but for infected lesions the maintenance of a free opening into the joint is necessary.

Infection may supervene in joints treated primarily by arthrotomy, excision, esquillectomy, and absolute closure, whether or not active mobilization has been practised. It is evident that the surgical preparation of a wounded joint does not always shield it from secondary infection. In other cases the wounded man is not received until several hours after the receipt of the injury, when the wound either already is, or is presumed to be, infected. In the first case, we reopen the wound; in the second, we do an arthrotomy and leave it open; in both cases we begin immediate active mobilization.

In applying mobilization in the treatment of joint suppuration my first object was to obtain effective drainage from the joint simply opened. The attempt was a most ambitious one, for every one knows that it has hitherto been impossible to drain a joint thoroughly. All measures employed to that end have shown themselves inoperative or insufficient. Incisions and counter-incisions of the greatest variety, all sorts of tubes, irrigations of every kind, have been tried in vain. It is impossible to drain a joint by the ordinary measures, which are incapable of preventing retention, and, in consequence, of arresting the progress of the infection. It is because of this insufficiency of drainage that simple arthrotomy was almost completely abandoned during the war and replaced by resection, in which a very satisfactory drainage is possible. It seemed to me, however, that to resect a joint in order to drain it was to go beyond the mark, and I sought to empty the joint cavity by expression, making it perform active movements after arthrotomy; if I should succeed in this it would restore simple arthrotomy to the place of honor, and would cause resection to be abandoned. I do not fear to assert now that this reform is actually a *fait accompli* and that we now have in immediate active mobilization a means as simple as it is efficacious of draining a joint after a simple arthrotomy.

Mode of Action of Active Movements.—In order to get a clear idea of the way in which active movements insure drainage it will be best to see what happens in the case of the knee, for the knee is the typical joint for this study. Linear longitudinal arthrotomy exposes very well the wide articular surfaces and the extensive synovial sac. If we raise the upper edge of the incision by grasping the skin with the forceps we separate the patella from the condyles and open up the entire joint cavity, and we then see what takes place during movement: Each time the patient flexes and extends the knee we see the two synovial surfaces at first come in contact, then slide one on the other, squeezing the pus toward the wound, whence it dribbles out if it is scanty, or escapes in jets if it is considerable in amount. If these movements are repeated frequently, and if they are of sufficient extent, the pus is expelled as soon as formed, no retention occurs, and an ideal drainage, without drainage tubes is realized.

The muscular contraction and the sliding of the synovial surfaces on each other result then in expression of the pus; and looking at the process more closely, we see that flexion empties especially the lateral and the sub-tricipital culs-de-sac, while extension cleans out the interosseous joint line in particular. This occurs especially at the moment that the movement of extension or flexion reaches its maximum.

From what we have seen these result: (1) The necessity of making a long incision, passing beyond the level of the sub-tricipital cul-de-sac above and the articular line below, otherwise the pus may be retained; (2) the necessity of keeping the incision constantly open throughout the whole extent, and of preventing union at the angles; (3) the necessity of reaching early the maximum excursion of the movements, since incomplete movements will allow a portion of the pus to stagnate in the joint cavity. On these three conditions, longitudinal linear arthrotomy will always suffice to insure drainage. Ordinarily it should be bilateral. It is only when the secretion is scanty that one may rest content with a unilateral incision, in which case the external one will be the more efficacious. In certain cases in which there is a popliteal wound it may be well to enlarge it in the form of a posterior arthrotomy. But it is more difficult to keep this incision open than it is the lateral ones, and it can never be utilized alone. I condemn absolutely the horseshoe incision, which has no superiority over the linear incision as regards drainage by movements, and which makes immediate active mobilization impossible.

So much for the knee. In the case of the elbow, bilateral arthrotomy is less often necessary. The joint being especially close on its inner side, it will be better drained through an external incision, and we may limit ourselves to that except in certain cases in which the secretion is very abundant, when it will be better to make a bilateral incision. Drainage will take place under excellent conditions, particularly when there is a fracture of the olecranon with loss of substance.

A suppurative arthritis treated by a wide incision and active mobilization, acts like an ordinary abscess. The suppuration is at first abundant and then subsides gradually, getting down to a few drops, and finally dries up. The arthrotomy wounds show a great tendency to become the seat early of exuberant granulations, which form voluminous masses rolling outward. The masses also press into the joint, becoming continuous with the synovial

membrane, which is red, and presents an edematous puffiness over its entire surface. This hides more or less the borders of the cartilaginous surfaces, but the latter remain healthy and preserve their normal appearance, being neither ulcerated nor detached. There is also no trace of a participation of the bone in the infection, which latter seems to be confined strictly to the synovial sac.

The knee, it is true, swells, or remains swollen, and assumes a globular aspect, but the enlargement is due especially to the tumefaction of the arthrotomy wounds. On palpation the periarticular tissues are found to be soft, not infiltrated, and one may readily make out the contour of the bone. The popliteal space especially preserves its normal consistence and suppleness, and is not painful on pressure. In no case in which the method was applied vigorously and persevered in to the end did we have a peri-articular abcess, which is the best proof that retention of the pus and extension of the infection are effectively prevented by our treatment.

The appearance and the quantity of the secretion vary, especially according to the nature of the infecting microorganism. In streptococcal arthritides suppuration is relatively slight in amount; the wound has a clean look, and is covered with a sort of glassy varnish of characteristic appearance. When other microbes are present the pus may be abundant, thick, or stringy. On the granulating surfaces, areas of dried exudate form, which serve to glue together the lips of the wound, just as the pus glues together the eyelids in cases of conjunctivitis.

At the end of a variable time, but always long—several weeks, or even months—the suppuration is reduced to an insignificant amount; pus no longer appears, except as a few drops when extreme movements of flexion or extension are made.

The nature of the microorganism seems to influence the duration of the suppurative process, the streptococcic infection lasting the longest, often for several months. It is not, other things being equal, the cases in which suppuration is most profuse at the beginning which last the longest; on the contrary, the prolonged cases are those in which the suppuration is scanty and of a glassy appearance.

As the suppuration diminishes, the arthrotomy wounds shorten, union proceeding from the two angles until finally there is only a sort of fistula remaining, which closes and then reopens from time to time to give exit to a few drops of a serous fluid. Finally, cicatrization occurs and the wound is healed.

But it is not advisable to let matters go so far as spontaneous closure of the wound. We observed in our earlier cases, in which we permitted this, that from the moment when the articulation dried up a tendency to articular stiffness was often noticeable. It is advantageous to prevent this danger by closing the wound progressively by means of secondary suture. In practice we now close one of the incisions, that one which gives exit to the lesser amount of secretion as soon as the suppuration is noticeably reduced. Later we partially suture the other wound in the part which serves least for drainage. In watching these cases we shall find indeed that after a certain period of drainage by active movements the discharge makes for itself a definite channel at one part of one of the two incisions and it is here that the terminal fistula occurs. In taking the precaution to anticipate this process by partial suture we avoid stiffening of the joint and noticeably diminish the duration of treatment. But it is advisable not to practise this secondary closure until one has acquired sufficient experience in the method and is capable of calculating exactly the opportune moment for the operation. The secondary closure has moreover the advantage of giving a better cicatrix, of allowing us to suture layer by layer, and of avoiding thereby hernias of the synovial membrane. These hernias are encountered more frequently after purulent arthritis when spontaneous closure of the arthrotomy wound has occurred than after non-infectious lesions sutured in a more careful way. These large and extensible cicatrices leave a relaxed articulation which results sometimes in a want of joint firmness which is so necessary for walking. Perhaps also this weakness of the joint plays a certain part in the causation of the effusion which sometimes occurs after complete closure of the wounds. We have observed indeed in patients who have been cured after several weeks or months and had perfect mobility and marked absence of muscular atrophy, that effusions may occur rapidly in formerly infected articulations, and sometimes in large amount, these taking place sometimes after a traumatism, as by a fall, but at other times without any appreciable cause. These effusions, like all traumatic effusions, cause a certain amount of pain and marked reduction in the extent of movement, especially in walking. We have evacuated these effusions by puncture as in ordinary hemarthrosis, the pain and functional weakness disappearing at once. The fluid removed by puncture is serous and more or less clear and is always found to be sterile. We must recognize the possibility of these little accidents following a cure in order not to overestimate their significance, and not to be tempted to perform a new arthrotomy which would be altogether useless.

Results of Perfect Drainage Obtained by These Active Movements.—In suppurative arthritis it seems indeed that the action of active mobilization is to insure a perfect drainage. It is upon this perfect drainage that most of the other advantages depend. It is due to drainage that the infection is limited to the synovial membrane alone, as we have seen above. It is also by perfect drainage that we must explain the fact that periarticular abscesses so frequent in purulent arthritis treated by classical measures are unknown in the active mobilization method. We may say that the absence or the presence of a periarticular abscess indicates whether an infected joint is being well or badly drained. Then also the perfection of the drainage has a very speedy and profound effect upon the general condition. If at the moment that the active movements are begun the temperature of the wounded man shows very marked oscillations, giving the well-known picture of septic fever—40° to 41°C. in the evening and 37° to 38°C. in the morning—the fever falls almost immediately, from the very first day, the chart showing a maximum of 38°C. in the evening and 37°C. in the morning, and

thereafter the temperature remains at a comparatively low level. If, on the other hand, the method is applied early, before the hectic phenomena have appeared, these will be wholly absent and the temperature will stay constantly at a low level, the

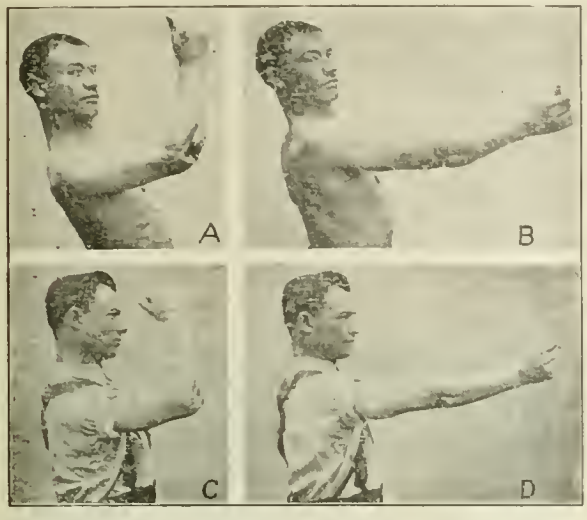


FIG. 18.—Florent de B. Extensive destruction of the right elbow, by a shell fragment, involving the olecranon, the superior ulnar epiphysis, the epicondyle, the coronoid process, and the upper third of the shaft of the radius (see Fig. 19, A). Esquillectomy was performed and the wound closed, but secondary infection occurred and on the fourth day the entire epiphysis of the ulna, which was neurotic, was removed and the radial fragments were united by screws and a plate (see Fig. 19, B). Suppuration in the joint continued for several weeks. At a later operation the plate and screws were removed. A and B, flexion and extension two and a half months after the injury; C and D, flexion and extension after eight and a half months.

curve rarely passing above 38°C. in the evening; and it is only accidentally that the temperature rises higher when for one cause or another a little retention of the secretion occurs. That is what happens when the movements are insufficient or when the incisions are too short. The fever falls

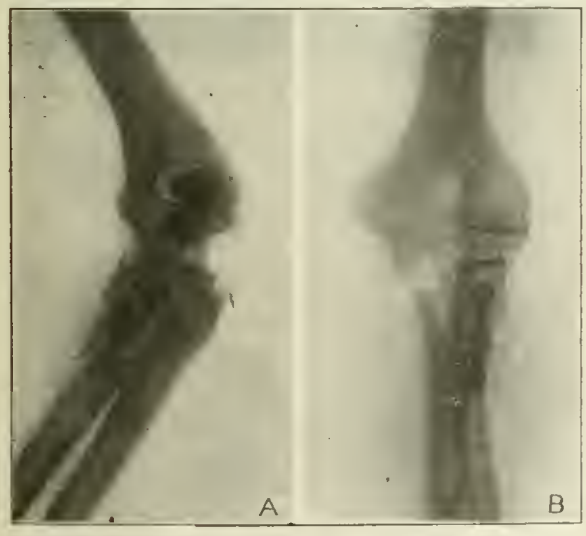


FIG. 19. *X*-ray pictures of the elbow of Florent de B. (Fig. 18).

as soon as perfect drainage of the secretion is again assured. It does not appear that the nature of the microorganism has anything to do with the height of the temperature, for a streptococcal arthritis will act during mobilization in the same way as a staphylococcal or diplococcal arthritis. As a rule the fever, while remaining very moderate, persists for several weeks. It is not rare, however, for the entire course of the disease to be almost completely apyretic. As a natural consequence of the slight febrile reaction the general condition of the patient, previously cachectic, changes almost under our eyes. The emaciation ceases and strength returns, the appetite improves, sleep returns, and all the functions become normal again, the patient losing his septic appearance. If mobilization is started at the beginning of infection, before these grave general symptoms have appeared, they re- absent and the arthritis progresses through all its stages without altering in any appreciable the general health. The patients walk about with suppurating knees or elbows protected by a simple small dressing and have the appearance of perfect health. Such are the consequences of perfect drainage obtained by active mobilization. Other advantages result from mobilization itself. The first of these is the preservation of the muscles of the limb in a normal or almost normal condition. Atrophy does not occur at all, or if it does it is very slight in degree and affects in no way the function of the limb. Another advantage is the definite preservation of movements in the joint. At the beginning my sole object in applying immediate active mobilization in cases of suppurative arthritis was to obtain drainage and I paid no attention to preserving the movements as I regarded a certain cure of the infection without ini-

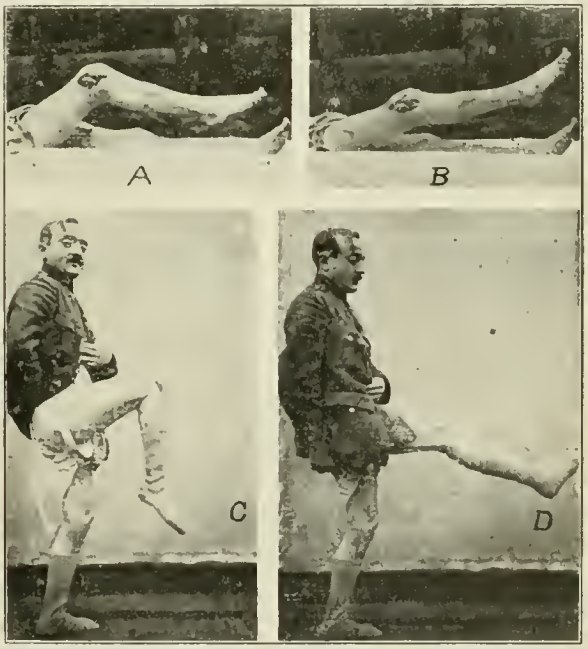


FIG. 20.—Jean B. Transverse fracture of the right patella by a rifle bullet; operation seven days later in the presence of a suppurative streptococci arthritis; cerclage (encircling by a ring of silver wire) of the patella; drainage established by a long lateral incision. Immediate active mobilization was instituted, and a final cure resulted with retained joint function. A and B, flexion and extension 17 days after the operation; C and D, flexion and extension after six months.

tial operation as in itself a remarkable progress, and thought one might be resigned to subsequent ankylosis. So it was without having sought it at all that I obtained the preservation of mobility. At the present time I can affirm that, when the

method is well applied, ankylosis may always be avoided whatever may be the microorganism causing the trouble and whatever may be the clinical gravity of the arthritis. In the great majority of cases the mobility will be absolutely normal and the limb will show no functional trace of the infection. Sometimes there may be a very little diminution in extension or flexion, but I have the impression that as we familiarize ourselves with the method we shall obtain more and more regularly complete success.

The technique of the movements is exactly the same in suppurative arthritis as in non-infected lesions; in the first as in the second the mobilization should be *immediate*, that is to say, begun immediately after the arthrotomy. This rule is perhaps even more important in suppurative arthritis than in aseptic lesions. We find considerable difficulty in getting the patient to consent to active movements when he has already been treated by another method, and it is also more difficult to obtain complete success since muscular atrophy has already begun. Mobilization ought to be *active*, done by the patient himself, by simple contraction of his muscles. Here even more than in the cases of non-infected lesions, we should absolutely never resort to passive movements which are incapable of emptying the articulation of the secretions as active movements do. As in the case of a recent and non-suppurative lesion the movements in purulent arthritis ought to be pushed to their extreme possible limits and to be repeated without interruption.

It goes without saying that mobilization should not be accompanied by any other method of drainage—tubes, gauze drains, etc. We should also absolutely do away with irrigation; a small dressing, loosely applied, should be used and renewed as it becomes soiled. An advantage of change of dressings is that the skin around the wound may be cleansed, but one should never put a finger or any instrument into the wound. Arthrotomy wounds, as we have said above, have a great tendency to close too quickly at their angles. We must oppose this premature cicatrization by separating the lips of the wound daily by forceps grasping the skin; but for this simple separation of the lips of the wound we must use only external maneuvers and never permit the introduction of the finger or of any instrument whatever into the joint cavity. It is well understood that patients affected with purulent arthritis of the knee can walk early, even before the cicatrization of the wounds, and it is curious to see them walking about with the widely open articulation which gives exit to a little pus at each step, for in walking the expression of the secretion is even more complete than in bed movements. In purulent arthritis even more than in non-infected lesions one can hardly believe at first in the possibility of early mobilization. That is a conception so far removed from the classical idea that one must actually have seen the patients move their joints before believing it possible. The truth is that active movements are perfectly possible in purulent arthritis treated by arthrotomy just as much as they are in non-infectious lesions treated by closure of the tissues and total suture. The movements are no more painful in the first case than in the second. They are equally laborious in both cases and the patient must at first make considerable efforts, but the difficulty will decrease rapidly in proportion as the movements are repeated.

In case of the knee we find that it is the raising of the heel that is at first difficult to obtain. As soon as the limb can be raised as a whole flexion and extension are executed more easily. The extent of the movements then increases until they become perfect. The time in which this complete result may be obtained varies in different cases. As I have said in speaking of the non-infected lesions, it is not merely a question of courage but also one of skill in moving the muscles by which the movements are made. The time always comes sooner or later in which active movements reach

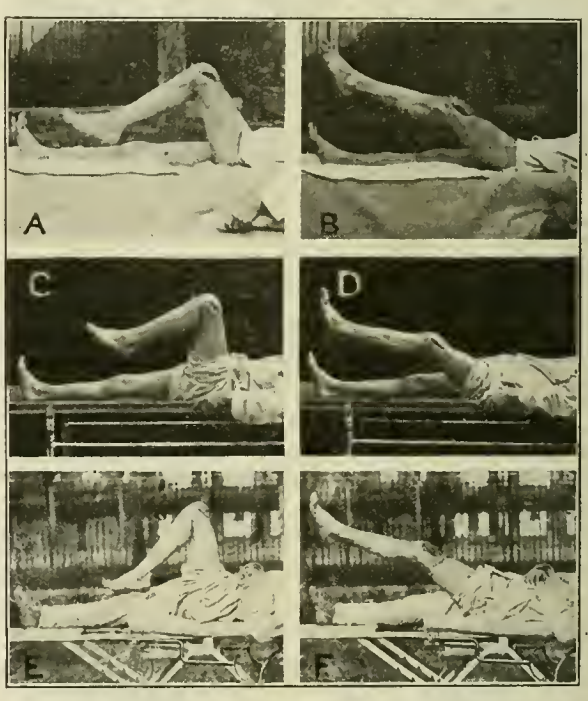


FIG. 21.—Camille R. Left knee pierced by a machine-gun bullet, causing a transverse fracture of the patella. Operation 72 hours after the injury, suppurative arthritis being already established. Catgut *cerclage* of the patella. Total closure of the operation wound, and immediately after bilateral arthrotomy for drainage. A and B, flexion and extension twenty-five days after the injury; C and D, flexion and extension after thirty-three days; E and F, flexion and extension after six weeks.

their full extent, but if this result is not obtained until late, atrophy will have had time to be produced and then the functional result will leave something to be desired although the mobility is sufficient. It must also be said that in patients already gravely infected it is often difficult to get them to make the necessary effort for vigorous muscular contractions. In consequence of this it is absolutely necessary to have some one in charge of the patient who will not leave him and whose sole duty consists in urging him constantly to make these movements. If we do not take this precaution we may be certain that the patient will not bring himself to make sufficient movements or to begin them sufficiently early, and that consequently the final result will not be satisfactory. Even more than in the case of non-infected lesions, the continuous presence of some one familiar with

the method is absolutely necessary for the success of the treatment of purulent arthritis. I would repeat what I have said before as to the enormous difference there is between really immediate mobilization and so called early mobilization. In purulent arthritis immediate mobilization alone will give perfect functional results; so-called early mobilization will give only a partial result, and late mobilization which begins when the limb is frankly atrophied, can only restore mobility but the atrophy will persist indefinitely.

We must now return again to the question of pain. I can assert that it does not exist except when pus is incompletely expressed from the joint. This pain is often produced by a very slight retention which might entirely escape the attention of the surgeon who had not been forewarned. This slight degree of retention is also ordinarily accompanied by more or less marked functional impotence and often by slight elevation of temperature. Therefore, when one of the symptoms, pain, loss of power, or fever, appears in the course of treatment by mobilization there is a strong presumption in favor of retention of pus. When the three symptoms appear simultaneously, which is more frequently the case, one may be almost absolutely certain of retention. It is very necessary to be able to recognize these signs of retention early because we must remedy it immediately, which we can do very simply by insuring the evacuation of retained pus. This may be done in one case by enlarging the wound, or in another by having the movements made more frequently and more completely. It is well to know also that the three signs of retention which I have just mentioned are sometimes preceded by pain and slight tumefaction in the popliteal space; in fact, as a rule this indicates that there is some retention of pus in the posterior intercondylean space, and we must not then wait for other symptoms before insuring better evacuation of the secretion. We ought therefore to watch carefully the arthrotomy wounds and remember that these wounds, even when the incisions were originally sufficiently long, rapidly become insufficient if one is not careful to separate their borders every day. The patients learn very rapidly in recognize themselves the cause of this increase in pain and they know that the best way of stopping it is to make more frequent and more extensive movements. This is what they do, especially on waking in the morning with a painful and stiff joint; even more than in non-infective lesions they know that a series of good movements will put an end to these symptoms.

If one believes, in spite of everything, that active movements must be painful in purulent arthritis, it will suffice to observe the action of the patient when he does not think he is being watched. It will be seen that he uses his limb without considering his movements and he moves the joint even when he is not asked to do so. This is more striking and demonstrative in purulent arthritis than in none-infected lesions.

The treatment of purulent arthritis by immediate active mobilization is only rarely interrupted by accidents other than those depending upon imperfect discharge of secretion, and it is even curious to note that no complication occurs in the course of a very prolonged treatment in which the care of the wound is reduced to the minimum and in which the long progress of the case almost invariably leads to a certain relaxation in its care. It is toward the end of the cicatrization that we must be particularly attentive, since the closure of the wound may occur too soon and the signs of retention may appear. It is necessary to recognize this terminal retention just as we must the partial retentions occurring in the course of treatment. The means to be employed are very simple and consist in puncture of the knee, and repeated puncture if necessary before the final closure of the wound. Puncture is always sufficient in these cases of terminal retention; it is never necessary to perform a new arthrotomy. It is also never necessary to resort to mechanotherapy in these cases; indeed, I believe it is actually harmful. After recovery, if there is a certain degree of muscular atrophy massage may be useful.

Infected Joint Lesions in Which Immediate Active Mobilization Is Indicated.—In my earlier papers I recognized certain contraindications to this method. I thought that it was inapplicable, (1) in cases of extensive destruction of ligaments and (2) in great loss of bony tissue. I am no longer of this opinion. The method ought to be applied in its entirety in all cases of simple suppurative arthritis in which there is no involvement of the bone and no extensive loss of the musculotendinous apparatus of the joint, but it is also applicable, partially, it is true, in suppurative arthritis accompanied by bony lesions or when the ligaments of the joint are very largely destroyed; and it is even in these complicated cases that the value of active mobilization in conjunction with conservative treatment is most striking, preserving as it does the mobility of the joint. Experience has shown me now that not only is active mobilization not contraindicated in these cases but that the functional result very far surpasses what one would have expected *a priori*. We may say that active mobilization ought to be applied in cases of suppurative arthritis with fracture to the same degree and with the same technique as in non-infected intraarticular fractures. In cases of slight so-called moderate bony lesions the technique should be applied in its entirety as if the bony parts were intact. Infection does not make active movements any more difficult, and the results which will be obtained are in every way identical with those following the treatment of similar non-infected cases. The same may be said for cases of purulent arthritis with great loss of bony substance or with extensive splintering of the epiphysis. Here again, as in similar non-infected lesions, we must treat the case by conservatism and active mobilization. In cases of comminuted fractures of the epiphysis we most combine continued extension with mobilization. Continued extension in bed reduces the fracture and fixes the fragments and furthermore permits of limited active movements. Without doubt this ultra-conservative method calls for much time and patience. It also presents many difficulties, the chief of which results from successive necroses of the splinters and from repeated sequestrotomies thereby rendered necessary. It is much easier and more expeditious to practise resection in such cases,

but the conservative treatment will give astonishing results if one only has the patience to wait for them.

At first the result from the point of view of mobility will not be very brilliant and to the surgeon who is not forewarned it may appear insufficient considering the trouble it has cost; but after cicatrization the mobility, reduced at first, increases so rapidly that I even now am daily astonished when I see old patients, the results of whose treatment had appeared slight, return with very extensive mobility of the joint. But in order to appreciate properly these results we must compare them with those of resection which leaves a shortened member and an ankylosed knee. In cases of very extensive intraarticular lesions without infection, I have stated it as my opinion that primary retention is never indicated and I can affirm that it is also not indicated in cases of extensive destruction of tissue complicated by purulent arthritis. Even secondary resection will be less and less indicated in cases of infectious intraarticular fracture in which up to a short time ago the indications for such operation appeared to be imperative. I thought myself, when I began using this method, that purulent arthritis attended by extensive destruction of the soft parts (muscles, tendons, and ligaments) of the anterior aspect of the knee could not be actively mobilized. Several facts observed since that time, however, have shown me that this is not the case. In cases of great destruction of the extensor musculotendinous apparatus, provided a few fibers are preserved, the movements are both possible and useful. It will then be necessary after cure of the arthritis to reconstruct the extensor apparatus by proper suture.

I used to think also that mobilization would not be indicated if suppuration had destroyed the crucial ligaments of the knee and this had resulted in posterior subluxation of the tibia. I had seen this accident occur in certain cases of mobilization and had then immediately stopped the active movements. Since that time, however, I have seen that in spite of this accident one may continue the active movements if continued screw extension is applied to the leg. The extension promptly reduces the subluxation and then active movements can be begun again exactly as in cases of comminuted fracture in which extension renders these movements possible by restoring the joint line. I have seen cases of purulent arthritis with subluxation healed by this method with marked resulting mobility. These, however, were extreme cases which showed well the possibilities of my method, and it is clear that in such cases the functional result will be only partial and that great and long continued efforts will be necessary in order to obtain it. It will also be necessary to begin this method early in order that the ligamentous destruction may not proceed too far; all the cases of this kind that I have seen had been mobilized too late or imperfectly. When the mobilization is done strictly according to the technique above described, and especially when it is done thoroughly, destruction of the ligaments does not occur, and a purulent arthritis with or without fracture progresses toward a perfect cure.

It is necessary then for the surgeon to grasp this idea that in purulent arthritis, either simple or complicated by small bony lesions, the functional result ought to be perfect. One should never in these cases be contented with a partial success. In cases of purulent arthritis with extensive bony lesions conservation with well conducted mobilization will give functional results infinitely superior to those of resection, but here the treatment is long and difficult. He who had the courage to undertake it will have unhoped for success which will well repay him for all his trouble.

THE UTILIZATION OF THE MUSCLES OF A STUMP TO ACTUATE ARTIFICIAL LIMBS; CINEMATIC AMPUTATIONS.*

By Professor VITTORIO PUTTI

BOLOGNA, ITALY.

PROFESSOR OF ORTHOPEDIC SURGERY IN THE UNIVERSITY OF BOLOGNA; DIRECTOR OF THE RIZZOLI INSTITUTE.

It affords me the greatest pleasure to place before the Conference the facts as to what has been called cinematic amputation. I feel this all the more because I am thoroughly convinced of the great advance which the conception of cinematization will bring about in the treatment of disabled men, and believe that all that concerns this new current of ideas, as well as the store of facts related to them, ought to be placed at the disposal of the world at large.

In briefly reviewing the fundamental theories of plastic motors, and pointing out the vast field thus thrown open to the activity of orthopedic surgeons and mechanical engineers through the practical application of these theories, I venture to express the hope that our efforts may prove welcome to all those who have hitherto had no opportunity of studying this important scientific innovation.

While in Italy the tireless work of propaganda undertaken by Dr. Giuliano Vanghetti, the original exponent of these theories, has led to their full discussion and close study and to many experiments, and while both German and Austrian scientists have been actively working to obtain the most practical application of these same theories, the medical literature of France, England, and America contains very few, if any, allusions to the subject.

In the time at my disposal I must content myself with outlining the fundamental principles upon which the theory is based, pointing out, as briefly as possible, the various ways it can be put into actual practice, and making a short statement as to the method of operation and the results; but before all else, a few words on the history of the method.

The possibility of utilizing functional resources of the stump so as to convey movement to the artificial limb was an idea that came to Dr. Vanghetti first in 1896, at the time of Italy's second expedition into Abyssinia, when soldiers who had been taken prisoners by the native forces under the Negus were cruelly tortured and maimed.

*A paper presented at the International Conference on Rehabilitation of the Disabled, under the auspices of the Red Cross Institute for Crippled and Disabled Men. New York, March 18 to 21, 1919.

From that time onward Dr. Vanghetti wrote and published many articles, wherein he developed his theory on what he had now named "cinematic amputation." Unfortunately for the speedy acceptance of this most novel and useful idea, Dr. Vanghetti, though his originality, cleverness and ability are indisputable, is not a surgeon, but a physician, and for this reason was unable to put his theory into practice. He was therefore forced to resign himself to endless delays before he succeeded in convincing surgeons of the great value and practical possibilities of his theory and obtaining their cooperation, which was indispensable to any adequate test. This was the principal reason why, prior to the war, the cases of cinematic amputations did not number more than twenty.

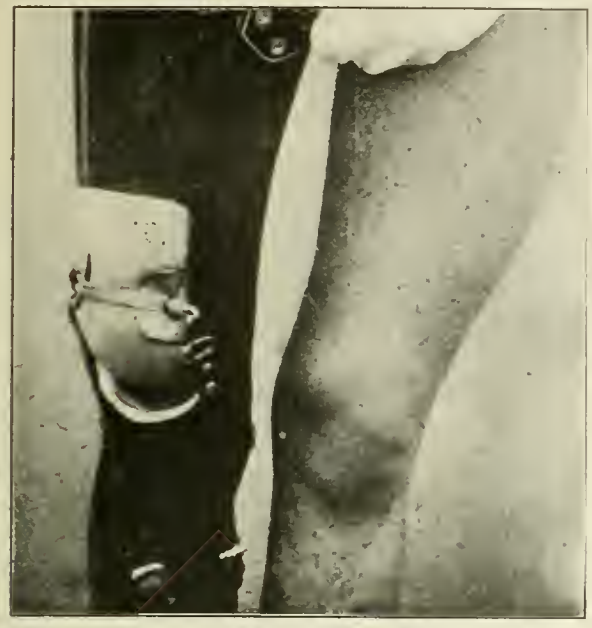


FIG. 1.—Cinematization of the thigh stump, giving good power of extension in the artificial knee-joint.

With the advent of the war, German and Austrian surgeons experimented extensively with cinematization; among them Sauerbruch became an apostle of the method. In Italy many are the surgeons who have acquired a notable experience of this science and who have brought the statistics of cinematic amputations to several hundred cases.

The Principles of Cinematization and of "Plastic Motors."—By the cinematization of a stump is meant any kind of surgical proceeding, be it bloodless or operative, which helps to make possible the direct transmission of voluntary movement from the stump to the artificial limb.

This is obtained by the formation on the stump of artificial points of attachment, so-called *plastic motors*, to which are fastened the cords or extensors destined to transmit the movement to the artificial limb. Cinematization can be effected or prepared at the time that the primary amputation is made; it can also be done on stumps that have already healed.

Plastic motors may vary as to their number, position, shape, and function.

Without entering into too detailed a description of the numerous varieties of plastic motors, I will limit myself to stating that, at the present day the most elementary, and, up to now, the most commonly used are, as regards shape, the "clava" or club, and "ansa" or loop motors, and those obtained by means of the canalizing, or tunneling, of the muscular masses.

As regards number, the motor may be single, double, or multiple; in function it can be either *unimotor* or *plurimotor*.

According to the position they occupy, motors are either *terminal*, when placed at the extremity of the stump, or *extraterminal*, should they be placed in the continuity of the stump.

Down to the present time the upper limb has been more frequently cinematized than the lower, but the number of successful cases of cinematization of the lower limbs is daily increasing.

Application of the Principles.—From what I have said, it will be evident that the application of cinematization entails essentially a radical upheaval of all preconceived notions as to the ordinary methods of amputation.

Principles observed in the performance of amputations according to prosthetic criteria have already caused a revolution in modern surgery, but they must again be subjected to modifications in order to ensure the preservation of the greatest possible amount of the original bone and of the residual motor masses and integuments, for these must be used for the preparation of the plastic motor.

In cases where it is practically impossible to perform primary cinematic plastic operations, as, for instance, at the first-aid dressing stations in the full stress of battle, the surgeon can, at any rate, always so operate as to prepare the ground for a future cinematization of the stump. Skin flaps, muscular insertions, various bone and tendinous fragments and segments of limb, which would seem utterly superfluous under ordinary circumstances

FIG. 2.—Cinematic amputation showing the power of the plastic motor in lifting a pair of iron dumb-bells.

for the preparation of ordinary stumps, must be recognized to be of the greatest value in view of the future cineplastics.

In order to prevent the possible loss of these elements and of these materials while the stump is

Fig. 3.—Cinematization of the hand, showing the plastic motors. When attached, the artificial hand is able to grasp the file and other tools used in the man's trade.

undergoing the process of healing, it is advisable to take certain special technical precautions to avoid the retraction of the softer tissues; this ought to be done, however, in such a way as not to hinder the ordinary dressing of the wound.

When the inflammation has decreased and further complications are no longer to be feared, the time has come for the actual cinematization, that is to say, for the preparation of the plastic motor or motors. A plastic motor, in order to fulfil the purpose with which it is made, must conform to the following requirements:

1. It must possess every requisite for withstanding a firm, resisting, and painless grip, and also a traction force that in not a few instances may be high.

2. It must be provided with a sufficient amount of muscle masses capable of functional movement to guarantee the accomplishment of the task that will be demanded of them.

The primary conditions for obtaining the first requisites are:

1. That the motors be covered with skin in perfect condition, well nourished, and possessing a normal degree of sensibility.

2. That, with regard to its shape and dimensions, the motor be of a size suitable for the fastening of the hooks, rings, and rods, that are destined to transmit the functional movement to the artificial limb.

The movement masses must be sought for and obtained from among those which the stump still possesses. Such masses as from their anatomical structure and physiological disposition produce broad, strong, and dissociated contractions, are the best adapted to the task. In the choice and distribution of these masses the fundamental principles of the physiology of movement must be thoroughly observed and respected.

As the tendon is the element best adapted for the transmission of muscular contractions, it should be largely employed for the formation of plastic motors. Should the tendon be missing, the muscles must be utilized either by including muscular bundles with the terminal motors, or by tunneling the muscular masses in order to obtain the extraterminal motors.

The antagonistic force, indispensable to all active movement, must be provided either by the stump itself through the formation of two motors with elements belonging to muscular groups of opposite action, or by the artificial limb by means of elastic resistance in the opposite sense to that given by the plastic motor.

In order to provide such material as may be missing *in loco*, recourse may be had to the numerous methods that modern plastic surgery places at our disposal, as, for instance, skin, muscular, aponeurotic, or osseous transplantations. Arthroplastics, with the interposition of an aponeurotic flap, may be utilized so as to render mobile those stump segments which, through stiffness and ankylosis, have become unusable. By these same means a new joint can be created in the continuity of the stump, thus giving the plastic motor the power to develop a leverage action. Often, in order to gain space and skin surface, the construction of the plastic motors requires the slight shortening of the bone or bones of the stump, but it is possible to obtain excellent plastic motors without this shortening of the skeleton, by recourse to the tunneling method of the muscular masses or of the tendons, which has been widely experimented by Sauerbruch. The building of canals through the muscles or tendons has been

Fig. 4.—Artificial hand partly attached to the plastic motors.

greatly simplified by a modification introduced by one of my assistants.

The cinematization of the thigh stump enables us to solve one of the most difficult prosthetic problems—that of gaining active power over the

knee-joint. With the ordinary artificial limbs the knee extension is obtained either by means of springs or of elastics, quite independently of the will of the patient, or else through straps put on the stretch by auxiliary movements of the trunk and shoulder. In some cases we have carried out successful experiments by cinematization of the quadriceps femoris; then the stump itself can control the voluntary extensor movement of the knee, and restrain the flexor movement.

As a result of cinematic plastics we are now able to utilize certain stumps which hitherto have always been held as incapable of functional movement, such as, for instance, carpal stumps, very short stumps, and disarticulation stumps.

The surgeon who, in the case of shoulder disarticulation, succeeds in sparing the deltoid and pectoralis major, in covering these muscles with skin, and in finding means of creating a point of attachment, may be congratulated on having preserved for the benefit of the mutilated man a precious functional capital.

With regard to the difficult problem of utilizing short forearm or short leg stumps, the solution will be enormously facilitated through the preparation of points of attachment that correspond to the insertion of the biceps and patella tendons.

At the first glance it may appear strange that mechanical attachments can be easily tolerated by the stump. Experience has proved, however, that if the plastic motor is well placed, if the skin that covers it is healthy, if the wounds are absolutely healed, neither the rings nor the rods cause the slightest harm. When the club motor is sufficiently long, and its head is large enough, the ring surrounding the neck of the club need not be tightened to such an extent as to interfere with the blood supply of the motor. Moreover, each ring is provided with a screw by means of which the disabled man can himself regulate the pressure. The same can be said of the rods introduced in the canals of the motors formed by the tunnelization of the muscular masses.

The disabled men get so accustomed to the metal rod that they leave it in place even at night. The rod must, however, be removed once every twenty-four hours, in order to clean it with alcohol and oil it with vaseline. I have observed that the skin within the canals gradually acquires the property of throwing off sebaceous substances in greater quantities than normal, thus providing for the oiling of the canal.

Functional Results.—Another point deserving consideration is the sensibility of the plastic motors. Professor Amar has made some most interesting physiological researches, showing that the superficial and deep sensibility, and the muscular sense of the stumps, which at first—that is, shortly after the amputation—are greatly altered, not only recover in time, but eventually attain a degree of sensibility superior to the normal, provided the stump is put through the proper functional training. I have observed that the same thing happens with cinematized stumps. One of my patients, on whom I operated more than a year ago, is now able to note with considerable exactitude the difference in the size and weight of the articles which he seizes with his artificial hand.

The functional results that can be obtained from a plastic motor depend upon numerous factors, but especially on the cinematic powers of the muscular masses of the stump, on the manner in which the surgeon has found it possible to utilize them, and upon the functional use the motor undergoes. To give a clear conception of the amount of work that a plastic motor can do I may state that among the cases operated upon by me, the power of the motor ranges from ten kilogram-centimeters at the lowest, to one hundred kilogram-centimeters at the highest. For a motor to be of practical use it must be contracted not less than one inch. In the case of a hip stump, I have obtained one motor that contracted to the extent of two and one-fifth inches, lifting a weight of forty-four pounds.

I have described only the principal types of plastic motors. The genius and the ability of the surgeons will find here a vast field for action. Naturally, it is not possible to treat all amputated stumps in this manner. Those that best lend themselves to it are those that include healthy muscular masses, that retain normal innervation, and that possess an ample contractility. Stumps, with rigid or ankylosed joints, covered over by skin that does not glide easily, being adherent or creased by a scar, do not supply satisfactory plastic motors. The age and moral and intellectual condition of the patient are also important. The best age is from twenty to thirty years. Disabled men of insufficient mental development, or those who are not likely to be willing to follow with patience and assiduity the necessary functional training of the stump muscles ought not to be operated upon.

FIG. 5.—Cinematic amputation of the forearm; the "flap" of the artificial hand is moved back to show the attachment to the plastic motors of the forearm.

It is to be understood that cinematization does not invariably require operations with the knife. There are stumps already formed which are endowed spontaneously with cinematic resources that, wisely employed, can be utilized for transmitting movement to the artificial limb. I will content myself with mentioning the wrist and forearm stumps, in which rotary movements are preserved, and the arm and forearm stumps that possess a terminal hood having a development and contractility sufficient to ensure a good grip.

Construction of Suitable Artificial Limbs.—Whatever type of plastic motors may be chosen, it is an essential condition for their efficient utilization to their full value that the artificial limb be

adapted in a manner suitable to their power, their number, and their shape. This question of cinematic prosthesis is so vast and still so new that it deserves a special study to itself. It is now undergoing gradual development and will bring about a substantial reform in ordinary constructive methods. The surgeon, the physiologist, and the mechanic must all collaborate intimately in this work, as only by means of the perfect fusion of these three can we obtain new methods of a really scientific character that will answer modern requirements and replace the empirical systems that have been followed up to now in the manufacture of artificial limbs.

The construction of the artificial limb is greatly simplified by the possibility of utilizing the intrinsic powers of the stump. The mechanical contrivances hitherto used for moving the fingers are most elementary; the cords, the levers, and the springs used for conveying movements to the hand by utilizing the movements of the elbow and of the shoulder can now be completely done away with, and the disabled man rendered able to open or close the fingers in any position of the limb. Even workmen's tools can be used in a practical way by the cinematized stump, and a special pincers shaped like a parrot's beak has been devised for the use of workers in metal.

Results.—As to the ultimate results of the cineplastic method, no final judgment is as yet possible, for though the idea was conceived over twenty years ago, cinematization has been applied on a larger scale only since the beginning of the war.

The very few cases of operation of this type performed prior to the war—almost exclusively by Italian surgeons—had afforded sufficient proof of the soundness of methods, but they had not provided enough material to enable us to judge with regard to their practical usefulness. Only since the beginning of the war, when the necessity of giving practical aid to the vast and tragic army of disabled men came to the fore, were our surgeons convinced of the expediency of testing the principles and methods of cinematic surgery. We are yet at the very beginning of this new scientific movement, and the surgeons of all the allied nations have not as yet contributed to it.

The German surgeons have followed Sauerbruch's example, and although they have created an admirable scientific organization, they have limited themselves to the repetition of a single type of motor. Consequently, in analyzing the results obtained by them, we can form but a partial judgment of the practical value of cinematization. The number of operations performed by Italian surgeons is probably inferior to those done in Germany, but the variety of the motors experimented upon by us is certainly greater.

It is easily understood that, for the moment, it would be impossible to make a synthesis of such a variety of facts. I believe, therefore, that it will prove of greater benefit, in discussing the results that have been obtained through cinematization, to consider the question solely and exclusively from the point of view of my own cases.

These number about one hundred examples of cinematization of the upper and lower limbs, either primary or secondary; plastic motors of various types were formed; in each case an artificial limb was applied. The functional value of the motors was studied by dynamographic and dynamometric methods, while their practical capacity was tested in the actual one of the artificial limb.

At the Instituto Rizzoli I have at my disposal a large workshop for the construction of artificial limbs, so that I have been enabled to study cinematic prosthesis as well; this, as I have already said, constitutes one of the most important sides of this complex question.

Conclusions.—The research that has been made in the Institute has brought me to the following conclusions:

I. The practical results that have been obtained through cinematization have convinced me that the hopes aroused by the principles and methods of the modern surgery of plastic motors are thoroughly well grounded. Cinematic plastics are entitled to be placed among the most brilliant of the discoveries of orthopedic surgery, deserve to be accepted with perfect confidence, and to be tested on a large scale by all those whose aim is to restore to the disabled man his functional activity.

II. The preparation of plastic motors is a well-defined surgical act that must be performed in accordance with its own special methods, which have already stood the test of experience.

III. From a physiological point of view plastic motors have been proved capable of giving both the quality and quantity of action of which the muscular masses that stimulate the said motors are capable. Yet, practically considered, plastic motors will yield the full measure of their value only if the artificial limb is perfectly adapted to their shape and their strength.

IV. As the principal aim of cinematization is to attain the vitalization of the artificial limb, it is essential that the surgeon and the artificial limb maker should work in harmony, in order to solve satisfactorily this most interesting but difficult problem.

Spread of Scarlatina by Milk.—Von Hellens traced a small epidemic of scarlatina in Helsingfors to the milk supply. The accident is not new in Finland. The milk came from an estate where had been numerous cases of the fever. No sanitary measures had been taken to protect the surroundings. A woman milker milked the cows and took care of her infected child at the same time.—*Finska Läkaresällskapets Handlingar.*

Etiology of Lymphogranulomatosis.—Naslund has investigated a case of this affection with regard to its relationship with tuberculosis. Is it due to tubercle bacilli of weak virulence, or is it only a reaction of the organism toward the organism? Most of the inoculation experiments with lymphogranulomatous matter have been negative while inoculation with a small number of bacilli or with bacilli of weak virulence has incidentally produced diffuse lesions of the disease associated however with frankly tuberculous lesions. However it is apparently unnecessary that the bacilli be of low virulence. Fully virulent bacilli were present in one case of lymphogranulomatosis, in which tuberculous lesions proper were absent. The author therefore accepts the second view that lymphogranulomatosis represents a reaction of the economy against the bacillus in general and is to all intent a form of tuberculosis.—*Upsala Läkareförenings Förhandlingar.*

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, June 14, 1919.

THE MORTALITY FROM CANCER

THE deaths ascribed to cancer during 1917 in England and Wales number 18,145 for males, and 23,013 for females—a total of 41,158.* These figures imply the highest crude mortalities yet recorded. The rise in the male death rate is partly due to the absence of younger men as a result of the war, with a consequent relative increase in the number of men of cancer age, though even after the figures have been corrected for this excess of older men in the population the increase remains significant.

So far as the mortality among these older men (45 and upward) in 1917 can be compared with that during peace conditions, there has been some slight decline in the death rate at all ages up to 65, but a much more considerable increase at later ages. These changes may be due in part to errors in estimating the population, but they are consistent, at any rate, with the apparent tendency of the disease to become more and more one of old age. This tendency has been discussed in previous reports. While the tendency, however, has appeared in the past chiefly in the female sex, it is now less clearly manifest there than in males. The rate recorded for females has been uninfluenced by the war, and is practically the same as that of 1916.

The Registrar-General points out that when cancer deaths are classified according to the site affected, a method which has now been in operation in England and Wales for 21 years, it becomes possible to measure the rate of increase in mortality from cancer of accessible and of inaccessible sites. The comparison is important because of the light which it can shed upon the vexed question of an increase in cancer mortality. If the rise in recorded mortality were confined to cancer of inaccessible sites, it could be reasonably assumed that the increase is apparent merely, and caused by the inclusion of cases which, in earlier years, would not have been discovered. This conclusion, that the recent rise in the number of cancer deaths reported is due simply to better diagnosis was, in fact, supported by King and Newsholme in 1893, and by Willcox in 1917.

The classification of cancer in the Eightieth Annual Report as accessible or inaccessible follows practically that published in 1914 by the Bureau of the United States Census.

The Registrar-General's analysis of his figures affords at least a temporary and partial confirmation of Hoffman's view that the number of deaths from cancer is actually increasing, since it is found that the mortality from accessible cancer among males has risen more rapidly than that from inaccessible. This makes it difficult, in the opinion of the Registrar-General, to attribute so much importance to improved diagnosis as has hitherto been ascribed to it by many observers, at least in so far as males are concerned. Among females, however, the conditions are reversed.

Another test applied in the report to the hypothesis that improvement in diagnosis is an important cause of the recorded rise in mortality, is an examination of the relation of this increase to age. The increase, which becomes greater as age advances, is explained by the improved-diagnosis hypothesis on the assumption that diagnosis has been worse, and the room for improvement therefore greater, at the higher ages. If this be correct, the rise in recorded mortality as age advances should be confined mainly to the inaccessible sites, since in these alone is there any great opportunity for improvement in diagnosis. Actually, however, it is found that among males, at least, there is little difference between accessible and inaccessible cancer.

It is therefore possible that cancer mortality has been increasing, in males at any rate, and it may be that this is true also of females, though here the evidence is less convincing. The inaccuracies of most statistics, however, will render the question uncertain for years to come. Thus, there undoubtedly occur many deaths from cancer which, even today, are not recorded as such, in deference to the wishes of the family; furthermore, the statistician places more reliance upon the statistical value of death certificates than the physician, who understands only too well the inaccuracies that may be concealed beneath figures apparently so frank of face.

*Eightieth Annual Report of the Registrar-General, 1917, p. lxii. Published by His Majesty's Stationery Office, London, 1919.

ADENOMATA OF THE SUDORIPAROUS GLANDS.

IN the case of non-ulcerated adenoma of the sudoriparous glands the tumor is small, varying in size from a pea to a hazelnut, occasionally to that of an egg, but this is most exceptional. The growth may assume the form of a plaque but in the vast majority of cases it is round or oval. It projects only slightly above the surrounding skin, and in order to detect it one is sometimes obliged to use oblique lighting or palpation. The neoplasm is always single, presenting the color of healthy skin

or it may offer a slightly rosy or wine-color tint. Pigmentation may be present. A visible or dilated orifice of the gland is never found, and when the lesion is seated in a hairy region the hair falls or can be easily removed with the fingers. When these growths are palpated they are found to be hard, distinctly limited, without any peripheral area of induration. They always adhere to the skin, which may be puckered over them, but they invariably slide over the underlying structures.

Pain appears to be one of the symptoms of these morbid products, and when it has been absent at first it occurs when the growth ulcerates. It is spontaneous, and exaggerated by pressure to such an extent that it may render palpation impossible. The painful phenomenon can be explained by the nerve fibers surrounding the neoplasm and also in the changes offered in their histological structure, while in one or two instances a true plexus of nerve fibers in a state of hypertrophy has been found spreading over the tumor. The nerves may also be compressed by the fibrous shell of the growth.

When the tumor ulcerates, the ulcer is always circular in outline, and varies in size from a one cent piece to a silver dollar, and if operation be not resorted to the ulcerative process will reach much larger dimensions. The bottom of the ulcer is covered by an adherent exudate, grayish-white in hue, hiding a pulpy, fungous fundus covered by numerous large granulations. The borders of the ulcer are projecting and clean-cut and frequently possess a high degree of vascularization. The skin surrounding the tumor is raised and tense and frequently offers a slight blush. By palpation the borders and fundus of the ulcer offer in all cases a marked induration, but the neighboring lymphnodes are never enlarged. What is rather odd is that after ulceration has taken place, the pain disappears.

The evolution of sudoriparous adenoma and adenoepithelioma offers much variety. However, it may be said to be usually slow, and one case is reported where it remained stationary for some twenty years, and in two others this halt in the evolution lasted six years, but such instances are exceptional. But all that is necessary is a trauma, or irritation due to friction of the clothing, scratching, etc., in order to transform a tumor, up to the time benign, into an essentially malignant neoplasm which will then make a rapid progress. Some instances of malignancy from the start have been published and in one case the patient died from cancerous cachexia two years after first discovering his small tumor.

It is therefore clear that the prognosis of sudoriparous growths is far from being good, although it has been maintained by some that they are benign; and although it is quite true that certain of these growths have an essentially slow progress, there are others whose evolution towards ulceration is very rapid, while even metastatic phenomena may arise. But the good feature in the prognosis is the very slight tendency to recurrence after removal when this is done early.

INFLUENZA IN BATABANOS.

It has been assumed that the infection of true pandemic influenza must lurk in remote localities until the time arrives for its outbreak. A possible example of this is noted by Dr. Pons y Zamora, who relates (*Revista de medicina et cirugia de la Habana* for March 25) that in May, 1917, over one year before the outbreak of the pandemic, Batabanos was visited by a disease which was at the time regarded as dengue. The propagation was intensive rather than extensive. Many subjects in a small area were smitten within a short period of time. The condition was very benign and the absence of any semblance of an eruption made the diagnosis at least doubtful. A few cases of bronchopneumonia, which occurred during this local epidemic, were not associated with it at the time. Instead they rather suggested an enteric origin and were imputed to paratyphoid infection. Cases of meningitis during the same period were not associated with the epidemic. The author neglects to state the duration of this alleged dengue, but since there was no diffusion out of a certain region, it could not have been long. In August, 1918, a similar episode developed and was called indifferently dengue and grippe. It persisted until November, attacked 2,000 out of 6,000 inhabitants, and was extremely benign, but two deaths having occurred from bronchopneumonia. In November the picture suddenly changed to that of a most malignant disease, in which a robust man would be killed in a few hours by pulmonary edema and cardiac collapse. In short it was the same murderous pandemic which was devastating the world.

The author makes no attempt to connect the latter outbreak with the two mild endemics which preceded it. He neglects to state whether the attack of August was imported or domestic in origin. If we are not mistaken, the pandemic did not reach this locality at so early a date. There was a considerable resemblance between the two mild epidemics, both appearing in the warm months when endemic grippe is not supposed to occur. The absence of a rash appears to exclude dengue. The conviction has been expressed that true influenza must lurk in out-of-the-way places until it is roused by external factors to virulence; after which universal or more frequently partial epidemics originate. Such outbreaks are not necessarily deadly, for they may be extremely mild. We may conclude that with endemic winter grippe, dengue and three-day fever excluded, mild episodes like those in Batabanos may really be true influenza in a latent form.

CEREBRAL ACCIDENTS FOLLOWING PLEURAL INTERVENTIONS.

Amat and Bertier discuss with great thoroughness this too little known subject. Some years ago a search through the literature showed the information to be much scattered so that the present article in the *Journal de médecine et de chirurgie pratiques* for April 10 should constitute a valuable

contribution to literature. The cerebral manifestations which have followed simple puncture for diagnosis, thoracentesis, lavage, artificial pneumothorax, etc., comprise syncopal states, convulsive phenomena, hemiplegia, and other forms of paralysis, and death from various causes. The syncopal form is often fatal—indeed in the true type is probably always fatal, death occurring almost instantaneously. Naturally cases of this sort must be distinguished from transient faintness or swooning, such as might happen in any minor intervention. In the convulsive type or so-called pleural epilepsy fatalities are very common, amounting to 70 per cent. Hemiplegia persists until death and at autopsy no hemorrhage is found. It must not be understood that these accidents are isolated in the clinic for the several types may be associated or sequential. In a case reported by the authors the patient had undergone lavage of the pleural cavity for empyema a number of times without untoward developments. The sixth lavage was followed by clonic convulsions lasting only a few seconds. The patient then lay down and the lavage was safely finished. The seventh lavage was followed by the same behavior, but this time hemiplegia was added and the patient died two hours later in coma. Dyspnea had been a notable symptom.

From the monograph of Cordier (Thèse de Lyon, 1911), which deals with the nervous accidents seen in interventions for empyema—about 81 cases—it appears that these accidents while rare may be anticipated in a certain percentage of cases—about one in 25 of puncture and one in 50 of irrigation. The accidents recorded by Forlanini and others in artificial pneumothorax doubtless involve additional components, as air embolism. Numerous factors have been suspected in connection with the so-called nervous phenomena, which chiefly concern us, but are so far fetched as to be not worth a discussion. The only one with any likelihood of truth is the reflex theory, but the mechanism is obscure. The author would abandon lavage in empyema. Upon the reflex theory he would give a morphine hypodermic before puncture and other interventions. A careful technique for artificial pneumothorax as laid down by experts should exclude danger of air embolism and accidents from pressure changes. It is of course generally understood that tapping is always slowly performed in any location because of the danger of sudden lowering of internal pressure.

Intraspinous Injections of Magnesium Sulphate in Severe Chorea.

Marinesco, basing his treatment on the finds of Meltzer and Auer in the laboratory, first practised the method on four extreme sufferers from chorea in whom life was thought to have been menaced. Contrary to what was anticipated, the dangers from the method appeared to outweigh any advantages. The chief danger was from respiratory paralysis due to the action of the drug on the medulla. The alleged resources for combating this accident—preventive tracheotomy, calcium salts, physostigmine, etc.—did not appear to the author to offset the risk. The same risks had previously led some practitioners to abandon magnesia in the treatment of tetanus. But despite this Cavalieri (*Il Policlinico*, April 6) tested magnesium sulphate in a severe case of chorea by injecting it under the skin and intramuscularly in small doses, and obtained excellent results. Of a 25 per cent. aqueous solution he injected 2 c.c. two or three times daily. The patient was 13 years old, the chorea was of the rheumatic type, and mitral insufficiency had developed. The disease progressed despite the usual functional and specific medication (arsenic) and the magnesium treatment was then begun. Improvement was evident from the second day and the patient thenceforth slept well. On account of his rheumatic fever he had to keep his bed for about four weeks. He was then able to feed himself and in two more weeks was well save for his heart lesion.

Earthquake Vertigo.

The recent earthquake in Porto Rico has called attention to a form of vertigo termed seismic, which is described by Dr. del Valle Atiles in the *Boletin de la Asociacion Medica* of last March. Numerous victims complained of sensations like seasickness as a result of the trembling of the earth's surface. The latter may be very slight, hardly more than that due to the passing of a loaded dray, yet there must be something specific about it, as judged by the effects. In such cases it is possible that the major shocks in which the surface is violently agitated have sensibilized the sensorium to the minor tremblings so that a subconscious mechanism must be involved. Otherwise stated, the slight tremor awakens painful memories of the original major shocks so that a syndrome of a very complex character is set up. Weak spots in the nervous resistance seem to be lighted up so that a great variety of symptoms results. Among the latter is the sudden appearance of sugar in the urine. The author covers all of the possibilities in respect to the nature of the process, and lays special emphasis on an endocrine explanation, which he discards after a full discussion. He calls attention to the so-called "sympathetic syndrome" seen in certain individuals when an accident befalls a comrade. The author is not clear as to whether all victims of a minor crisis have been through a major experience. The neuropathic habit of some of the victims is emphasized.

Tuberculous Lymphoma and Tuberculosis.

The entire supplement of the *Upsala Läkareförenings Förhandlingar*, issued July 20, is devoted to contributions by Wallgren on this and other phases of tuberculosis. In his main contribution he deals with the relationship of scrofulous glands to future tuberculosis. He has used the material of the Upsala Chest Clinic to throw light on a subject in which contending views have long been maintained. According to the followers of Marfan child scrofula immunizes against tubercle, while Aufrecht, years before, announced the exact opposite. The author

endeavored to follow up 526 cases of surgical scrofula—cases in which operation had been performed—and obtained data in 251. He found that 95 of these were dead, while of the balance 129 could be examined by himself or other medical men. The cause of death in the 95 could be fixed so that the net number amounted to 224. It appeared that, combining the living and dead, 158 subjects had sound lungs, 62 had some form of tuberculosis in after life, of which 46 were cases of pulmonary location, while in the few scattering cases no opinion was reached. The percentage of lymphoma patients to present pulmonary tuberculosis in nearly 1,000 cases was 15 in outside material; while in the author's cases it was a little above this figure. These figures are somewhat higher than in control cases, but do not prove that lymphoma predisposes to other forms of tubercle. Apparently both Marfan and Aufrecht represented extreme viewpoints and the author's figures suggest a mean between the two.

News of the Week.

Plan to Make Brooklyn a Medical Center.—A number of the leading physicians of Brooklyn recently met at the Hamilton Club for the purpose of discussing plans for the development of a medical center in Brooklyn. It was generally agreed that Brooklyn, because of its size, situation, its wealth of clinical material, its large number of able medical men, and its numerous and well equipped hospitals was better fitted than almost any other city in the United States to furnish post graduate instruction to medical men. A second meeting has been announced at which a further discussion of the project of organizing post graduate work will be discussed. The meeting was presided over by Dr. Glentworth R. Butler.

Columbia University Confers Degrees.—Of the 1,924 students of Columbia University who received degrees at the commencement exercises on June 5, 138 had conferred upon them the degree of Doctor of Medicine. It was announced at this time that the Cartwright Prize of the School of Medicine of $500, given biennially for the best medical essay, submitted in general competition, upon any subject the writer may select, had been awarded to Dr. Abraham Leon Garbat of New York City.

Foreign Physicians and Surgeons Entertained in New York.—New York physicians gave a farewell dinner to the foreign delegates to the American Medical Association who had been sightseeing in this city for several days, at the Hotel Commodore, on the evening of June 5. Dr. Wendell C. Phillips was toastmaster. The address of welcome was made by Dr. Alexander Lambert. The other speakers were General L. Melis, Surgeon General of the Belgian Army; Sir St. Clair Thomson, and the Rev. Charles A. Eaton. The physicians left New York on June 6 to visit Baltimore, Washington, and Philadelphia before attending the sessions in Atlantic City. Dr. J. Bentley Squier was chairman of the local committee of reception.

Dr. J. Ramsey Hunt has returned from service in France and will resume practice at 20 West Fiftieth Street, New York.

Colonel R. P. Strong has been appointed acting director of the Bureau of Hygiene and Public Health of the Red Cross League.

Dr. L. D. Bristol of Augusta has resigned his position as State Health Commissioner of Maine to accept the position of Dean of the Medical College and professor of public health in the University of Tennessee, at Memphis, Tenn.

Dr. Tom A. Williams has returned from eighteen months in France as neurological adviser to the Red Cross and will resume his practice at 1621 Connecticut Avenue, Washington, D. C.

Greece Honors United States Nurses.—On June 5, King Alexander of Greece conferred the Medal of Military Merit on the Misses Sarah Addison of Baltimore; Marie Glauber of Chicago; Alma Hartz of Davenport, Iowa; Isabel Martin of San Francisco; Emily Porter of Bridgeport, Conn.; Clarissa Blakeslee of Drexel Hill, Pa.; Edith Glenn of Bristol, Pa.; and Florence Stone of Plainfield, N. J., Red Cross nurses, for their work in fighting the typhus epidemic in Macedonia.

Charitable Bequests.—The Church Home for Crippled Children at Angora, Pa., is the recipient of a bequest of $3,000, by the will of the late Emily B. Harrison of Philadelphia.

The will of the late Matilda James of Philadelphia makes a bequest of $2,500 to the Presbyterian Hospital for the endowment of a free bed.

The Jewish Seaside Home for Women, Philadelphia, receives the sum of $500, by the will of the late Rose Lowenstein.

A Plethora of German Doctors.—After having suffered from a dearth of doctors during the war due to the demands of the army, civilian Germany now finds itself over-supplied with medical men. The Leipsic Branch of the Association of Physicians of Germany summed up the situation in a recent issue of the *Berliner klinische Wochenschrift* which states that the maladjustment between the supply and demand in the field of medical employment was never so great as it is at present. The inability to find work in civilian life is most keenly felt among the younger physicians, 5,800 of whom have been graduated during the years of the war. Equally grave news come from Austria-Hungary where it is said some 700 former military doctors remain unemployed, after all openings have been filled, to whom may be added some 600 or 700 civilian doctors from German-Bohemia, the Southern Tyrol, etc., who have been driven to German-Austria because of the creation of national governments. Altogether considerably over 1,000 doctors have been made jobless through the political happenings in German-Austria. To add to their hardships the National Constitutional Convention has approved alterations in the compulsory health insurance regulations that will practically ruin the profession according to reports. Persons who can satisfy the authorities that their earned incomes do not exceed $1,000 a year are permitted to join the scheme if they so desire. The fees which doctors receive on behalf of these assured persons worked out to not more than eight cents a visit. That there will be a rush of German practitioners

to this country after the signing of the peace treaty is very certain, unless measures are taken by the authorities to refuse them a license to practise.

Government Gives Up Grand Central Palace.—The Grand Central Palace, New York, which has been used as an army base hospital since September, last will be returned to its owners on September 30, 1919, and the work of transforming it into a trade exposition building will then be begun.

Typhoid Fever Decreasing in Philadelphia.—According to figures given out by Dr. Wilmer Krusen, Health Director of Philadelphia, the number of cases of typhoid fever has been reduced from 6,587 in 1904 to 383 last year. The figure for 1918, 388, shows a reduction of 38 per cent. from the total of 1917, 625. Philadelphia now has a typhoid fever rate of 3.0 for every 100,000 of the population: in Chicago the rate is 1.4 and in Boston 2.5.

Influenza Ravages Alaska Indians.—According to cablegrams received in Seattle on June 6, one hundred and sixty natives of Bristol Bay and Unalaska, have died from influenza during the preceding ten days. Naval ships carrying surgeons and large quantities of medical supplies have been sent there, and an appropriation of $100,000 for the relief of the influenza sufferers in Alaska has been included in the general deficiency appropriation bill by the U. S. Senate.

The American Climatological and Clinical Association will hold its thirty-sixth annual meeting at the Hotel Traymore, Atlantic City, N. J., June 14-17, in conjunction with the 11th Congress of American Physicians and Surgeons. Dr. Guy Hinsdale of Hot Springs, Va., is president and Dr. Arthur K. Stone of Framingham Center, Mass., secretary.

Medical Society Elections.—The Essex South Medical Society (Mass.), at its annual meeting, held at Nahant, May 15, 1919, elected the following officers for the ensuing year: *President*, Dr. W. T. Hopkins, Lynn; *Vice-President*, Dr. R. E. Foss, Peabody; *Secretary*, Dr. G. E. Tucker, Salem; *Treasurer*, Dr. G. Z. Goodell, Salem.

The Late Dr. Lyle.—At the June meeting of the Medical Board of the City Hospital the following resolution relative to the death of the late Dr. Alexander Lyle was passed:

Whereas: In the death of Dr. Alexander Lyle, a member of the Surgical Visiting Staff of the City Hospital, we have lost a fellow member and valued friend, whose cheerful kindliness and good fellowship endeared him to the Board, a man whose skill in his chosen specialty had made him a valuable addition to the Surgical Staff of the City Hospital;

Be it resolved: That we make this resolution a part of the minutes of the June meeting and the Secretary be advised to express the sympathy of the Board to his family.

Obituary Notes.—Dr. Adolph Brand, a graduate of the College of Physicians and Surgeons, New York, in 1904, died at his home in New York City, on June 2, aged 38 years. He was dermatologist to the Hospital for Deformities and Joint Diseases, chief dermatologist to St. Bartholomew's Clinic, and assistant dermatologist to Bellevue Clinic. He was a member of the American Urological Society, the New York Academy of Medicine, and the Medical Society of the County of New York.

Dr. Samuel Thomas Tapscott, Sr., a graduate of Memphis Hospital Medical College, in 1858, died at his home in Searcy, Ark., on May 14, aged 88 years.

Dr. H. C. Rafferty, a graduate of Willamette University Medical Department, in 1869, died following a paralytic stroke at his home in Portland, Ore., on May 10, aged 80 years. He was one of the first mayors of East Portland, and held a number of other city offices.

Dr. David G. Murrell of Paducah, Ky., a graduate of the Kentucky College of Medicine, Louisville, in 1878, formerly chief surgeon of the Illinois Central Hospital, died in New Orleans, where he had been residing for some time past, on May 17, aged 70 years.

Dr. Edwin Everett Smith, formerly of Norwalk, Conn., a graduate of the Long Island College Hospital, in 1871, died at his home in Cold Spring, N. Y., on May 24, aged 74 years.

Dr. Jedediah Howe Adams died at Philadelphia, on May 25, at the age of 52 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1889. He was a member of the Philadlphia County Medical Society, the Medical Society of Pennsylvania, and the American Medical Association.

Dr. J. Allen Harrison died at Philadelphia, on May 25, at the age of 47 years. He was graduated from Hahnemann Medical College and Hospital of Pennsylvania in the class of 1892. He was a member of the Oxford Medical Society, the Germantown Medical Society, and the Tioga Medical Society.

Dr. Charles Biddle Bush died at Philadelphia, on May 27, at the age of 58 years. He was graduated from Jefferson Medical College in the class of 1885. He was a member of the Philadelphia County Medical Society and of the Medical Society of the State of Pennsylvania, and of the American Medical Association.

Dr. Oliver Grimshaw died at Swedesboro, N. J., on May 27, at the age of 58 years. He was graduated from Hahnemann Medical College and Hospital of Pennsylvania in the class of 1890.

Dr. William H. Bennett died at Atlantic City, N. J., May 14, at the age of 76 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1869. He was for twenty-five years physician to the Seashore Home for Invalid Children; founder and president of the Mercer Memorial Home for Invalid Women; founder and president of St. Christopher's Hospital for Children, Philadelphia; consulting physician to Widener Memorial Home; a member of the Philadelphia Pediatric Society, the Pathological Society of Philadelphia, the Medical Society of the State of Pennsylvania, and a Fellow of the American Medical Association.

Dr. Ralph MacClay Lashelle, formerly of Centralia, Pa., died at Media, Pa., on May 20, at the age of 77 years. He was graduated from Jefferson Medical College in the class of 1888.

Dr. John A. Donovan, a graduate of New York University Medical College, in 1866, and for 53 years a practitioner of medicine in Lewiston, Me., died in that city, about May 25, aged 78 years.

Correspondence.

OF INTEREST TO MEDICAL LIBRARIANS.

To the Editor of the Medical Record:

Sir:—There has accumulated in the Surgeon General's Library a considerable amount of material in the way of duplicate medical books and periodicals. Owing to lack of space, much of this material will have to be condemned and disposed of. In accordance with the policies of the library, a free access to all medical literature in duplicate has been given to the medical libraries of the country, the only condition being that they remove the material at their own expense. Those in charge of medical libraries not too far away from Washington, D. C., may take advantage of this opportunity for adding to their collections or supplying their desiderata until September 1 of this year.

Francis A. Winter,
Colonel, M. C., U. S. A.,
Librarian, S. G. O.

Washington, D. C.

THE SALE OF ALCOHOLIC DRINKS.

To the Editor of the Medical Record:

Sir:—Regarding the unlimited sale of alcohol, I wish to make the following remarks: The prohibition question has aroused so much discussion, pro and contra, in the medical as well as in the lay press, as perhaps no other question for a long time. When the new narcotic law was passed there was no noise about it, except, perhaps, some dissatisfaction of a number of physicians or druggists with the bother or the extra registration fee; otherwise everybody felt that something had to be done to check the evil that ruins the health of the addicts, and we did not hear any complaints about alleged interference with the people's personal rights. Why? Is it because this is a "drug" and the other is a "drink"? But it is not the name that interests us, it is the article, and there are two sides to the question of both narcotics and alcohol; both are beneficial if used when indicated and in the right dose, and both are harmful when abused. The claim that the prohibition law interferes with the personal rights of the people is, in my opinion, scientifically absurd. Alcohol ruins not only the health of the addicts, both physical and mental, and makes them a burden to the community (besides its ruinous influence on the family), but it also has, as we all know, a harmful influence on the descendants, and they (the addicts) surely have no right to bring into the world demented and otherwise physically and mentally crippled offspring, nervous wrecks, degenerates, lunatics, epileptics, etc. Is this what the antiprohibitionists call "interference with the people's personal rights?" They may say, why should they be deprived of it in a *moderate*, not harmful quantity? It is true that it is not so very hard to define the "moderate, not harmful" quantity, but how would the antiprohibitionists control the sale of it in order that it should not be abused? There has been found a way to prevent the abuse of narcotics; but how do the antiprohibitionists think to manage with alcohol? If they know of some ways and means to prevent its abuse and keep the sale of it under control, let them speak and let us hear; we shall gladly accept their proposition if possible—otherwise it is to be condemned.

Dr. H. Rabinowitsch.

432 West Thirty-fourth Street, New York.

OUR LONDON LETTER.

(From Our Own Correspondent.)

London, May 16, 1919.

Women and the Medical Society of London.—The most interesting event of the medical week in London was the annual meeting of the Medical Society because at that meeting the question of the admission of women to full membership of the Society was discussed in some detail. In the discussion all the old arguments for and against, every one of which has some logical flaw or another, were trotted out, and in the end the bar to women against full membership was maintained. It is over 30 years since a by-law of the Medical Society of London made it inadmissible for women to be Fellows of the Society, the step having been taken when it first became evident that women intended to adopt the medical profession as a regular career. There is no doubt that there was at that time in London, almost as much as in Edinburgh, a feeling that women were intruding upon a sphere for which they were ill-fitted and the Medical Society in its action was registering the professional spirit of the day. But as all such feeling against the female practitioners in medicine appears to have completely passed away from the minds of the present generation, especially from the minds of its younger representatives in the medical profession, it is a little puzzling to learn that the Medical Society should have decided to maintain its old position. In fact, it is probable that the old position was only maintained by the actual voting power of the older men among the members. The resolution which was brought forward by the Council of the Society to delete the law excluding women was not as a matter of fact put to the vote because an amendment, which took its place confirmed the existing right of women to be present at the meetings. The amendment was not accepted in place of the substantive motion, and there is little doubt which way the voting would have gone if the original motion had been pressed to a division: the amendment was merely used as a reason for delay in coming to a conclusion. The arguments against the admission of women to full membership can be summed up as two-fold, the conservative one and the social one. The conservative members of the Medical Society adopted the argument that Lettsom when he founded their body did not contemplate the admission of women, and while this point is granted to them they must on their side concede that they have not the least idea what Lettsom's opinion on the subject would have been if the contingency had arisen in his lifetime. The social argument is that the Medical Society of London has always been a sort of medical club for male doctors, has enjoyed prosperity and prestige in this guise, and therefore should not be changed. There is something to be said for this argument

also and something to be said against it. For it there is the obvious truth that members of a club have the right to include in and exclude from their own club whomsoever they like, and this position can be taken up by the Medical Society with some strength, for there is in existence in London a medical society the membership of which is confined to women. Such were the feelings that prevailed at the meeting and that dictated the voting. But surely the more thoughtful members of the Medical Society of London will see that they are placing their institution on a low plane by regarding it simply as a club. On the other hand if it is to be regarded primarily as a learned society existing for the collection and diffusion of scientific knowledge it is clear that in these days the members are acting in a short sighted manner to exclude women. Delay may bring better counsel.

Tuberculosis Sanatoria for Discharged Soldiers and Sailors.—The president of the local Government Board and the Minister of Pensions have combined to carry through a piece of work whose urgency is undoubted. It is almost incredible that as yet no proper organization exists for the provision of sanatoria for the reception of soldiers and sailors discharged as suffering from tuberculosis. The two presidents have now appointed a committee "to consider and report upon the immediate practical steps which should be taken for the provision of residential treatment for discharged soldiers and sailors suffering from pulmonary tuberculosis and for their re-introduction into employment, especially on the land," and in the last few words lies its greatest promise of good. French experience in relation to their tuberculosis infected soldiers, as well as the reports of farm colonies for the tuberculous in many countries, have proved that while the tuberculous man tills the soil he heals himself in a substantial proportion of cases.

The Radium Institute.—This institute has been working quietly and steadily throughout the war, supported by a good financial endowment but much hampered by the difficulty of obtaining scientific assistance on the staff, the needs of the Army and Navy having absorbed all the available pathological talent of the country. The report for the past years' working, bringing the record up to the beginning of 1919 announces, however, the establishment of a pathological laboratory in connection with the Institute over which Dr. J. C. Mottram, a well-known worker at the Cancer Department of the Middlesex Hospital, has been appointed. This is a step not only in the right direction but in the only direction in which progress lies as far as the therapeutic use of radium is in question, and it is made in full accord with the nature of the last report of the Institute, now issued by the Director, Captain Hayward-Pinch, F. R. C. S. Public opinion, and unfortunately medical opinion, seem to have decided that the value of radium in medicine is commensurate with its practical results in the treatment of cancer, whereas such a limitation is entirely wrong. First, the employment of radium is neither the best nor a specific cure of cancer, for a large percentage of malignant manifestations are better dealt with by operation, and a substantial percentage of these manifestations, though inoperable, are also not amenable to radium treatment. Secondly, radium is of great value in many forms of obstinate skin disease, in many varieties of benign tumour and in such scourges of women as uterine fibroids and chronic metritis. The last report of Captain Hayward-Pinch leaving the use of radium in cancer aside, dwells especially upon its use in the numerous other conditions, and with this developing employment of a new and drastic remedy there should certainly go, and go hand-in-hand, laboratory investigation into all the chemical and physical circumstances which attend the treatment and make up the pathological story. Following upon intensive investigation of this sort we ought to get valuable information. Much of the work done at the Radium Institute is entirely gratuitous, some 65 per cent of the patients making absolutely no payment. This is good hearing for charitable ears, but the middle-class and the wealthy get sick as well as the poor, and radium is not available for their treatment at the present moment. With a spread in the scientific world of the knowledge that radium has many more uses than are implied in the treatment of cancer we may expect some organized plan to arise whereby supplies of radium can be placed at the disposal of the medical profession, through the Radium Institute, and upon some really orderly plan.

The Lords and the Quacks.—The Ministry of Health Bill is now under discussion of the House of Lords where the second clause dealing with the powers and duties of the Minister are being discussed in Committee. Lord Bledisloe, better known as Sir Charles Bathurst, had already promised to move a new clause giving the Minister of Health power to institute any necessary proceedings to enforce compliance with the laws relating to the sale and advertisement of any patent secret or proprietary remedy or appliance. Later on the same broad-minded senator moved an amendment which would give the Minister of Health power to take measures for the avoidance of fraud in connection with alleged remedies for the cure of diseases. No one is better fitted to bring forward such an amendment than Lord Bledisloe for it was on his initiative that a Select Committee of the House of Commons was set up in 1912 to investigate the whole question of patent and proprietary medicines. The report of that Committee was presented, as it happened, on the very day of the outbreak of war, and it opened the eyes of the public to a fact with which the medical profession was perfectly familiar, namely, that a large band of quacks were engaged in a deliberate attack against the wellbeing of the nation, preying upon the weaknesses, especially the sexual weaknesses of mankind, claiming to cure incurable diseases, and in this way not only swindling their victims out of money but depriving them of the chances of cure by scientific methods which would have been theirs, had they taken the mischief in hand in time. The amendment for the moment was not accepted but the feeling of the House on the matter may be gauged by the fact that Lord Buckmaster, an ex Lord

Chancellor, said that it was impossible to overrate the importance of the questions raised. He added that a cursory glance at the report of the Select Committee was sufficient to show that at the present moment this country was at the mercy of a gang of people who in many cases were quite destitute of honor or scruple, and who were busily engaged by fraudulent or dishonest means in vending drugs and food that in many cases were absolutely dangerous to the health of the people by whom they were consumed. It was quite plain that the present remedies were ineffectual, and one of the reasons why they were so was that they never knew the Department upon whom the duty of taking action depended. The government for the moment do not wish to place the definite duties postulated by Lord Bledisloe's amendments upon the shoulders of the Minister of Health, lest this infant official should be asked to carry too big a burden immediately after his birth. But the medical profession say that it was precisely to look after the health of the people, and put down such scandals as those dwelt on by Lord Buckmaster, that the Minister of Health was ever born; if he cannot discharge such a public function as the protection of the people against the quack, what has he been born for?

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

PARIS, April 27, 1919.

The International Congress at Cannes.—The conference at Cannes of British, American, French, Italian, and Japanese Red Cross Societies has been considering the reports of the subcommittees on tuberculosis and malaria. The tuberculosis subcommittee report makes several recommendations, including the regular inspection of school children with a view to early detection of the disease and popular propaganda by all suitable means. The establishment of open-air schools for children already infected or suspected of tuberculosis is recommended and also the extension of the open-air system to all institutions of segregation such as barracks, asylums, orphanages, and workhouses. The committee approved of the compulsory notification of tuberculosis to the health authorities.

Malaria.—In the deliberations of the malaria subcommittee five of the world's greatest experts have taken part, Sir Ronald Ross; Dr. Laveran, discoverer of the parasite of malaria, Paris; Professors Marchiafava, University of Rome, Golgi, President of the Italian Board of Health, and Bastianelli, of Rome. Dr. Laveran presided and congratulated the conference on placing the fight against malaria side by side in importance with humanity's fight against tuberculosis and venereal disease. The committee recommended popular propaganda on a great scale for instructing the public as to the steps needful to combat the disease. The problem is one of peculiar interest to the British Empire on account of its far-flung colonies. In the case of Italy and other countries it is a domestic problem. The suggested propaganda is to include illustration of antimalarial measures by charts, photographs, and kinematograph records and also of an intensive campaign against mosquitos. Dr. Laveran referred to the great part school teachers can play in combating disease and gave as an illustration Corsica, where schoolmasters successfully have explained the steps to be taken to children, who in turn instruct their parents. A special tribute was paid to the great work Sir Ronald Ross had done in helping humanity to discover the part the mosquito plays in carrying infection. The committee recommended the immediate establishment of an international malarial bureau in conjunction with the suggested league of Red Cross Societies.

Nursing.—Many women delegates were present when the report of the Nursing Committee was presented to the conference by Miss Julia Stimson, chairman and director of the Nursing Service of the A. E. F., and the British delegates on the committee, Miss Lloyd, matron of St. Thomas' Hospital, London, and Miss Gill, matron of the Royal Infirmary, Edinburgh. The committee suggest the organization of a special nursing department in the central Red Cross bureau to act as a clearing house of ideas in all nursing and health work. The utmost importance was attached to the great army of volunteer workers, the V. A. D.'s in England. Dr. Welch of Baltimore referred to the fact that many new careers in public health work will be offered to women, and that they must inevitably perform the major part of the work in the world health campaign now being organized. At the conclusion of the conference a unanimous vote of thanks and appreciation was passed to all nurses who have so nobly served their countries and the armies of the Allied nations.

Child Welfare.—Several speakers in discussing the report of the child welfare subcommittee, urged the need of concentrating attention on the prenatal period, and the necessity of legislation in industrial centers forbidding mothers from working for three or four months before childbirth. Much greater attention, it was urged, should be given to the education of the child at school on health matters. Sir Arthur Newsholme said venereal disease was responsible for much ill-health in children and the seeds of tuberculosis were generally planted in childhood, therefore the purpose of the Child Welfare campaign was closely related to these two subjects. Dr. Truby King, of New Zealand, drew attention to the appalling state of the children's teeth, and referred to the subject as an almost universal disease. He maintained that with due antenatal and postnatal care the teeth question could almost be solved without the use of tooth brushes. Dr. Biggs of New York referred to the plan which he said had been successfully operating in New York for the past year by which all marriages must be notified to the authorities. Three months subsequently the health authorities send a circular letter to every young married woman drawing her attention to special information on the problems of childhood which is at her disposal.

Prostitution.—Professor Duerey, of the University of Pisa, said the program regarding the regulation of prostitution by government is now being prepared in Italy and will be completed in a few weeks. He favored the control of the sale of alcohol and of drugs as being closely related to the spread of disease. He believed that measures for the abolition of all official regulation and tolera-

tion of prostitution would not be possible in some countries, and each country must act for itself. Colonel L. H. Harrison of the British Army said that in the British Army in 1885, 320 out of every 1000 admissions to hospital were due to venereal disease, while in 1913 these had decreased to 51 per 1000, although in that time no propaganda against the evil existed and prophylaxis was not part of the British Army regulations. The remarkable reduction, he considered, was due to improved social conditions, suitable entertainments, and occupations in the leisure moments of the men. Colonel F. F. Russell, U. S. A., said there was the greatest necessity at this time for an energetic Government campaign because of the demobilization of armies. Through Red Cross societies there were means of carrying the lesson and influencing public opinion. Colonel Cummins, of the British Army, urged standardized regulations in dealing with prostitution. Dr. Biggs and Sir Robert Philip advocated a closer and more definite terminology in discussing these subjects and suggested that each malady should be called by its name and not grouped under the head of venereal diseases. In that way the education of the people was easier. Professor Marchiafava said all immoral literature and pornographic books should be suppressed by law.

Dr. Rist of Paris said he believed that the opinion was growing for complete abolition and suppression of all official regulation and tolerance of prostitution and that this sentiment is growing in countries even where prostitution has been tolerated heretofore. Professor Kabeshima, the Japanese delegate, said that the question of suppression of prostitution in Japan was delicate and difficult, but at the present time there was a movement to make regulation and inspection more strict and eliminate clandestine prostitution and street traffic of women.

146 Avenue des Champs Elysees.

Progress of Medical Science.

New York Medical Journal.

May 31, 1919.

1. What Constitutes an Intoxicating Beverage. C. P. Sherwin.
2. Alcohol and the Individual. A. A. Brill.
3. Some Psychological Aspects of Alcoholism. L. Pierce Clark.
4. Alcohol in Some of Its Social Compensatory Aspects. Smith Ely Jelliffe.
5. The Clinical Picture of *Streptococcus Viridans* Infection. Heinrich F. Wolf.
6. Douching the Nose in Children—Useful Hints on the Proper Technic. William A. Hitschler.
7. Symptom Complex Complicating Acute Mastoiditis. J. Clarence Keeler.

5. The Clinical Picture of Streptococcus Viridans Infection.—Heinrich F. Wolf draws attention to the importance of the clinical picture and the danger of blind reliance upon laboratory methods of diagnosis. He says, "Ten or twenty years from now people will not go to a physician, but to a laboratory. In the diagnostic clinic they will be examined by specialists, they will know every deviation from the normal, but nobody will know what is ailing the patient and how he should be treated." For the sake of brevity the author confines his remarks to the rheumatic manifestation with exclusion of endocarditis, and points out that infection with the *Streptococcus viridans* is the most frequent cause, but not the only one; the type of infection may be indicated by the clinical picture. It should be remembered that infectious foci can exist in the body without causing any symptoms, and that abscesses in the teeth and tonsils may be found without giving rise to a systemic infection. That a systemic infection may be present in spite of a negative biological reaction and that a positive biological reaction, for instance a positive Wassermann or a positive gonococcus complement fixation test, is no proof that a given disease is of the etiology which is indicated by the test. The number of patients who are treated with gonococcus vaccine for a rheumatic infection and whose disease has nothing to do with that infection is very large. The value of the clinical picture in determining the etiological diagnosis of the so-called rheumatic diseases has been grossly underestimated. The author also points out that as the clinical picture is due to the reaction of the body tissue against the invading and attacking organism we may expect the clinical picture to vary according to the type of the organism. However, the differences in the clinical picture are not always pronounced, but they are distinct enough to allow of a differentiation, and the fact that this has been overlooked can probably be attributed more to the dulling of our clinical eye and sense than to the lack of clear indications. We must not forget that a clinical picture may be due to a mixed infection, and that each infecting agent leaves its trace in the appearance of the disease. Wolf adds that the clinical material at his disposal is not large enough to work out a clinical picture for every type of infection. His object is to awaken interest in the subject, to give to the clinical picture the importance it deserves, and to get away to some extent from the tyranny of the laboratory.

Journal of the American Medical Association.

May 31, 1919.

1. Living Pathology. John B. Deaver.
2. Acute Nephritis: A Study of Forty-five Cases. Albert Vander Veer, Jr., and Joseph H. Saunders.
3. Experiences in France with Surgery of the Genito-Urinary Tract. A. Raymond Stevens.
4. Early Diagnosis of Acute Ileus. Frederick G. Dyas and J. N. Hall.
5. Pollen Extracts and Bacterial Vaccines in Hay-Fever: Second Report. Ira Frank and Solomon Strouse.
6. The Use of Intravenous Injections of Mercuric Chlorid in the Treatment of Suppurating and Infectious Diseases. Victor G. Vecki
7. Mental Deficiency in Prostitutes: A Study of Delinquent Women at an Army Port of Embarkation. Paul A. Mertz.
8. Back Pain in the Military Service. Walter A. Sherwood and Merritt L. Jones.
9. Studies in Influenza and Pneumonia: II. The Experimental Production of Symptoms and Lesions Simulating Those of Influenza with Streptococci Isolated During the Present Pandemic. III. The Occurrence of a Pandemic Strain of Streptococcus During the Pandemic of Influenza. E. C. Rosenow.
10. Cancer of the Prostate: A Combined Surgical and Radium Method of Treatment. Robert H. Herbst.

7. Mental Deficiency in Prostitutes: A Study of Delinquent Women at an Army Port of Embarkation.—Paul A. Mertz presents some data on the mental status of a group of delinquent women examined at Newport News, Va., under military direction. The women examined came from all parts of the Eastern and Southern States; many were the wives of soldiers, others were women attracted to Newport News as being the port of embarkation and, later, debarkation for the American troops. The results are all the more important, therefore, in that they may be considered as being national rather than local. The mental examination of women arrested for prostitution and similar offenses was begun early in July, 1918, by Major Earl D. Bond, port of embarkation psychiatrist, and was continued by the author, who assumed psychologic duties in November. A physical examination to determine the presence of venereal disease and a psychologic examination were given in every case. Very few of the women were professional prostitutes. Of the white women, 62 per cent. were married, many of them to soldiers. Approximately 74 per cent. of the white women and 79 per cent. of the colored women were found to be infected with a communicable venereal disease. The Binet-Simon (Goddard revision) mental examination was made in 126 cases; the author points out that this test was used rather than the newer Stanford revision by Terman's method for the sake of uniformity. He sums up the results of his observations as follows: (1) Fifty-three per cent. of the women arrested for prostitution and kindred offenses and held in the detention home for examination had a mental

age of 10 or under. (2) In addition, 15 per cent. of those who were not mentally deficient showed mental disorder. (3) Ten per cent. were so deficient as to warrant, under existing laws, segregation in an institution for feebleminded. (4) Fifty per cent. of these women did not reach the fifth grade in school. (5) If a "type" is being sought, it might be said that the composite of the delinquent woman as found in Newport News would seem to be a woman of 19, slightly mentally deficient, with schooling to the fourth grade. Upon comparing his results with similar data obtained elsewhere, the author points out that the percentage of feebleminded is approximately the same; that is, his figures add evidence to the belief that virtually half the country's prostitutes are mentally deficient or feebleminded. He lays emphasis on the importance of accumulating data of this sort as the country may thereby be brought to realize the necessity for legislation to restrain the prostitution of high-grade morons who appear to the uninitiated perfectly normal, and who are often unusually attractive physically.

The Lancet.

May 10, 1919.

1. A Lecture on Missiles as Emboli. Delivered in the Surgical Section of the Royal Society of Medicine. Sir John Bland Sutton.
2. An Address (in Abridged Form) on the Continued High Maternal Mortality of Childbearing. The Reason and the Remedy. Delivered Before the Obstetric Section of the Royal Society of Medicine. Victor Bonney.
3. The Care and Treatment of Cases of Malaria. Colonel Sir Ronald Ross, K.C.B., K.C.M.G.
4. An Investigation Upon the Influence of Malaria on the Wassermann Reaction. J. Gordon Thomson and Claude H. Mills.
5. Wassermann Tests: The Occurrence of Variations in the Results of Successive Tests; the Clinical Application of the Data. C. H. Browning and E. L. Kennaway.
6. The Complement Fixation Test in Gonococcal Infections, and the Preparation of a Gonococcus Antigen. Arthur H. Priestley.
7. Some Forms of Irritable Heart. I. Harris.
8. The Persistence of Cerebrospinal Fever Cases as Carriers of the Meningococcus During Convalescence. Dennis Embleton and George H. Steven. (Report to Medical Research Committee.)
9. Subacute Trench Fever. J. H. Lloyd.
10. The Lacrymal Glands in Surgical Anesthesia. L. T. Rutherford.
11. Rectal Ether Anesthesia. Observations from 100 Cases. J. C. Clayton.

1. A Lecture on Missiles as Emboli.—Sir John Bland Sutton cites a number of cases in which missiles have attained more curious places by accident than they could by design. In 1834 Thomas Davis reported the case of a boy of ten who made a gun of a telescopic toasting fork. To form the breech of the gun he drove a plug of wood 3 inches into the hollow handle of the fork and made a touch hole. When the gunpowder exploded the stick was forced into his chest between the third and fourth costal cartilages, to the right of the sternum. After death, which occurred 37 days after the accident, a piece of wood 3 inches long and as thick as a cedar pencil was found in the right ventricle of the heart, encrusted in clot. Davis was of opinion that the stick, after wounding the lung, passed into the vena cava and was carried by the blood stream into the right auricle, and then into the right ventricle; the word embolus was not coined until at least a quarter of a century later. Another early record is that of a soldier who, after the storming of the Great Pagoda, Rangoon, in 1852, received a round leaden bullet between the third and fourth ribs, near the anterior fold of the left axilla. Blood and air issued from the wound for several days, and the surrounding tissues became emphysematous. Death occurred 72 days later. A pint of pus was found in the left pleural cavity, and a piece of cloth from the man's jacket. The lung was solid. The track of the missile ran through the chest to the left pulmonary veins. The rifle ball lay in the left ventricle of the heart, near its apex. There was no wound of the heart. It appeared, therefore, that the ball perforated one of the left pulmonary veins, entered the left auricle, and finally passed into and settled in the left ventricle. Since 1896, when Farina, of Rome, stitched a stab wound of the heart, gunshot and incised wounds of the heart have attracted much attention, and the war has furnished many remarkable examples of the manner in which missiles enter and leave the heart, and instructive preparations illustrating such accidents are comprised in the War Office collection of pathological specimens. In one case there was a hole in the right side of the chest, in the right leaf of the diaphragm, and in the inferior vena cava 2½ cm. below the place where the hepatic vein joins the caval vein. A flat piece of shrapnel, 2 cm. square and 12 mm. thick, lay in the right ventricle of the heart. There was no wound of the heart. The piece of metal, after piercing the chest wall and the diaphragm, entered the inferior vena cava and the blood current transported it to the heart. The clinical history did not suggest any hampering of the action of the heart. The man died from severe streptococcal infection. In another specimen a fragment of metal is detained among the cords of the tricuspid valve. The soldier was wounded in the liver. There is a hole in the hepatic vein, through which the missile reached in turn the vena cava, the right auricle, and the right ventricle. The movements of shrapnel bullets in the cavities of the heart can be made visible by radioscopic methods. One in the right auricle performed whirling movements in an elliptic orbit with a major axis of 2 cm. (Barret); another observed by Ledoux-Lebard in the right ventricle *s'agitait comme la bille d'un grelot.* Lobligeois detected a shrapnel ball in the left ventricle and watched its motion. In diastole the ball rested near the apex of the heart. During systole it slipped rapidly to the right, struck the septum, rose in the ventricle, remained still for an instant, and then descended slowly during systole, till it reached the position near the apex of the heart, from whence it started. The movements occurred with great rapidity. A bullet in the right ventricle may be ejected and produce fatal pulmonary embolism. This happened in the case of a soldier. A German bullet entered the left external iliac artery and penetrated the adjacent iliac vein. It was carried by the blood current along the big veins to the heart, was ejected from the right ventricle and plugged the left pulmonary artery. Or a missile in the left ventricle may be driven into a systemic artery and produce ischemia. A boy, aged 18, shot himself in the heart with a 7-mm. revolver. There was shock for some hours and the next day pain in the right arm, which presented signs of ischemic paralysis, and the bullet could be felt in the axilla. Ten weeks later the bullet was excised from the axillary artery, the vessel above and below the bullet being occupied by clot. The ischemia slowly disappeared. As the boy recovered, the exact route of the bullet cannot be stated, but it is probable that it penetrated the chest, the wall of the heart, and lodged in the cavity of the left ventricle; it was then expelled as an embolus through the aorta, innominate and subclavian arteries to be impacted in the axillary artery. O'Neill had an opportunity of actually localizing a missile in the left ventricle radioscopically and subsequently finding it in the common iliac artery. Missiles may also enter a large artery and behave as emboli without entering the heart. A soldier received a rifle bullet wound in the chest. Four pints of effused blood were evacuated, and the wound sewed up. Streptococci were obtained in culture from the effused blood and the man died on the fifth day. Before death a bullet could be felt in the left external iliac artery. After death a small wound was found in the aorta just below the arch; this was the place of entry, and the bullet was driven as an embolus along the aorta into the iliac artery. Each end of the bullet was embedded in firm clot. In the Napoleonic wars a case occurred in which a bullet entered the side of the chest. The man, an English sailor, survived three days. At post mortem it was found that the ball, which measured 1¼ inches in circumference, had penetrated the first part of the aorta and lay within its lumen, embedded in clot. The hole in the wall of the aorta was partially closed by a plug of skin and fat carried in by the ball. To show that penetrating bullet wounds of the aorta are not always fatal, the author cites the case of a Westphalian miner who attempted suicide. The bullet entered the left side of the chest, near the seventh rib. There was no disturbance of the heart's action, and radioscopic examination failed to furnish evidence of the bullet. An effusion in the left pleural cavity disap-

peared in a few weeks, and the man recovered. Thirteen months later he was killed by an electric current in the course of his occupation, and the bullet was found in the aortic sinus, attached to the wall by a slender pedicle.

9. Subacute Trench Fever.—J. H. Lloyd points out that though a great deal has been written on the acute form of trench fever, its existence in a subacute form has not received the attention it deserves. Colonel R. D. Rudolf has suggested the term "trench fever cachexia" for the subacute cases; in the author's opinion this term gives undue prominence to one only of the many concomitants, and that one is not always present, and for this reason Lloyd prefers the name "subacute trench fever." The temperature in such cases is quite unstable; it usually keeps below 98° to 99°, but is unsteady and the man's sufferings will be found to correspond closely with his temperature. The diurnal variation most days will be 2°, and sometimes 3° or even 4°. At other times the curve will shoot up to 102° or 103°, and fall again to 96° or so, all in a few hours. This Major Lloyd describes as a "low-geared pyrexia." In these cases the spleen should be examined by percussion as well as by palpation, as probably more cases show a non-palpable splenic enlargement. When enlarged the organ is more or less constant in size. The author states that he has had no opportunity of examining the areas of hyperesthesia noted by Carmalt Jones; nor has he seen the maculae which occur in the acute fever. He divides cases into the two following symptom groups: (1) The painful group, which includes cases diagnosed as rheumatism, myalgia, neuritis, etc. Patients complain of aches and pains in different parts of the body, and in many cases there is no history of an original definite acute attack. (2) The debility group, which includes at one end the men whose chief disability is the "effort syndrome" and who are sent to hospital as D. A. H. and V. D. H. cases, and at the other end men complaining of being "done up," "nerves all gone," and "depression," the diagnosis being "N. Y. D. N.," "neurasthenia," "debility," etc. The author believes that D. A. H. will prove to be an expression of the fever and not a sequela, and that in the N. Y. D. N. cases the symptoms are produced more by the fever than by shell fire. Out of a total of 400 of these latter cases the author found an average at any one time of about fifty cases of trench fever, either acute or subacute. Many of these cases come into hospital with a note to say "fainted" or "collapsed under heavy shell-fire." Their previous history will generally show that they have been suffering from trench fever for some time previously. In such cases the smoldering fever is likely at any time to flare up into a flame and life in the line probably helps to bring about the exacerbation. If this happens suddenly the man collapses. The pyrexia of 102 or 103 deg., however, may last but a very few hours, and when the man is seen by the medical officer the temperature may again be normal or below. What exactly determines the groups of symptoms is not known, unless it be the stress of the poisoning, the susceptibility of the various tissues, and the man's own psychology. It is possible also that the virus of trench fever may be a cause of some cases of war nephritis; if this is so we shall have a third group—the nephritis cases, and the author points out that it will probably be in the comparatively difficult-to-recognize subacute form that most of the mischief will have been done. He remarks that when we know more about trench fever in its acute and subacute forms, it may be interesting to draw comparisons between this disease, syphilis, and malaria. It might also be of interest to compare temperature charts in the subacute phases of these three diseases. A point to be remembered in connection with this subacute form of trench fever is the possibility of regarding a man suffering from this condition as a malingerer. It is also important that the condition should be recognized by members of boards examining and reporting on the condition of men about to be discharged from the army.

Berliner klinische Wochenschrift.

March 10, 1919.

Insufficient Left Kidney and Right-sided Nephrectomy Followed by Successful Result.—H. Kümmell studies the operative treatment of certain bilateral renal changes. The best guide in these complex processes is the control of the urinary concentration. The case which the writer reports in full was that of a female, aet. 49 years, with tuberculosis of the right kidney and a colon bacillus nephritis of the left kidney. The freezing point of the urine was 0.62°. The first operation was decapsulation of the left kidney, following which the urine from that organ improved, the albumin and casts disappeared, while the cryoscopic index fell to 0.58°. Five weeks after the decapsulation the writer performed a nephrectomy of the right kidney. The successful outcome was complete, the freezing point became normal, likewise the quantity of residual nitrogen in the urine.

Treatment of Diseases of the Blood and Injections with Protein Bodies.—Dollken has extended the domain of therapeutics of diseases of the blood by resorting to the use of milk injections and other more determinate protein bodies. In hemorrhagic purpura the action of milk on the liver and small vessels is excellent. The blood coagubility increases after the injection with an astonishing rapidity. In infectious diseases with mild albuminuria, milk injections cause the urinary albumin to disappear permanently. In three cases of Weil's disease the effect of milk injections was very rapid, likewise their effect on the liver made manifest by a diminution of the icterus. On the other hand, the general and nervous symptoms were not influenced. The disease, regardless of this treatment, may continue its evolution for several weeks, although the hepatic symptoms do not reappear. In dysentery the effect of milk injections is favorable. The agglutination index does not increase, thus offering a larger field for more specific therapeutics.

Münchener medizinische Wochenschrift.

March 7, 1919.

Bacteriological and Serological Essentials for the Prophylaxis and Treatment of Gas Edema with a Polyvalent Serum.—F. Klose establishes three groups of pathogenic agents of gas edema, viz., (1) The immotile butyric bacillus; (2) the motile butyric bacillus, and (3) the motile *Bacillus putrificus*. These three organisms described in the literature are classified by the writer under the above headings. The various anti-gas edema sera have shown unequal powers against these various pathogenic agents and for this reason the writer has attempted to prepare a serum by injecting horses with the three types of bacilli. His experimental results, from the viewpoint both of prophylaxis and of treatment, have been satisfactory. In human surgery the data so far obtained regarding this serum are insufficient. The writer only expresses the opinion that surgery has found a powerful aid in the treatment of gas edema, and that in no case surgical treatment, properly speaking, should be neglected or subordinated to treatment by the serum.

A Case of Polycythemia Treated Successfully by Radiotherapy.—G. Mönch has observed a case of polyglobulia in a woman aet. 52 years, a XII para, who suffered from frequent hemorrhages. Red blood corpuscles, 7,480,000; hemoglobin, 170 per cent. irradiation was made not only over the spleen, but especially over the long bones. The writer is of the opinion, and correctly so, that *x*-ray treatment of the spleen alone overlooks the site of essential production of the red blood corpuscles, so that the rational treatment should be, above all, directed to the bone marrow. In this case there were three séances in all, the second being eight weeks after the first, the third four weeks after the second. The objective and subjective symptoms disappeared. Red blood corpuscles 4,800,000; hemoglobin 90 per cent. This amelioration was still complete three months after cessation of the treatment. The white cell count remained absolutely stationary at 5,200 during the entire treatment.

Deutsche medizinische Wochenschrift.

February 27, 1919.

Tissue Regeneration in Man.—A. Bier in this, his nineteenth contribution to the subject, considers regeneration of the joints and the mechanism of some of

their morbid changes. For example, ankylosis is greatly favored by constant pressure, bringing the component parts of the joint against each other, an important fact to be remembered when treating pseudoarthroses or in the operative reestablishment of joint movements. As to intraarticular movable bodies, Bier offers an interesting explanation. The synovia possesses an osteolytic action which comes into play as soon as the joint lining has become the seat of some lesion. This action may erode the bone irregularly and end in separation of some bits; these becoming free in the joint, while at their point of attachment a thin layer of cartilage may form. The writer explains by this theory how certain intraarticular bodies may increase in size. This occurs when they become surrounded by a layer of protecting cartilage. Bier has been able to observe, during operations on the joints, a superficial regeneration of the cartilage. This takes place at the borders of the solution of continuity, just as the epithelium proliferates on the edges of a cutaneous lesion. The synovia is the feeder of the cartilage *par excellence.* What becomes of blood collections in the joints? It is inexact to maintain, as do some surgeons, that the blood remains in a fluid state. Bier has seen thick clots from within an hour or two following hemorrhage into a joint. After four or five hours the clot is smaller and a bloody fluid is also present. This latter can be withdrawn by puncture, from which has arisen the erroneous opinion that the blood remains fluid. This fluid is nothing but the product of dissolution of the intrasynovial clot. The ankylosing action of infections may frequently be due to disappearance of the synovine, but in mild inflammatory processes this substance persists and prevents the development of an ankylosis as it maintains the shape of the joint against the inflammatory process. Bier does not lose the opportunity for referring to his venous stasis in referring to gonorrheal arthritis. The intense sensitiveness of these lesions can be easily overcome by this treatment so that systematic mobilization may be carried out, thus preventing ankylosis. Finally, the writer reports some astonishing cases of regeneration in advanced tuberculous arthritis, which seem too good to be true.

The Reactions of Antituberculous Immunity in Influenza.—M. Berliner has been able to note in cases of influenza a persistence of the antibodies against tuberculosis. Cutaneous reactions to tuberculin had disappeared. The paper continues with a long, uninteresting theoretical discussion.

Deutsche medizinische Wochenschrift.

March 6, 1919.

Regeneration of Joints.—A. Bier discusses the possibilities of regeneration of tuberculous joints and appears to have an astonishing amount of optimism. He is of opinion that immobilization in the treatment of these lesions has been greatly exaggerated and he pretends that he has obtained successes which "exceed anything that has so far been attained in this domain," by carrying out the following treatment in cases of coxalgia. Plaster casts he banishes; extension is reserved for cases of contracture or subdislocation; insolation overcomes the pain within one to two weeks, after which methodical and prudent mobilization accomplishes the rest of the cure. Hemorrhage into a joint cavity is a real "poison" for the articulation; the blood provokes partial destruction of the structures, contractures and ankyloses; spontaneous absorption is extremely slow and therefore puncture should always be resorted to in hemarthrosis. The admixture of blood with crushed tissues possesses a marked cicatrizing action, while a mixture of blood and bone marrow has a strong osteogenic action.

The Salvarsan Question.—A. Dührssen appears to be starting a war against this supposed specific of syphilis. He insists particularly on the incapacity of a commission recently appointed to formulate the maximum dose of salvarsan. He opposes certain writings of von Wassermann and other "promisers of rapid cures," and brings forward contrary opinions in which the impossibility of declaring as cured a case of syphilis treated by salvarsan is maintained. The writer even suspects that the enormous advertising that 606 got in the daily press has been the means of causing an enormous diffusion of lues by leading the public to suppose that they can be readily cured if infected. In Germany during the years 1910 to 1914 there were 120,000 cases of syphilis treated in hospitals, whereas during the same number of years previous to the advent of salvarsan only 50 per cent. of that number of cases were admitted.

Correspondenz-Blatt fur Schweizer Aerzte.

March 22, 1919

Grippe Otitis in 1918.—Farner appears to believe that the old pandemic of 1889-91 became relatively innocuous until, after the expiration of nearly a generation, it underwent a recrudescence. Throughout this entire period the ear has been menaced. In the nineties influenzaotitis was a frequent diagnosis. This was natural, for during the pandemic years its frequency was apparent. This disease association appeared slowly to fade away and at the début of the last pandemic, and often throughout its entire course, the per cent. of ear disease was insignificent. But while the incidence is very low, there is nevertheless a small percentage of cases of ear disease in the present pandemic, and the cases agree very closely in all but frequency with influenzaotitis in 1889-91. To give some idea of relative frequency in the old pandemic, the normal percentage of otitis was increased from three to as high as thirty-fold, according to the clinic. A general average was difficult to obtain. In the recent pandemic the statement current is that about 3 per cent. of all grippe patients presented ear complications at the outside. A comparison seems difficult to institute, but clearly the recent pandemic spared the ears else we should have seen, had the proportion been abreast of some other complications, much deafness as well as fatal ending. A peculiarity of the last pandemic was the very small incidence of neuralgias and nervous deafness in comparison with the predecessor. In other words, we have a fairly constant type of organic grippe otitis characterized, save in empyema cases, by a rapid and benign course. During July to December the author treated 115 cases of grippe otitis, the majority being males in the best years.

La Presse Médicale.

April 3, 1919.

Prevention of Certain Migraines.—Pagniez, Vallery-Radot and Nast emphasize the relative hopelessness of a prophylaxis of sick headaches but believe they have struck a clue to the nature of one type of this affection which may admit of control in advance. They report 5 cases of migraine the first of which is in part as follows: The patient naturally sound but of a migrainous family and affected by myopia and astigmatism had suffered from migraine since the age of 10 years and was now 34. However, at the age of 20 he had obtained notable improvement by going upon a vegetarian diet. At 31 he went back to a protein regimen and at once suffered in the original degree and worse, a *status hemicranicus* developing at one time. The vegetarian diet seemed to have lost its efficacy. In addition he began to suffer from indigestion and constipation, which apparently had originally been absent. Upon a theory based upon sensitiveness to foreign protein the authors began to give the patient small doses of peptone, having learned that in giant urticaria of enteric or food origin this principle is of value. The result was startling, for half a gram before meals during the intervals produced an almost abortive effect. After virtual freedom for some weeks the peptone was suspended and the migraine returned, but in a mild type. Six months later, however, the affection became more severe and the peptone was resumed for a short time. When it was again withdrawn the patient not only remained free but was able to eat freely of meat and eggs. The small doses of protein had apparently removed an anaphylactic tendency, or in other words, were anaphylactic. Of the other 4 cases cited all were of the same type dating from early years, severe and inveterate, unresponsive to treatment and with a tendency to indigestion. All were benefited in the same manner by peptone.

Society Reports.

AMERICAN MEDICAL ASSOCIATION.

VICTORY MEETING.

Seventieth Annual Session, Held in Atlantic City, June 9, 10, 11, 12, and 13, 1919.

HOUSE OF DELEGATES.

First Day—Monday, June 9, 1919.

THE SPEAKER, HUBERT WORK OF PUEBLO, COL., IN THE CHAIR.

AFTER the adoption of the minutes of the last meeting and brief addresses by the Speaker of the House, the President, Dr. Arthur Dean Bevan, and the President Elect, Dr. Alexander Lambert, the following reports were presented.

Report of Secretary.—Dr. ALEXANDER R. CRAIG of Chicago submitted this report, which showed that the membership of the various constituent State associations which constituted the membership of this Association, according to the records in the Secretary's office, May 1 1919, was 82,288. The Fellowship of the American Medical Association on May 1, 1918, was 44,715; on May 1, 1919, it was 45,412, a net increase for the year of 697. During the year Dr. Ludvig Hektoen of Chicago had tendered his resignation as a member of the Council on Health and Public Instruction, and the President appointed Dr. Victor C. Vaughan of Ann Arbor, Mich., to serve on this Council until this annual session. Dr. H. Gideon Wells of Chicago tendered his resignation from the Council of Medical Education, and the President appointed Dr. John B. Dodson of Rochester, Minn., to fill the vacancy until this annual session. Dr. H. D. Arnold of Boston also resigned from the Council on Medical Education, and the President appointed Dr. Isadore Dyer of New Orleans to fill the vacancy until this annual session. This report stated that during the progress of the war reports had been submitted to the House of Delegates regarding the Association's cooperation with the Federal Government in matters involving the service of physicians. The Association endeavored to assist the Government in every way in which this could be done by a civilian organization. A review of these war activities revealed few, if any, instances where the Association could have done more or acted differently than it did. However, in mobilizing an army under the conditions which existed, there were many occasions for criticism certain of which might appear to be warranted from the standpoint of the individual. The House of Delegates should know that letters had been received at the Association's headquarters in which the writer complained of the conditions of service in which he found himself, or criticised the Association's war policy. For instance, physicians called to active service and then held in training camps complained because they were not assigned to posts in connection with armed forces. On the other hand, physicians in service overseas duty argued that because they had been kept away from home for a considerable period of time, they should be given the preference of being returned to civil practice. Manifestly these matters were not within the province of the Association. In connection with the complaints because of delayed discharges, it must be remembered that a sufficient personnel of the Medical Corps must be retained in the service until the army has been reduced to a peace status. Reports regarding the return of physicians to civil practice received from the different State associations were gratifying; it was almost the universal comment that these physicians were finding a hearty reception in the localities where they formerly practiced. When these physicians located in new communities, they were in practically all instances welcomed by the medical profession of the locality. The State associations and the county medical societies undoubtedly would find a field for effective service in assisting these returning physicians to reestablish themselves in civilian practice. It could not be expected that an exact pre-war status would ever be restored. The task which confronted the American Medical Association, with its constituent State associations and component county societies, was to assist in bringing about a better state of affairs in the medical profession. Attention was called to the fact that the several military services had commissioned physicians without regard to the fact that a considerable number of them had graduated from socalled sectarian schools. All commissioned medical officers served under similar conditions and used in their professional work the same standard of equipment. Sectarianism found no place in the medical military service. In this respect the war experience had confirmed the position which the American Medical Association had maintained for so long. The Association might have a proper pride in emphasizing that it was a nonsectarian, all inclusive, organization of physicians. This report contained recommendations to the effect that the by-law reading that "Not more than three Honorary Fellows shall be elected in any one year" be amended to read, "Not more than three Honorary Fellows shall be elected at any annual session; provided, however, that on recommendation of the Council on Scientific Assembly, and by unanimous vote the House may elect more than three Honorary Fellows." This was because the present meeting being a Victory Meeting, the Association should be in a position to elect more than three honorary members. It was also suggested that Fellows of the Scientific Assembly of the Association be permitted to use an authorized designation after their names in signing scientific papers or under other conditions where it was desirable to indicate their Fellowship. The following designations had been proposed: F. S. A.—Fellow Scientific Assembly; F. A. M. A.—Fellow American Medical Association; F. S. A. A. M. A.—Fellow Scientific Assembly of the American Medical Association. It would seem advisable that the symbol, if one were adopted, should recognize that Fellowship was a relationship to the Scientific Assembly.

Report of the Board of Trustees.—Dr. FRANK BILLINGS of Chicago presented this report, which showed that rather pessimistic outlook as regarded the *Journal* that was taken two years ago at the outbreak of the war, had not been justified by subsequent events, as was shown by the tables giving the circulation of the *Journal*. The increase in subscription for the year 1918 was small—229 all told—but this under the circumstances must be regarded as satisfactory. The weekly circulation during the first four months of the current year was greater than that in any previous four months, averaging over 70,000. The foreign circulation was also steadily increasing. The advertising standard of the *Journal* had been maintained, or, if anything, censorship had been more rigid. The wisdom of establishing the Cooperative Medical Advertising Bureau became more evident each year. This bureau had demonstrated that it was possible to secure for the State journals a fair amount of advertising of which the profession need not be ashamed. The bureau began this year with twenty-six State journals; the only State journal not represented was that of Illinois. The *Archives of Internal Medicine* had been conducted at a loss, while the *American Journal of Diseaes of Children* showed a small profit. The Spanish edition of the *Journal* was now issued on the first and fifteenth of each month and contained practically all the scientific material in the regular edition but matter that was ephemeral or of local interest was not included. The subscriptions were coming in rapidly and at present it had a circulation of 1,400. In response to a petition signed by a large number of leadnig neurologists and psychiatrists the *Archives of Neurology and Psychiatry* had been established. It was published on the same terms as the *Archives of Internal Medicine*. This journal might already be regarded as a success. It was of the highest order, a credit to American medicine, and to the Association. It was to be emphasized that the Association was not publishing these journals for financial gain; its sole object was to advance scientific medicine and to benefit the American medical profession. The Board of Trustees was of the opinion that the Association should publish more of these special journals if, and when, there was a call for them. Both the American Medical Directory and the Quarterly Cumulative Medical Index showed the effects of the war and had been published at a considerable loss.

Council on Pharmacy and Chemistry.—This report showed that during the past year the Council on Pharmacy and Chemistry had been less active than usual, many of its members being in Government service. However, this Council had been active in war work. Early in the year Colonel Darnell, chief of the purchasing division of the Surgeon-General's Office, asked for the cooperation of the Council in revising the field and post lists of drugs, with a view to their modification. In response to this request the Therapeutic Committee (composed of Dr. R. A. Hatcher of Cornell, Dr. John Howland of Johns Hopkins, Dr. Reid Hunt of Harvard, Dr. Torald Sollmann of Western Reserve, and Professor Puckner) met in Chicago in April, 1918. Dr. W. E. Post of Chicago and Col. Henry I. Raymond, chief surgeon of the Central Department of the Army, also were present—the latter because of his familiarity with the needs of the army under various circumstances. The committee devoted two full days to the work and later presented a formal report, in which specific recommendations, including additions, deletions and modifications, were made. The report of the committee was adopted in practically every detail. This work was far more important than this simple paragraph indicates. Another service which is worthy of specific mention is the cooperation of the Council and the Chemical Laboratory with the Surgeon General's Office in investigating and passing on the many medicinal products offered to the Surgeon General for use in treating the sick soldier both in the hospital and in the field. To one not having personal knowledge of the facts it would seem unbelievable that such a variety of fakes would be offered in earnest to the Government under such conditions. One phase was interesting, and yet pathetic: no matter how fraudulent, how fakish, or how ridiculous the wares might be, their promoters were able to get political influence, even certain Senators and Congressmen, to help them. Automatically, all medicinal preparations offered the Surgeon General were referred to the Council. This Council had been taking up some rather important problems, such as synthetic drugs, nonspecific protein therapy, serums, and vaccines. There had never been a time when there was greater need for scientific research and investigation in the field of therapeutics than the present. Much energy was being expended in this and other countries in the development of industries that heretofore had been monopolized by Germany. This applied especially to the development of the dye industry and its by-products—the source from which had come a few good but many worthless therapeutic agents. We might expect a flood of synthetics equal to, if not greater than, the supply that came from Germany before the war. Unless we were careful there would be a repetition of the past in this regard where the medical men were exploited in trying out new synthetics. A safe guide for physicians who desired to protect themselves and their patients would be the reports of the Council on Pharmacy and Chemistry. One of the publications of the American Chemical Society was urging cooperative research on the part of the society in this development, their object being to encourage chemical industry; but the society could do no better or more patriotic service than to provide means for clinical investigation of any new product offered. Everything was being done to develop these industries, but it would be left to the medical profession to guard against worthless synthetics. This the Council on Pharmacy and Chemistry would do, and do successfully, if supported by the profession.

Propaganda Department.—The war had affected the Propaganda Department. At the same time it gave this department, as the others, an opportunity to cooperate with and be of service to the Government in its work An offer was made to donate a complete set of the publications on the nostrum evil and quackery to the libraries of all camps and cantonments. The offer met with immediate response, and sets of "Nostrums and Quackery," "The Great American Fraud," and the complete set of propaganda pamphlets covering the same subjects were sent to the various camps. In connection with the national problem of combating venereal disease the society had printed for the Army Medical Department 30,000 copies of the "Manual of Treatment of Venereal Diseases." When the Public Health Service took up this work it asked for 70,000 copies of the "Manual." Later orders came from some of the State boards of health. Practically 100,000 copies of the "Manual" had been printed for the Public Health Service and the State boards of health.

Disposition of Lawsuits.—Last year the report of the Board of Trustees presented a statement regarding the disposition of five lawsuits during the year 1917, each claiming damages of $100,000, and in addition the Lydston suit attacking the constitutional rights of the Association to meet and transact business outside the State of Illinois. During 1918 three more suits had been disposed of. The Jenner Medical College *vs.* the Association and the Council on Medical Education, for half a million dollars. This case, which had been pending, was dismissed on March 6. Two cases of E. Wells Kellogg and Edward Patrick Cooke, each for $100,000 for libel, based on an article published in the *Journal*, exposing the Friedmann consumption cure, with which their names were connected, were dismissed in April.

Buildings.—The Association's increased activities were beginning to crowd the haedquarters, especially in the printing department. The board had under consideration the proposition of tearing down the old building and extending the main building to take in this space. If this were done they should have a steel and concrete structure, 100 x 120 feet, six stories and basement. The present valuation of the buildings was $231,463.59. As the War Committee would make a report on the activities of the Association in connection with war that subject would not be touched upon, and likewise a report would be presented on the Investigation and Standardization of Hospitals, but it seemed worth while mentioning that this work had been begun in 1906 and had been developing since that time, and an abundance of accurate data had been collected in regard to the number and character of hospitals, their bed capacity, and the physicians on the attending staffs. The efforts toward standardizing the hospitals, especially those providing internships for medical graduates, was being energetically pressed, and in this movement the abundance of data collected would be of service.

The Treasurer's Report.—The Board of Trustees presented this as an addenda to their report. The auditor's accounts submitted in detail showed that the surplus at the beginning of the year amounted to $423,433.87 and the surplus at the end of the year amounted to $471,-661.50, an increase of $48,227.63. The assets of the Association on December 31, 1918, were estimated at $302,758.84 and reserve fund investment at $208,727.38.

Report of Judicial Council.—Dr. M. L. HARRIS of Chicago presented this report, which first considered an amendment to the constitution introduced last year by Dr. W. T. Wooton of Arkansas and which had been referred to the Judicial Council. These resolutions were as follows:

"*Resolved*, That the President of the American Medical Association, the Chairman of the House of Delegates, with the chairmen of the various sections, be and they are hereby appointed a standing committee to select a Council on Standardizing Surgical Procedures and Medical Practice, the number and personnel to be entirely at the committee's discretion, power being hereby given them to fill vacancies or enlarge said Council as necessity may demand; and further appoint an Advisory Committee to said Council should they desire. Be it further

"*Resolved*, That no action of this Council shall be deemed binding on any physician or surgeon, that no effort shall be made to foster any creed, sect, dogma, or other stigma; the object being strictly to weed out fallacies, gather data, and give the profession an unbiased report as to efficacy of procedures in order that we, the rank and file, may not linger in doubt as to what may be considered judicious, conservative practice."

At its meeting held in Chicago, February 5, the Judicial Council carefully considered these resolutions and recommended that the House of Delegates should not constitute the Council suggested. The Judicial Council was of the opinion that the constitution of the Association should more exactly define "membership" and "Fellowship." In order to bring this subject before the house a proposed revision of the constitution was presented which simplified the wording but made no change in sense.

Age and Disability Insurance.—Acting under its

authority to "investigate general professional conditions and all matters pertaining to the relations of physicians to one another and to the public, and to make such recommendations as the House of Delegates and the constituent associations deemed necessary," the Judicial Council was assembling data relating to age and disability insurance for physicians. The secretary of each of the constituent State associations had been asked what, if anything, was being done by that State association or by its component societies, or any of these, with the object of assisting aged and physically incapacitated physicians. Replies had been received from the secretaries of thirty-one of the constituent associations. Many of these responses indicated an interest in the general question, that was in the development of a plan for providing financial assistance for needy aged or physically incapacitated physicians or dependents of physicians. However, with only a few exceptions, no organized, sustained activities having this purpose in view were being conducted by the organization. The Judicial Council had been informed that actuarial statistics bore out the following statement, namely: That on the average of 100 individuals entering on a business career at the age of 25, when these have reached the age of 65 years, five of the 100 would be in comfortable circumstances, financially; six would be self-supporting; fifty-three would be receiving financial assistance of some form; the balance would be dead. It should be recognized that these figures were not limited to professional men, but included those from all walks of life. Nevertheless in the opinion of the Council, they warranted a further investigation and study of the advisability of undertaking some organized effort for the relief of members of the medical profession who were in financial distress because of age or other physical disability.

Report of Council on Health and Public Instruction.—Dr. Victor C. Vaughan of Ann Arbor, Mich., submitted this report, which stated that the break in the work of the Council for nearly two years, owing to diminished appropriations on account of war conditions, the absence of the Secretary and of most of the members of the Council in active service and the almost complete diversion of public interest to war topics, offered a favorable opportunity not only for summarizing and estimating the activities of the Council during the nine years of its existence, but also for the formulation of plans for the future.

He then reviewed briefly the work of the Council since its organization in St. Louis in 1910. In 1914 the Council had directed three general lines of action. These were:

(1) A thorough investigation of present public health conditions in the United States with the view to securing more accurate information on all phases of the public health problem than is now available.

(2) Education of the public by every possible means in order that the people may understand the enormous advances in scientific medical knowledge during the last generation and the possibilities of utilizing such knowledge in the prevention of disease, the reduction of the death rate and the prolongation of human life.

(3) The crystallizing of such educated sentiment in necessary public health laws which will render possible the conservation of human life commensurate with our advancing knowledge and will render such laws effective through the only force available in this country, namely, educated and enlightened public opinion. Under the first head, namely, the investigation of the present public health situation, need for additional knowledge was subdivided into four classes, namely, (*a*) public health activities of the federal government; (*b*) state public health activities; (*c*) municipal health organization; (*d*) voluntary public health organization. It became necessary therefore in planning for the reconstruction of the activities of the Council to reconsider the plans previously proposed and endorsed by the House of Delegates and to discuss them in the light of actual accomplishment. Regarding the general plan of public education carried on for a number of years through press bulletins, the speakers' bureau, public meetings, distribution of pamphlets, leaflets, etc.,—these methods, while largely new at the time they were inaugurated, had been taken up by other organizations. It had been the policy of the Council not to undertake work that was being done by other organizations nor to attempt to compete with other organizations carrying on public health work, the desire of the Council being to inaugurate work that could not well be undertaken by other bodies and to coordinate existing organizations by drawing them together for a common purpose rather than to create or perpetuate any rivalry between existing organizations. It seemed evident that the propaganda period in public health work was past. Many of our national health organizations, either special or general, as well as many of our state boards of health were now sending out press bulletins and much suitable health material was now being supplied to newspapers. It was, therefore, doubtful whether anything would be gained by the reestablishment of the Press Bureau. In fact, it seemed highly probable that the continuation of this work could be safely left to special organizations. The same thing was true regarding the Speakers' Bureau. A large number of organizations, either local, state or national, had followed the lead of the American Medical Association in this particular in the last five years. It was especially doubtful whether with the limited resources of the Council it would be advisable to attempt the financing of speakers' expenses. As frequent requests for accredited speakers on public health topics continue to come to the Association headquarters, however, it would be advisable to prepare and maintain a list of representative physicians, members of the Association and recognized authorities on some phase of public health work who were willing to give public addresses on various occasions. The increasing number of organizations interested in public health work accentuated the fact brought out by Professor George E. Vincent of the Rockefeller Institute in his address before the American Public Health Association in December, 1918, that one of the most important needs in the public health field to-day was that of increased knowledge of public health conditions. Our knowledge even on fundamental health questions was fragmentary and in many cases based on insufficient foundation. Public health leaders were coming to recognize that improved conditions in the public health field could not be brought about wholly by legislative enactment, and that health conditions could be controlled and improved through public sentiment rather than through restrictive legislation. Especially was it of the utmost importance that the American Medical Association, as the recognized official body of the American medical profession, should have clearly defined objects and purposes, and should know definitely and accurately just what it was trying to accomplish and along what lines its energies were to be exerted. Of the four general subdivisions found in the program as outlined in 1914, none of them had as yet been carefully and exhaustively studied. The subject of voluntary public health organizations was practically in the same condition as five years ago in spite of constant effort to secure better coordination and cooperation. The American Public Health Association had recently taken up the question and had organized a Council composed of a representative number of the fifty-seven different national public health organizations in existence with a view to securing some kind of harmony and cooperation in this field. The creation of unnecessary organizations could not well go much further. The probable outcome would be the absorption of a large number of organizations by some single comprehensive body in the next few years. Whether this would come about by the occupation of the field by the American National Red Cross following its reorganization after the war or by the organization of some new general public health organization along popular lines remained to be seen. It was extremely doubtful whether the Council or the American Medical Association could at present do very much to clarify this situation. It was also doubtful whether the purely educational activities of the Council could at present be enlarged to any extent with any degree of success. There remained, therefore, one field in which the Council and the Association were preeminently fitted to exert themselves, namely, the increase of knowledge regarding organized public health activities. In its report for 1914, the Council said, regarding the need of a careful study of the public health work of the federal government with a view to determining exactly what the federal government was doing and could do for public health: "The need for

such an investigation hardly needed more than to be stated. The American Medical Association stood unreservedly pledged to the securing at the earliest possible moment of an adequate national health organization. This country would never have a federal department of public health such as has been advocated rather vaguely for fifty years past and such as was now being strongly advocated in England, Canada, Australia and other nations until the public health functions and powers of the federal government under the constitution have been definitely determined. Two questions must be answered: First, what could the federal government do for public health; and, second, what was the federal government now doing for public health. These questions were not at present being considered by any other organization, yet their solution was fundamental to the development of public health in this country. They were problems to which the American Medical Association could fittingly and properly direct its attention. Having secured some authoritative information on these two questions, they would then be able to put the influence of the American Medical Association behind an intelligent movement for a national health organization. Regarding the second field for investigation, that of state health activities, the report of the Council in 1914 said, "There is to-day in every state in the Union some form of public health organization. Owing to our form of government, each of these organizations is working independently. As the reports of the various state boards are not made on a uniform basis, a comparison of their various activities and a tabulation of the results secured by their efforts are difficult. It is, therefore, practically impossible to-day to summarize the public health work which is being done by the different state boards of health, to compare one with another or to establish any standards by which their relative merits may be determined. The first necessity for such a comparative study is clearly a collection of authoritative official data on the subject." The report published by Dr. Chapin two years later was the only effort that had been made to obtain a comprehensive view of this field. The large number of requests that had been received for the limited edition of this report showed the value of such a study. In the third field of health activity, namely, municipal health organization, a still greater need for careful study existed. While there were only forty-eight states, each differing as to size, population, physical characteristics, material resources, industrial conditions and public health needs, there are 325 cities of over 25,000 with all possible varieties of health organization. Yet there was no basis of comparison by which it could be determined what form of health organization is best adapted for a city of 25,000, 50,000 or 100,000; how the health organization and the administration in one city compares with another; what the legitimate expense of proper health administration in a city of a certain size should be; what the functions properly undertaken by a city health department should be or how these should be related to a state health organization; or whether or not the people of any city were receiving an adequate return for the amount of money paid out for health purposes. For the city that desired to improve its health organization or to establish one *de novo*, there was no information as to what kind of health organization such a city should have; what should be its personnel or equipment; how much money should be appropriated; or what duties or activities should be imposed on it. An effort had been made by the American Public Health Association in the last few years to discuss this question and to formulate some general principles. No comprehensive study of the question, however, had as yet been made. The plans of the Council provided for a comparative study of the health organization and activities of our various cities in the hope of being able to establish standards for such work for groups of cities of different sizes, to compare the public health work done in our leading cities and by such standardization and comparison to stimulate and encourage better health organization in our American municipalities. Another task taken up by the Council was a study of the legal relations and responsibilities of physicians and the legal aspects of public health. This field, for obvious reasons, had never been carefully studied either by physicians or lawyers. It offered no prospect of financial reward to lawyers and it was only of interest to physicians so far as their personal interests were involved in some specific case.

After commenting on the unjust increase of taxation on the physician under the Harrison law, the Council recommended that the House of Delegates record its emphatic disapproval of this unjustifiable attempt to exploit physicians and that it demand the reduction of the registration fee for physicians to a nominal amount.

Vital Statistics Legislation.—Probably the most successful, in fact the only successful, effort that the American Medical Association had made in late years to influence legislation was now happily nearing completion. It seemed evident that the passage of a model standard law on this subject by each state was absolutely fundamental to public health progress. Accordingly this matter was taken up by the Committee on Medical Legislation, one of the forerunners of the present Council. The newly adopted Pennsylvania law which had been very carefully drafted was taken as a model. A joint committee was organized through cooperation with the American Public Health Association and a model bill was drafted, this being one of the few subjects on which it was possible to draft a standard bill suitable for adoption by every State. Year by year one State after another had fallen into line until at present there were only five States possessing unsatisfactory laws, and only two in which no legislation existed.

Social Insurance.—The introduction during two sessions of the Michigan legislature of bills providing for health insurance and the appointment of commissions to study this subject in a number of States, notably California, Illinois, New Jersey, New York, Ohio, Pennsylvania and Wisconsin, and the introduction of a bill in the New York legislature, all combined to make this question one of the vital issues now before the medical profession. No State had as yet adopted social insurance. In New York the bill endorsed by Governor Smith passed the senate but failed to pass the house. In California, the bill recommended by the State commission was on referendum defeated by a large popular vote. In Wisconsin, the commission reported against the proposition. In Ohio, the commission was in favor of limited social insurance. In Pennsylvania and Illinois, the commission recommended a continuation of its activities and further study of the question. The growing interest shown in this subject during the last two years, however, made it all the more important that careful attention should be given to it by physicians, both as individuals and as a profession. The attitude of the majority of physicians up to date had been one of unqualified and often unreasonig opposition, without any effort to study the question or to consider the arguments put forward in favor of the proposed plan. Unreasoning opposition or sweeping and often erroneous general arguments against the measure would not prevent its adoption nor would it enhance the influence of physicians. It was of the utmost importance to the medical profession at present that we give this question the most careful, painstaking, patient and disinterested study, that we qualify ourselves as authorities instead of allowing this function to be exercised by the active proponents of social insurance. To this end it was particularly necessary that we study this question dispassionataely and critically, discriminating between fundamental principles and nonessential details. There was in this country a certain amount of illness among those whose gross annual incomes were below an amount that would permit them to bear the expense of such disabling and incapacitating illness without being seriously and perhaps permanently handicapped or crippled thereby. Such crippling and disabling illness being conceded, if the individual was not able to carry it alone, then the burden must be lightened in some way. This could be done by increasing the income of the individual, and thus elevating his economic status to a point where he could carry his own burden; by reducing the amount of sickess through the enlarging and improving of State public health activities; or by distributing the cost of existing disabling illness among the three parties at present responsible, namely, the Individual,

the industry, and the State, so as to relieve the individual of from 60 to 80 per cent. of his burden. A fourth possible procedure was simply to leave matters alone as they were. The first of these proposed plans might be called the economic remedy, the second, the state public health remedy; the third was social insurance, and the fourth was no remedy at all. In this discussion many questions arose which could not be answered with our present knowledge. What was the average amount of illness incurred by the average wage earner in the course of the year? How much of a burden was this to him and his family? What was the average amount which the individual lost each year through illness? How much of this loss was due to preventable disease which could be eliminated by increased State health activities and by the better organization of health agencies? What was the minimum annual income that would enable the individual to carry successfully the burden of his own disability? How many American families had an income below this minimum? If the first remedy proposed, that of increasing the annual income to a point where each individual could carry his own burdens, seemed best, how was this desired object to be accomplished? If the second remedy was adopted, namely, increase of governmental health activities to a point where preventable disease was reduced to a minimum, how large a burden of nonpreventable disease would remain? Would not the increase of governmental health activities to such a point produce just as marked and radical a change in the medical profession as the proposed health insurance? What effect would the plan proposed have on the work and income of physicians? Without providing for the unemployed and the indigent, who would still, as in England, have to be cared for under poor laws and charity organizations, would not the increased professional income from case of the insured, whom the doctor today takes care of for little or nothing, increase the average professional income, provided the compensation for professional services could be properly determined? Would not this increase amount to more than the loss due to lowered rates? If the proposed social insurance could be shown to be necessary and to be the best solution of the problem involved, could the medical profession as a class successfully oppose it simply on the ground that it might interfere with or disturb our professional income and livelihood? These were a few of the questions which must be answered satisfactorily in the discussion of this problem. They could be answered only by physicians who had made an effort to acquire some knowledge of the subject and to discuss it impartially rather than from the standpoint of their own prejudices. It was, therefore, of the utmost importance that physicians both as individuals and organizations abandon the attitude of unreasoning opposition which had characterized many of our professional discussions on this question and make an honest effort to study the problems involved and to arrive at conclusions which could be justified. For these reasons, the report of the Subcommittee on Social Insurance was this year of the greatest importance and value and was commended to your special attention. By the end of another year the question might and probably would be a vital issue in a number of States. It was highly important that we improve the interval by learning as much on this question as possible.

Report of Subcommittees of the Council on Health and Public Instruction—Committee on Women's and Children's Welfare.—Miss LENNA L. MEANNES submitted this report which stated that through the past year the committee had found its chief activity in cooperating with the state chairman of the General Federation of Women's Clubs and with the work of the Children's Bureau in the Children Year program. Late in the year a questionnaire had been sent to the state chairmen of public health committees asking certain questions with reference to the work of Children's Year program, certain question with reference to birth registration, and questions concerning social education. It was too early to give the *results* of this questionnaire. In connection with the Children's Year program they had strongly urged the establishment of permanent child welfare stations as the most effective plan to follow the measuring and weighing tests. In some states the child welfare officers of the Council of Defense were being made into permanent child welfare committees. It was the intention to issue a form letter to all states urging the formation of these committees, hoping that this would lead to securing child hygiene departments in state boards of health.

Report of Council on Medical Education.—Dr. JOHN A. DODSON of Chicago submitted this report, which gave a concise résumé of the work done during the fifteen years it had been in existence, along the lines of collecting information, annual conferences, the raising of educational standards, and the raising of the requirements of preliminary education. An outline was then given of the Council's work in the war. The facts to be emphasized were briefly as follows:

Of the 20,678 students who graduated during the last six years, 15,025, or 72.6 per cent., were admitted under the higher entrance requirements, received their training in and graduated from the Class A medical schools, in which the great improvements in recent years had been most pronounced. It was the graduates of these recent years who in the largest proportions entered the Government medical services. As a result, the American soldiers and sailors were attended by a larger proportion of medical officers who had had a modern medical training than they would have obtained had it not been for the Council's campaign for an improved medical education. At the headquarters of the American Medical Association, in the Council's files, the Students' Register and the Biographical Index, there was information regarding medical students and graduates which was not available elsewhere. This information was placed at the service of the surgeon-general, and as a part of the routine in the commissioning of medical officers, lists of applicants were sent to the Association for verification of their graduation and license. In 1917, through the possession of the Students' Register, unanswerable arguments were advanced favoring the exemption of medical students from the draft and as a result the Medical Enlisted Reserve Corps was established.

Graduate Medical Instruction.—The world war had emphasized the great need of better facilities for graduate medical instruction in the United States. Such facilities were in great demand by medical officers as they were being released from active duty since that presented an excellent opportunity for them to take up certain courses of graduate study before returning to active practice. Improved facilities for graduate work were also important to meet the demands of our neighbors in the Spanish countries of Central and South America. The development of graduate work was an important subject to consider in connection with the efforts to standardize hospitals.

After speaking of the various medical cults and emphasizing the point that the chief objection to them was the lack of education of their devotees, the report stated that the work of the Council in connection with low-grade medical colleges, drugless cult institutions and diploma mills had called attention to the lack of adequate safeguards over the chartering of educational institutions in the various States. In all but a few States any group of individuals for a small fee could secure a charter to open an educational institution and to grant all the degrees in the category, no questions being asked in regard to ability, financially or educationally, to furnish the education usually required for such degrees. Attention to the need of such safeguards was called by the secretary in his report to the Council in 1916. Reprints of this report were sent to the educational authorities in each State, and a growing interest is being manifested toward the securing of laws needed to establish such safeguards.

Hospital Standardization.—This part of the report reviewed the work done in hospital standardization during previous years and then told of the third survey made during the past year. In October, 1918, there were in the United States 6,468 hospitals having ten or more beds, or a total capacity of 758,442 beds. The distribution of these by States was shown in Table 1. Of these hospitals 4,927 had from 10 to 100 beds; 817 had from 100 to 200; 447 had from 200 to 500, and 277 had over 500 beds. Blanks inquiring data in regard to

interns sent to all hospitals brought the information that 5,342, or 82.6 per cent., did not use interns, and only 1,126, or 17.4 per cent., were using or desired to have them. These 1,126 hospitals, however, included the larger institutions, and had 35.6 per cent. of the total bed capacity. There were 274 more hospitals desiring interns than were listed in 1913, and 439 more than were listed in 1916. These had a total number of 270,401 beds (including eighty-four hospitals for the insane, with 97,421 beds). At the rate of thirty beds per intern for the general hospitals and a total of 174 interns in the State hospitals, places are provided for 5,940 interns or resident physicians, as compared with 3,566 in 1913 and 4,057 in 1916. This showed the remarkable increase in the appreciation of and demand for interns; it showed also the utter impossibility of graduating a sufficient number of medical students to meet the demand, even if we should multiply by four the number of physicians now graduating annually from our medical schools; it showed the necessity of employing house physicians, or of providing special assistants, who would do much of the work heretofore devolving on the intern. The report also presented a tentative schedule of essentials for the satisfactory training of interns. This insisted upon the necessity of an organized staff of physicians of unquestionable integrity, both professionally and morally, who should be proficient in the special fields in which they worked in the hospital. They should give personal attention to the patients under their charge. They should assume an obligation to direct and supervise the training of the interns admitted to the staff. There should be clinical and pathological conferences and hospital medical societies at which staff members and internes should be encouraged to present cases which had been worked up from the clinical point of view and on which they had read up the available literature. Definite equipment for hospitals had been decided upon and included a fully equipped pathological and clinical laboratories, a roentgen-ray department in charge of an expert, roentgenologist and a working medical library containing a fair supply of standard text and reference books, the better medical journals, and suitable charts and models. Stress was laid on the need for complete histories and records, carefully kept and in charge of a trained historian. The work outlined for the intern included clinical laboratory work, roentgen-ray work, anesthetics, dietetics, maternity, necropsies, and a constantly increasing responsibility, under careful supervision, in the diagnosis, daily observation, care and treatment of the patients under his service. The intern should obtain a practical experience in the applying of surgical dressings in connection with the care and treatment of patients. As he progressed in his surgical intern service he should be authorized under careful supervision to perform not only minor surgical operations, but also some of the more common major operations. In major operations, the attending surgeon should stand by, or assist the intern. Experience in connection with accident service was likewise highly desirable. The intern service should extend through at least twelve months, and might to great advantage be continued through eighteen months or two years. Reports from the eighty-five medical colleges which conducted classes during the session of 1918-1919 showed that the total enrolment of medical students was approximately 12,090, or 1,540 less than for the session of 1917-1918. The reduction was mainly in the freshman classes, of which the total enrolment was approximately 2,810 for the present session, as compared with 4,283 for the previous session. This unusual decrease was due clearly to the volunteering or drafting of premedical students for military service during 1917-1918. With the beginning of another session following the return of soldiers and sailors to civilian life, the enrolments of students in our medical colleges would return to their prewar proportions. The unusual demand for medical officers naturally created a temporary scarcity of physicians for hospitals and civilian needs, but this was to be expected, and was merely a parallel to the scarcity of experts in other lines of human activities—a scarcity which would undoubtedly disappear following the return of medical officers to a civilian status. The world war had called attention to special needs in every line of human endeavor. No previous war had so involved the entire world or so hazarded the very existence of practically every civilized government. In no previous war was such extensive use made of those who had reached the highest attainments of human skill and ingenuity. The urgency and extent of this demand naturally drew attention to the scarcity of those who were qualified to render service along highly technical or specialized lines. So in medicine there was an unprecedented demand for physicians of exceptional qualifications and skill in the various specialties, such as pathologists, bacteriologists, psychiatrists, brain surgeons, oculists, etc. Here, likewise, the urgency of the demand had forcibly revealed the fact that the supply of physicians having such skill is comparatively limited. This revelation, however, was not a criticism of medical education of the past, but laid emphasis on the possibilities and aims of medical education in the future. The war had rendered a great service in revealing the possibilities and benefits that will result from higher attainments in medicine. This showed the necessity of continuing the campaign for improvements not only in udergraduate but also in graduate medical education. If the highest attainments were of such vital importance in great national crises, how much greater would be the service to the public whether there be peace or war. The supply of physicians in this country was still greater in proportion to the population than that of any other civilized country. According to the sixth edition of the American Medical Directory, completed in 1918, the United States had 147,812 physicians. The total population of the United States, as given in an estimate of the Census Bureau in 1918, was 105,253,300—which was one physician for every 712 people. Various reports regarding the proportion of physicians to population in the countries of Europe just prior to the war show that in those countries the proportion ranged from one to 1,500 to one to 2,500. This country, therefore, still had twice as many physicians to population as the most favored country of Europe. One of the great benefits of the world war was that attention had been called to the great importance of a better training of physicians, particularly along the line of the narrowed specialties. A tremendous interest in postgraduate medical education had developed not only in the United States, but also in European and other countries. In all our larger cities there was an abundance of clinical teaching material which would be most useful for graduate medical instruction, but which was widely scattered and not readily accessible to the student. It must first be catalogued and administered by a single organization so that information regarding the work could be obtained by the students by applying at a single place rather than at several widely scattered places. A report had just been received indicating that in New York City a movement was on foot to pool all of the hospital facilities for the development of a great scheme for postgradute medical education, and doubtless similar movements will soon be evident in other large cities. The closer friendship and harmony between the United States and the sister republics of Central and South America—another result of the war—would be further extended if through the development of postgraduate medical education students from South American countries would be induced to and could readily obtain instruction in such subjects as they might desire. In this connection, the exchange of professors between this and European countries and the proposed exchange of clinical clerks and clinical assistants were steps in the right direction. The arrangement should be extended also to the countries of Central and South America. In outlining its plans for the coming year, the report stated that it was the intention of the Council to continue the work it had been doing and to make a reinspection of medical colleges and an insnection of all hospitals undertaking to train internes. This could be done in connection with the inspection of medical schools, and would in no way conflict with the inspection of hospitals in general being made by the American College of Surgeons and other agencies. A continued study of postgraduate medical education in the United States and publicity regarding the needs of further development along that line were included in the plans of the coming year. Continued efforts would be made to safeguard each State over the chartering of educational institutions.

Report of Council on Scientific Assembly.—Dr. E. S. Judd of Rochester, Minn., submitted this report, which outlined the new plan by which at this annual session the sections were divided into groups, the one group to meet in the morning hours and the other group in the afternoon hours. Rules in regard to the presentation of papers and the reading and discussion were formulated. The number of papers on the program of any one section was limited to twenty-five. In compliance with the request of the Section on Genito-Urinary Diseases, the Council recommended that the name of this Section be changed to the Section on Urology.

Report of War Committee of the American Medical Association.—Dr. Hubert Work of Pueblo, Col., submitted this report, which showed that, according to the records of the Association, the applications for commissions in the Medical Corps of the Army were: June, 2,416; July, 2,841; August, 3,814; September, 4,171; October, 3,113, and during November, the month of the Armistice, 632 total, 16,987 commissions from June 1, 1918, to the cessation of hostilities. The American Medical Association had been the center of information concerning medical military matters for physicians. Replies to individual inquiries had involved the activities of several of the departments at the Association headquarters, and letters to individual physicians during the period of hostilities frequently numbered over 100 each week. In addition, since last June, more than 5,000 pamphlets covering information pertaining to entrance into the Medical Corps were distributed in response to individual requests. The expense involved, including printing, postage and other items, has been borne by the Association. The American Medical Association supplied State and county organizations with detailed information concerning the physicians in their own communities who were available for civil and industrial practice, and had cooperated with these branch organizations in enlisting the services of additional physicians where the needs of a locality could not be met by physicians still remaining in civilian practice in these communities. The Committee congratulated the Association, through the House of Delegates, on the nationwide service which the Association had renederd, especially in that its organization was made available for assembling and proving medical data to the executive heads of several Federal departments which required the cooperation and assistance of the medical profession both in caring for the force under arms and in the execution of the Selective Service regulations. The work of the Association along these lines had received the recognition of the Provost Marshal General to the Secretary of War, the Surgeon-Generals of the Army, of the Navy, and of the Public Health Service.

Report of Subcommittee on Social Insurance.—Dr. Alexander Lambert of New York submitted this supplementary report in which he stated that during the years 1915, 1916, and 1917 the committee had inquired extensively into the question of whether there was a sickness problem, what it was, and how it was to be met. The findings were that 2.6 of the population were seriously sick all the time; 1.5 were more or less disabled, that was simply below par, and that among the 38,000,000 employees in the United States there was an average of nine days' illness per man per year. A study of the sick benefit funds revealed the fact that the cases with less than twenty-six weeks' duration of illness in a year represented 90 per cent. of the illness, and the cases that were ill more than 26 weeks in a year represented 10 per cent., and these cases of serious illness bore most of the economic loss. In figures about $500,000,000 a year would represent the loss in wages by the wage earners from sickness. The amount of sickness in a family was found to be inversely as the wages of the family, that was, the poorer the family the higher the sickness rate; also the sickness rate was higher in proportion as the number in the family increased. The sickness rate was 38 per cent. higher among the poor than among the more comfortable classes; naturally the infant mortality rate was higher among these poorer families. In well-to-do families the infant mortality rate averages 41 per thousand births, while among the poorer it averaged 225 per thousand births. It was found that on an average among the poorer families 16 per cent. of the income was spent on medical care, and the kind of care they received was proportionately less efficient, and in a great many cases the patients received no medical care at all. The dispensary statistics showed that 75 per cent. of sick patients had had no previous medical care at all. Only 25 per cent of pregnant women received anything like adequate antenatal care. In Philadelphia, 60 per cent. of the sick poor had only home care and patent medicines were found to be used by from 25 to 50 per cent. of these persons. In about 35 per cent. of the cases the wage earner had sickness insurance amounting to 10 or 15 per cent. of his wages; some carried a voluntary insurance, but the larger proportion had no insurance against sickness. The question was raised, "How should this burden be distributed so that it should relieve those who were unable to bear it?" The medical profession could not go on giving medical service as it had formerly done for medicine had grown so much in all directions that the medical man could not furnish the medical care that he formerly could supply. Large industrial employers had come to realize that sickness was a serious expense and they made the effort to restore the trained worker to his post as soon as possible. The question before them was "Does the remedy lie with sickness insurance?" The whole situation had become economically top-heavy. Both labor and industry realized the necessity for change and therefore it was obviously the duty of the medical profession to meet labor and industry half way. General insurance schemes in Germany and England had not been found to work well. They were designed to lift the strain from the poor, but they had degraded the medical profession to the level of lodge practice. The German insurance scheme was sprung on a medical profession comatose with indifference and it took twenty years in Germany to place it on a better footing. In England the plan of a pro rata per patient per year payment was only extended lodge payment practice which always produced evil results. There was no excuse for the medical profession in America to copy the mistakes made in Germany and England. No detailed plan was presented at this meeting. The solution must be found through the organized aid of the medical profession with the help of the State and county medical societies. The men must wake up to their responsibilities and learn all that was possible on this subject in order to obtain their own protection and that of the public. The medical profession should decide whether better protection against sickness should be obtained through the increase of State health department control, or whether it should be done as in England through a pro rata per man per year fund.

These reports were referred to their appropriate reference committees.

Second Day—Tuesday, June 10.

Dr. Hubert Work of Pueblo, Col., in the Chair.

Reports of Reference Committees.—The Reference Committee on Sections and Section Work, which had under consideration the report of the Council on Scientific Assembly, approved of the plan of dividing the section work into two groups and recommended to the House of Delegates that the plan be continued at the meeting of the Association next year. There were two reasons why this plan seemed advisable. In the first place it provided more time for some form of recreation and for the men to get together in social ways, and in the second place it gave an opportunity for the general practitioner and for men interested in somewhat similar lines of work to get together. For example, it gave an opportunity for the men interested in general medicine to meet with the men interested in diseases of children or other subjects allied to general medicine. The only disadvantage that the plan possessed was that it limited the number of papers that could be presented. In looking over the program it would be seen that an unusually large number of the older men were reading papers, men who read papers year after year, and the question suggested itself whether or not the House of Delegates should take some action to the end that more papers might be presented by the younger men in the profes-

sion. The function of the Association was educational and the younger men should be encouraged to present contributions. While the committee had taken no action on this matter, it might be a wise step if the House of Delegates could regulate the section work in such a way that perhaps a man could not read a paper more than once in two or three years, after he had been in practice for a certain number of years. The recommendation for limiting the number of papers to twenty-five had been referred to the Committee on By-Laws for action. This report was adopted by the House with the recommendation contained therein.

Reference Committee on Medical Education.—This committee stated that it had carefully considered the report of the Council on Medical Education and was greatly impressed by the progress that had been made. The chief factors in the report were the surveys that had been made and the publicity given to the results of these surveys. The committee recommended that the Council should instruct State boards to use this information and that it be used by student bodies. Attention was directed to the table that had been presented showing that the public was not being properly protected against low-grade doctors and which made it evident that there was still much that was not ideal in medical education and licensure at the present time. It was the opinion of the committee that many more hospitals might become teaching institutions. This report was adopted as a whole.

Reference Committee on Legislation and Political Action.—This committee recommended that the report on social insurance be adopted *in toto* and that the committee be thanked for the immense amount of work it had done. This report was adopted. The committee recommended the adoption of the motion that a special narcotic drug committee be appointed to work in conjunction with the Council on Health and Public Instruction. This committee was to meet in conference with the Internal Revenue Officer and representatives of the wholesale and retail dealers in narcotic drugs. This recommendation was adopted.

Report of Committee on Amendments to Constitution and By-Laws.—The committee stated that the Judicial Council had presented changes in the constitution and by-laws which affected almost every section. Ordinarily these amendments must lie over until another year, but they had been referred to the committee in order to get special opinions in reference to these proposed changes. The committee recommended that they lie over until another year that in the meantime a study be made of the changes proposed, and that suggestions be submitted during the year so that at the next meeting they would be prepared for comprehensive action. The committee invited information and suggestions on these proposed changes. This report was adopted.

New Business.—Under this heading a number of resolutions were introduced among which were the following:

A resolution to the effect that the Council on Health and Public Instruction should cooperate with the Council on Medical Education in developing a program of physical education for the children of the nation. It was stated that the National Educational Association had formulated a plan for physical education through the cooperation of the Federal and State governments. Under this plan the Federal Government was to supply the funds and the States the equipment.

Resolutions providing that a report on the status of post-graduate medical education should be presented at the next annual meeting of the Association, showing the results of the investigation that was being undertaken.

Resolutions instructing the Council on Pharmacy and Chemistry to confer with reliable drug and pharmaceutical interests of the country with the idea of getting their cooperation.

A motion providing that the publication of a *Journal of Surgery* be considered and also the publication of a *Journal of Medicine* for lay readers, if the House found such a procedure advisable.

Resolutions commending that part of the report dealing with insurance for physicians in their old age. The Council was to continue its investigations on this subject and to present a plan when it had found a suitable one.

Resolutions from the delegates from New York State opposing compulsory health insurance, in accordance with instructions from the Medical Society of the State of New York.

Resolutions putting the medical profession of the country on record as opposed to the bill at Washington to forbid the use of dogs for experimental purposes by surgeons, inasmuch as such a law would seriously interfere with scientific research.

Resolutions recommending midwinter conferences between secretaries of the State medical societies and officers of the national body for the dissemination of the latest approved practices in medicine.

The above resolutions and motions were carried.

The House of Delegates, by a rising vote, adopted a resolution in memory of the members of the profession who made the supreme sacrifice for civilization's sake.

Resolutions opposing the repeal of the daylight saving law were referred to a committee for consideration.

A motion providing for an open forum at each year's meeting of the American Medical Association for the free and frank discussion of noncensored topics met with summary defeat. Resolutions were passed, however, whereby the House of Delegates was privileged at option to go into the committee of the whole to discuss any subject delegates might care to present.

A motion was carried to the effect that there should be a saving for the use of army and navy surgeons of the valuable works on medicine and surgery from the Surgeon General's office, which under existing conditions were likely to be destroyed. Recommendations were made instructing the Board of Trustees to take steps to accomplish this purpose.

OPENING MEETING.

Tuesday, June 19, 1919.

THE PRESIDENT, DR. ARTHUR DEAN BEVAN, OF CHICAGO, IN THE CHAIR.

THE meeting was called to order by the President.

Invocation.—The Rev. Dr. ABNER H. LUCAS of Atlantic City made this invocation.

Address of Welcome from Atlantic City.—HON. HARRY BACHARACH, Mayor of Atlantic City, made this address in which he said, in part, that his being here to address the American Medical Association on behalf of the great Convention City was a mere matter of form, for, as everyone knew, the American Medical Association was welcome not only in Atlantic City, but in every city in this great country of ours. Men and women who had so loyally performed the work of their profession, not only in this country, but who had been willing to make the sacrifices and risks of service in other lands in order that human life might be saved, need not be told that they were welcome. So as he had said it was a mere matter of form to welcome them, but it was more than that, it was a privilege, a pleasure, and an honor to welcome those who represented so much in American history. They appreciated the honor of having this Association in their great city, where they had no munition factories or great industries and where their chief business was to offer the opportunities for recreation. He was not only proud of the city for the advantages it offered because of its safety, cleanliness, and hospitality, but because in all the drives for loans of a patriotic nature Atlantic City had gone over the top. They had had 3,500 boys in the country's service. When the war broke out they had organized a Liberty Club to take care of the families of the boys who had answered the call of our country, and not only to take care of them, but to take care of them in such a manner as the families of the soldiers and sailors of this country should be cared for. In Atlantic City they wanted nothing but 100 per cent. Americans. The Bolsheviki and those of that type who were not willing to fight for Old Glory should go back to the countries from whence they came. This war had served to impress upon each one of us one thing, that there was no North, no South, no East, and no West. In closing he said he hoped the stay of the members of the American Medical Association in Atlantic City would be pleasant as well as profitable and that it would prove favorable not only in a professional way to this country, but to the world at large. He

presented the Association, he said, not only with the key to Atlantic City, but with the key to the hearts of Atlantic City. He then presented the president of the Association with a large silver key.

Address of Welcome from the Medical Society of New Jersey.—Dr. THOMAS HARVEY of Orange, N. J., president of the Medical Society of the State of New Jersey, made this address of welcome in behalf of the medical profession of the State. He said, in part, that it was his duty to extend a welcome to the members of the American Medical Association on behalf of the profession of this very compact little State from the dells of Sussex to the shining sands of Cape May. It was fitting that their society should join in this welcome. Their society being 100 years old had at least a grandmother's interest in the youthful association which had just reached its seventieth birthday. This was the time of all that we should meet here, now that we had reached the piping times of peace and were again free from the horrors of war that had hung over us for the past two years. It was fitting to recall that there were men among our number who had laid their all on the altar of their country and it was also fitting to remember that other army at home that had spent so much time and labor in selecting the men suitable for the service. It was also fitting that we should remember and welcome the medical men of the allies who had borne the heat of the day so far as the war was concerned and who had met the problems of war with such wonderful skill that when we finally came into the war we found the problems of war surgery so worked out that we had only to apply the details. They welcomed those who had gone into the trenches and offered up the supreme sacrifice and whose spirits were here at this victory meeting watching to see if we were faithful to our trust in carrying succor to those afflicted with disease. We should take great pride in the work of the doctors in the war. They had greatly reduced the number of permanent casualties. In this work the medical profession of New Jersey had done its part, about one-third of them going into the service. If doctors were to keep medicine as one of the liberal professions they must antagonize all efforts to reduce the medical profession to the level of a trade; but if the practice of medicine was to be a trade the medical men must organize and employ union methods for their protection. In closing Dr. Harvey said that if after having devoted themselves to enlarging their views on medical subjects in Atlantic City for a week, they wished to drink deeper of the fountain of Æsculapius he hoped they would come to the meeting of the Medical Society of the State of New Jersey at Spring Lake a little later.

Address of the President-Elect.—Dr. ALEXANDER LAMBERT of New York delivered this address. (See page 983.

Introduction of Foreign Guests.—Among these were: Dr. Ernest W. Hey Grove, England; Sir St. Clair Thomson, England; Major General Sir Bertrand Dawson, England; Lt.-Col. Shirley Murphy, England; Sir William Arbuthnot Lane, England; Sir Arthur Newsholme, England; Mrs. Eleanor Barton, England; Col. W. T. Lister, England; General Melis, Belgium; Col. A. Depage, Belgium; Dr. P. Nolf, Belgium; Prof. J. Duesberg, Belgium; Capt. Van Der Velde, Belgium; Capt. René Sand, Belgium; Dr. Maurice Heitz-Boyer, France; Dr. C. Mullon, France; Dr. Pedro Chutro, Buenos Aires; Dr. Juan Guiteras, Cuba; Dr. Emilio Martinez, Cuba; Dr. Francisco M. Fernandez, Cuba; Dr. Israel Holmgren, Sweden; Dr. Sven Ingvar, Sweden; Dr. Peter F. Holst, Norway; Dr. John Constas, Greece; Dr. Caroussos, Greece; Dr. Asajiro Kamimura, Japan; Dr. Ryuzo Kodama, Japan.

Wednesday Evening, June 11, 1919.

THE PRESIDENT, DR. ALEXANDER LAMBERT OF NEW YORK, IN THE CHAIR.

AT this meeting national organizations, the activities of each of which have a definite medical interest, were represented by speakers of their choice. Each speaker gave a ten-minute address on the general subject of American medicine and surgery as it responded in service under war conditions.

ASSISTANT SURGEON GENERAL WINTER, representing Surgeon General Ireland, made the opening address. After paying a high tribute to Surgeon General Ireland and apologizing for himself as a substitute, he said it was with no sense of apology that he made a few observations in regard to the medical department of the army, both at home and abroad. A large number of capable men had given up lucrative practices to serve with the army, and these men in the Medical Reserve Corps had formed a large and important group. Many things that were lacking in this branch of the service early in the war had now been supplied. It had been the duty of the regular medical officers to advise and cooperate with the Medical Reserve Corps. There had been considerable criticism as to the things done and the things left undone but before being too severe we must consider the human agencies involved and the difficulties that were presented. It was easy to give credit to the men who had entered the Medical Reserve Corps and had identified themselves with the war, but to his mind the doctors representing America abroad and those doing the work of medicine and surgery at home were equally deserving of credit. It took the war to get the full measure of men, and he had constantly been impressed with the absolute and complete consecration of the medical men to the every-day task. His identification with these men had been a matter of satisfaction and congratulation. The medical department of the army had functioned to a satisfactory finish. It was not always done *lege artis*. They had fallen short of the ideal, but they had given what they had to the work and they had gotten the best results possible under the conditions that obtained. One could not, under war conditions, expect the perfection that we had in quiet times, but certainly the hospitalization and attendance our soldiers and sailors received was such as had never been given in any previous war, and they had striven for better than they had been able to attain. As to who deserved the credit, he believed it was due to the whole Medical Corps, backed up by the American Medical Association, and there was no particular distinction to be made between the men who were in the Regular Army and those who had left their work and entered the Medical Reserve Corps. The matter of rendering assistance to the American soldier was the mainspring impelling them both, and no endeavor was too great when that ideal was seen before them. There were some sore places with some people. That lay in the fact that promotions did not come in the way that it was thought they should come. There were reasons for this beyond the control of the medical department. There never was a time when the chief medical authorities were not thoroughly and actively alive in their efforts to secure recognition for deserving medical men. As to who carried on the work of the medical department, there were at the outbreak of the war 447 medical men who had had military training of two years or over. These had to be distributed among 34,000 medical officers, and it was needless to speak of the insufficiency of that leaven. They had their faults and their misfits but the seniors among them strove to correct and ameliorate conditions created by these. Errors were made because they were confronted with new things, but he felt that they had made no greater mistakes than were made by England and France in the early days of 1914 and 1915. They had learned many things in France along many lines. Personally, he felt that his best heritage from the war was the consolidation of his affection with his fellow doctors. To have known them and to have seen their splendid manifestation of courage and self-sacrifice was a privilege and a delight and a *vade mecum* to any man who had reached the shady side of fifty years. The vast majority of men in the medical department had served well. The millennium would have arrived had not a few mistakes been made and a few criticisms come up.

Dr. JAMES R. PHELPS, Commandant, U. S. N., made a brief address as the representative of Surgeon General Braisted. He said that the death rate for the first year of the war in the United States Navy was lower than for the previous year of peace. The death rate in the navy for the period of the war reflected the greatest credit upon the profession, the Medical Corps of the navy, and the Surgeon General for his able leadership. The rate was 8.8, the lowest ever reached by the naval

or military service at war. The war was over and now they were having the invariable aftermath, when it was customary to indulge in fault finding and when faults assumed the proportion of criminal negligences. It was equally as impossible to do justice to the energy, intelligence, and devotion displayed by the members of this Association, as it was to give due commendation to the men in every branch of this department. Had any one prophesied in 1912 that within five years this country would have defied tradition and sent two million men to fight in Europe it would have been said that that man was out of his mind. Yet this had come to pass. Ought we not now demand that some widespread effort be made which would save more lives, in case of another war, than were saved in this war. We must urge the upkeep for health, for upon it depended the worth of men in a time of emergency. The first step in preparedness for future wars was to promote a standard of physical efficiency in this country. Our present standard was not what it ought to be. If it was, and the time ever came when we had to have soldiers and sailors, we would have a finer and better body of men to go against the enemy. We of this generation must not die leaving our children unprepared for this eventuality. There had been a tendency to ridicule the inflexible rules that controlled the acceptance of men for military or naval service. There were good reasons for the severity of these demands. The psychiatrist had kept many a lad out of the army who could get on fairly well in civil life but was unfit for the strain of military service, and in that way had saved the Government much in the way of pensions. That there should have been so many of our boys with such defects showed something wrong with our national life, and the conditions under which these children were brought up which were responsible for defective nervous systems and lack of inhibition which bred epilepsy, mental defectiveness, and degenerates. In 1918, there were rejected from the navy and marine service 37,000 young men for defects of vision and 5,000 for defective hearing. Those who had been threatened by submarines did not want a man on the bridge with defective eyesight or a man below taking soundings with defective hearing. That there were such a large number of young men with defective eyesight and hearing was not primarily the fault of the aurist or the oculist. There would not be so many of these defects were the parent indoctrinated on the subject of proper lighting and if the school authorities saw that schools were properly illuminated and textbooks printed in proper type and on paper not too highly glazed. It should be remembered that every myopic and every astigmatic was handicapped not only from the military standpoint but in his civilian pursuits. The speaker then dwelt briefly on the problem offered by the man with functional heart condition, and said he was often more troublesome in the army than the man with a real heart lesion. In speaking of the work of the army and navy in reducing venereal disease, he expressed the hope that this problem would not be laid aside with the return of the soldiers and sailors to civil life. He confessed that he had no panacea to offer. Segregation, prophylaxis, and sex education all had their merits, but he could venture no specific suggestion; but if we allowed this problem to fall into the background we would be guilty of a grave crime.

Dr. C. C. Pierce of the United States Public Health Service of Washington, D. C., spoke as the representative of Surgeon General Blue, outlining briefly the activities of the Public Health Service in connection with the war. He stated that just after the war was declared the President issued an executive order making the Public Health Service a part of the military establishment. This did not change the administration of the Public Health Department; it merely made available for war purposes the personnel, stations, and equipment of the service. Certain men were assigned to duty in the army and navy. The personnel of the Hygienic Laboratory was engaged in war work, during the entire period of the war, manufacturing increased amounts of serums, antitoxins, and vaccines. Enormous quantities of antityphoid vaccine were produced for use among the civilian population and in areas adjacent to cantonments. Others were assigned to munition plants to avoid the effects of noxious materials used in the manufacture of explosives. The Public Health Service established sanitary zones around cantonments in fifty-three different localities, and in connection with this work had cooperated with and strengthened local health organizations. This work included all phases of sanitation, water, food, the milk supply, the elimination of insects and flies, the control of communicable diseases, and this included venereal diseases. In this extra-cantonment work the great achievement was the control of malaria. They had eradicated the mosquito from areas totaling altogether more than ten times the area of the canal zone. Malaria during the war had been a negligible disease in the army, and the number of lives saved among the civilian population was also great; the statistics on this subject were now being tabulated and would soon be available. They had demonstrated that the control of malaria was feasible as a part of the work of a local health agency, either city, county, or State. The speaker described the reorganization of the Interdepartmental Hygiene Board and described the work of this organization directed toward the control of venereal disease. This work was now established in forty-four States. There was a general feeling among the officers of the army, navy, and public health service that never again would they go back to the pre-war days as regarded the question of venereal diseases and allow this skeleton in the closet. The public health service now had charge of the war risk patients and hospitals were being provided for them.

Dr. Livingston Farrand spoke for the American Red Cross. He said that the Red Cross occupied a peculiarly advantageous position. It had its official connections and official association. It was official when it wanted to be and it could be unofficial when an occasion arose that made such a course necessary. For that reason it had been a particularly useful agent. It was the agency through which the American people had been able to express their cooperation with the army and navy. The most striking thing had been the perfectly stupendous outpouring on the part of the people. Whatever was asked for they gave at once, without question, and no one would raise an issue with the statement that the Red Cross was the agency of the people that was responsible for carrying out their wishes quickly, efficiently, and usefully. Dr. Farrand said he had seen more of the action of the Red Cross abroad than in this country. Before our army reached France it was the most powerful agency in upholding the morale of the French people and it was therefore largely responsible for winning the war. The reason of that was because the Red Cross was the only visible expression of American intervention in broad terms. It provided for the civilian needs of France and did the same thing in Italy. It had left a record and an impression in France and Italy that would never be forgotten and never would be lost. The figures in connection with the supplies furnished were astounding. It furnished a large proportion of the army nurses, about 34,000, and 19,000 of these were in active service. It furnished three hundred million surgical dressings. They were able to do all these things because the American people were back of them and because they were not handicapped by the slowness of governmental activities. Dr. Farrand also referred to the great work of the Red Cross in the camps, canteens, and hospitals of this country and stated that the task confronting that organization was as serious at this moment as when it was confronted by war. The question was how should this organized energy be directed wisely to the problems of peace. On careful consideration there was a great unanimity of opinion that this energy should be turned towards the problem of the prevention of disease, the upbuilding of health, and the maintenance of a sound morale in the several peoples of the world.

Colonel Harry B. Birmingham of the Medical Corps of the United States Army made this address as the representative of the Association of Military Surgeons, in which he said that at no time in the history of the American Medical Association was there such a variety of important and interesting questions as those before them at the conclusion of this great war. For the military surgeon the war was not without its lessons. The greatest of these was the knowledge of the state of unpreparedness and this fell very heavily on the medical men. It was a well known biological fact that aggregations were inimical to life and this was true of the human species. The practical side of the question

for the medical man was how to preserve the life and efficiency of the soldier from the moment of his mobilization. That they had succeeded as well as they had was due to their unfailing patriotism, loyalty, and self-sacrifice shown by the members of the medical profession. It was a matter of congratulation that we had an organization like the American Medical Association to assist in the mobilization of the medical forces, but they had something even more concrete than that. They had the Association of Military Surgeons, composed of men in the regular army, navy, and Public Health Service. He felt sure that if Nicolas Senn had lived he would have found a way to have coordinated the work of some of these different organizations during the war. He spoke of the glory attached to the service and the fact that the military experience was one which no red-blooded man wanted to part with. He said that naturally a man wanted to identify himself with an association of military surgeons and make it a true military organization, having on its rolls every man who had been in the military service. This organization now had a membership of 9,000, and it would be interesting if every man who was eligible would help to perfect it as the great representative medical military body of the great war.

Dr. Lee Frankel of the American Health Association spoke of the work done by the men who were left at home and were bereft of the glamour of war. These men and women who had remained at home and had worked as sanitarians, bacteriologists, hygienists, and public health nurses, were equally entitled to some recognition. They were the men who inspected sewers, looked after garbage disposal, studied the noxious vapors found in the air that had been breathed, and many other problems concerned with the health of the people. They, too, deserved a tribute of regard and esteem. The great war was over, but the war which these men were waging was just begun; this was the great war in which this Association had been engaged ever since its existence. It was combating a foe greater than that on the other side, one whose nature it did not understand. The men who represented this work were the same type of men as those who had wiped out yellow fever, reduced the incidence of typhoid fever, and were engaged in solving the problems of preventive medicine. There were in this country a hundred million people who did not know how to protect their health. We should have a Federal organization looking after the health of the people. We had spent billions of dollars for defense; if we came to the realization that billions and billions should be spent on the health of the people, we might reach such a stage that when this Association met there would be nothing left to discuss but how to spend our mature old age.

Dr. David R. Lyman of Wallingford, Conn., spoke for the National Tuberculosis Association. He said the war had taught them much in regard to nervous disease, vascular disturbances, venereal disease, etc., but had they known as much four years ago as they did now they might have taken advantage of the experience offered in the draft boards to have accumulated an amount of information such as they would never again get in this generation. The National Tuberculosis Association had done its best to reclaim this lost opportunity. There were rejected by the draft boards because of tuberculosis 61,954 men. The eyes of the tuberculosis worker were now open and if there should be another war he would be prepared to take advantage of the opportunity for study that it would offer. The message he particularly wished to emphasize was that we must have universal military service and we must have it primarily as a health measure. It was the duty of the physicians and surgeons of America to do what they could to get universal military service. The active participation of two and a half million men in military operations had given a new vision of personal and public hygiene, a new sense of personal responsibility, and a new sense of discipline. What greater backing could such a movement have than that of a united medical profession in America. Our young men should have six months of intensive training in a government camp in their own State and physical records of these men should be kept on file in the office of the United States Public Health Service and in the State Department of Health. We should have energetic action on the part of the State and local medical societies as well as of the American Medical Association, the newspapers and all other means of reaching the people and demonstrating to them the value of universal military service. This would be the greatest of all public health measures, and if the medical profession was instrumental in bringing it about it would have rendered the greatest service that any body of men had ever rendered to their country.

Dr. Franklin Martin, as the representative of the American College of Surgeons, spoke of the organization of the body, which had been patterned after the Royal College of Surgeons in England. They now had a membership of 4,000 in this country and 400 in Canada. As to the work of the American College of Surgeons in the war, in 1916 the secretary of the American College of Surgeons was asked by the Surgeon General to present a list of the membership under 55 years of age who would be available for the Medical Reserve Corps. Within two weeks that list was furnished and within two months committees from the American College of Surgeons, the Clinical Congress of Surgeons, and the Congress of American Surgeons had associated to present plans for offering the assistance of the American medical profession for service in the war. He described more in detail how the medical men were furnished to the different departments of the service and described the work done by the Medical Advisory Committee of the Council on National Defense. He said it was difficult for him to discriminate between the work done by the American College of Surgeons and these other bodies. They had done everything the Government had asked, after due consideration, and the Government never asked anything until it had consulted with the General Medical Board consisting of the Surgeon Generals of the Army, Navy and Public Health Service and representatives of the Medical Advisory Board of the Council on National Defense. When these agreed to a policy, the Government carried out that policy. After having furnished to the Army, Navy and Public Health Service the quota of men required, the Medical Advisory Board of the Council on National Defense organized the Volunteer Medical Service Corps among the physicians of this country. Those who joined this organization agreed to serve wherever they could and at any time they could and to do such work as they were fitted to do. The records of 60,000 medical men were now complete and filed under the Holworth system. These records were of great value and had been asked for by the Surgeon General's Office where they would be placed on file so that in any emergency in peace or war a suitable quota of medical men could be supplied on very short notice. When these records were complete they would give the data concerning 75,000 physicians. These 75,000 men in addition to the thirty or forty thousand in military service gave a total of 115,000 of the 130,000 medical men in this country. There was still something to be done. When asked to join the Voluntary Reserve Corps a man should not stand back because of some slight irritation that he had experienced during the time of war, but should place himself where he could be of service to his country when needed.

ELECTION OF OFFICERS.

President, Surgeon General W. C. Braisted, U. S. Navy; *First Vice-President*, D. L. Edsall, Boston; *Second Vice-President*, Emery Marvel, Atlantic City; *Third Vice-President*, Eugene S. Talbot, Chicago; *Fourth Vice-President*, George H. Kress, Los Angeles; *Secretary*, Alexander R. Craig, Chicago; *Treasurer*, William Allen Pusey, Chicago; *Speaker of House of Delegates*, Hubert Work, Pueblo, Colo.; *Vice-Speaker*, Dwight H. Murray, Syracuse, N. Y.; *Trustees*, Archibald Dowling, Shreveport, La., A. R. Mitchell, Lincoln, Neb., D. C. Brown, Danbury, Conn.; *Judicial Council*, Ira C. Chase, Ft. Worth, Tex.; *Council on Health and Public Instruction*, Haven Emerson, New York City; *Council on Medical Education*, Arthur D. Bevan, Chicago; *Council on Scientific Assembly*, J. B. Blake, Boston. Next Place of Meeting, New Orleans, La.

MEDICAL VETERANS OF THE WORLD WAR.

An organization with this title was founded with the following officers: *President*, Victor C. Vaughan; *Vice-President*, Admiral E. R. Stitt, M.C., U.S.N.; *Secretary and Treasurer*, S. F. Russell.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Ohio State Board of Medical Examiners.

December, 1918

ANATOMY.

1. Into what regions is the abdominal cavity divided? Name each and describe its contents.
2. Describe the platysma myoid muscle. What relation has this muscle to the external jugular vein?
3. How is the spinal cord divided by regions? How is it divided longitudinally?
4. What are the ventricles of the brain and how are they formed? What is above the lateral ventricle?
5. How are the branches of the pulmonary artery arranged with regard to the aorta? Where is their ultimate distribution?

PHYSIOLOGY.

1. Describe the process of coagulation of the blood.
2. What effect is produced on the heart's action by stimulation of the cardio-inhibitory center?
3. How is the diaphragm affected in expiration?
4. What are the uses of (*a*) saliva, (*b*) trypsin, and (*c*) amylopsin?
5. Into what general classes are foods divided? Give examples of each class.
6. What is meant by diffusion and osmosis? Give examples in the human economy.
7. What variations of temperature are found in the different parts of the body? Mention the reasons for such variations.
8. What is rigor mortis? Order of its appearance?
9. What is the composition of normal urine?
10. What are the functions of the pneumogastric nerve?

CHEMISTRY.

1. What is chloroform, chemically, and how is it made?
2. Define an alkaloid and name three principal ones used in medicine.
3. How does urea originate in the body? In what morbid conditions is the amount of urea diminished, and in what increased?
4. Describe two tests for glucose.
5. What is the reaction of normal gastric juice, and to what is it due?

MATERIA MEDICA AND THERAPEUTICS.

1. What are the uses of narcotics? Name the principal ones and give doses.
2. Name two diseases in which you would use a serum. Name the serum, dose, and mode of administration.
3. Give indication and dosage of ipecac, quinine, and salol.
4. Name three potassium salts; give use and dose of each.
5. Sodium nitrate—physiological action, use, and dose. Digitalis—physiological action, use, and dose.
6. Explain the action and use of diuretics.
7. What is the common name of magnesium sulphate? Give action, use, and dose.
8. Give some indication for the use of arsenic. In what forms may it be used and give dose of each.
9. Atropine: source, physiological action, and use.
10. When would you apply heat and cold? How used and action of each?

BACTERIOLOGY, PATHOLOGY, AND HYGIENE.

1. Define the terms used therapeutically:—vaccine, antitoxin, and serum. Illustrate.
2. Describe a tuberculin test; in what way may it be employed and what does it indicate?
3. Describe the bacillus of Pfeiffer and differentiate it from the pneumococcus.
4. Describe the cardiac pathological processes preceding a decompensated heart.
5. Describe the production of a tuberculous cavity in the lung tissue.
6. Name and differentiate pathologically different forms of enlarged prostate.
7. What steps would you take to locate the source of infection in a typhoid fever epidemic, where there is reason to believe it has arisen through the milk supply?
8. What measures should a health officer take in a diphtheria epidemic?
9. When may a water supply be declared safe for general community use?
10. Name the principal quarantinable diseases and name the rules for determining the time of quarantine for each.

ANSWERS.

ANATOMY.

1. The regions of the abdomen and their contents are shown in the following table. It is to be remembered that the contents will vary according to the position of the lines drawn; these are arbitrary, and nearly every writer differs from every other. In the following table the superior horizontal line extends between the cartilaginous ends of the tenth ribs, the inferior between the anterior superior iliac spines. The vertical lines pass upward from the iliopectineal eminences, at right angles to the upper horizontal line.

The viscera situated in each region are as follows:

RIGHT HYPOCHONDRIAC.	EPIGASTRIC	LEFT HYPOCHONDRIAC.
Liver.	Liver.	Stomach.
Right kidney.	Stomach.	Spleen.
Hepatic flexure of the colon.	Gall-bladder.	Left kidney.
	Duodenum.	Splenic flexure of the colon.
	Pancreas.	
RIGHT LUMBAR	UMBILICAL	LEFT LUMBAR.
Right kidney.	Transverse colon.	Small part of left kidney.
Ascending colon.	Duodenum and small intestines.	Descending colon.
Ileum.	Great omentum.	Small intestines.
RIGHT ILIAC.	HYPOGASTRIC.	LEFT ILIAC.
Cecum.	Small intestines.	Sigmoid colon.
Appendix.	Bladder in children.	Small intestines.
Last coil of ileum.	Distended bladder in adults.	
	Pregnant uterus.	
	Sigmoid colon.	

2. The *platysma myoid* muscle is a thin muscular sheet embedded in the superficial fascia which covers the deltoid and pectoralis major muscles at their clavicular attachments. The muscle is inserted into the outer part of the lower border of the mandible, and into the angle of the mouth. It draws the mouth downward and outward, slightly raises the skin of the upper part of the chest, and is a slight depressor of the mandible. It covers the external jugular vein.

3. The *spinal cord* is divided into regions, as follows: Cervical, dorsal or thoracic, lumbar and sacral.

Longitudinally, it is divided into two halves by the anterior and posterior median fissures; these halves are united in the center by the commisure. These lateral halves are also subdivided by the antero-lateral and postero-lateral fissures into anterior, lateral and posterior columns.

4. The ventricles of the brain are five distinct cavities, between the first four of which there is an intercommunication. The *first two*, called the right and left lateral ventricles, are situated within the substance of the cerebral hemispheres; they are separated by the septum lucidum, and communicate with the third ventricle by the foramen of Munro. The *third ventricle* is situated between the optic thalami, at the base of the brain; it communicates by the aqueduct of Sylvius with the fourth ventricle. The *fourth ventricle* is between the medulla and cerebellum. The *fifth ventricle* is between the two layers of the septum lucidum, and is therefore between the two lateral ventricles. It is covered over by the corpus callosum.

The lateral ventricles are covered by the corpus callosum.

5. The *right pulmonary artery* passes behind the

ascending aorta and goes to the root of the right lung, where it divides into two branches, the upper being distributed to the upper lobe, and the lower to the middle and lower lobes.

The *left pulmonary artery* passes in front of the descending aorta, and goes to the root of the left lung, where it divides into two branches, the upper being distributed to the upper lobe, and the lower to the lower lobe.

PHYSIOLOGY.

1. *Coagulation of the Blood.*—When blood is withdrawn from the blood-vessels of the living body it first becomes viscid, then sets, and is converted into a jelly-like mass. This is due to the formation of fibrin. The jelly contracts, forming the clot; and at the same time the serum is squeezed out from the clot. Various circumstances and conditions will hasten or delay the process of coagulation. In man, the blood generally becomes viscid in from two to three minutes; it forms the jelly-like mass in from five to six minutes; a few minutes later the serum begins to appear; and the whole process is completed in from twenty-four to thirty-six hours. The clot then floats in the serum. The process is thus summed up by Halliburton. From the platelets, and to a lesser degree from the leucocytes, a material is shed out called *thrombogen;* from the formed elements of the blood, but also from the tissues over which the escaping blood flows, is shed out an activating agent, called *thrombokinase.* In the presence of *calcium* salts, thrombokinase activates thrombogen in such a way that an active enzyme is produced, which is called *thrombin.* In the blood plasma a protein substance exists, called *fibrinogen.* Thrombin acts on fibrinogen in such a way that it is transformed into the insoluble stringy material which is called *fibrin;* this entangles the corpuscles and forms the clot.

2. Effect produced on the heart's action by stimulation of the cardio-inhibitory center: The heart's action is slowed, and may be entirely stopped. It is a tonically active center, that is, it acts continuously.

3. The diaphragm has no active part to play in expiration; but it is passively pushed upward into the thoracic cavity by the contraction of the abdominal muscles.

4. The *uses of the saliva* are: (1) To moisten the mouth, (2) to assist in the solution of the soluble portions of the food, and thus (3) to administer to the sense of taste, (4) to lubricate the bolus of food, and thus (5) to facilitate the acts of mastication and deglutition, and (6) to change starches into dextrin and sugar.

The *use of trypsin* is to change proteins into proteoses and peptones, and afterwards decompose them into polypeptides and aminoacids (in an alkaline medium).

The *use of amylopsin* is to convert starches into maltose.

5. *Foods are classified:*

I. Inorganic. { Water. / Salts.

II. Organic. { Non-nitrogenous { Carbohydrates. / Fats. / Nitrogenous—Proteins.

Examples of each: *Carbohydrate*, sugar and starches: *Fat*, fat of meat, and butter: *Protein*, flesh of animals, and white of eggs; *Salt*, sodium chloride, and calcium phosphate.

The *carbohydrates* consist of carbon, hydrogen and oxygen, the two latter being in the proportion to form water. *Fats* consist of carbon, hydrogen, and oxygen, the proportion of oxygen being less than sufficient to convert all the hydrogen into water. *Proteins* consist of carbon, hydrogen, oxygen, nitrogen, sulphur, and sometimes other elements.

6. "The term *diffusion* has long been applied to the regular mixing of the molecules of two gases when brought into contact in a confined space. More recently it has been applied to the mixing of the molecules of two solutions when brought into contact. If, however, the two solutions are separated by a membrane, permeable to the solutions, diffusion will still occur. To this form of diffusion the term *Osmosis* has been applied in the case of water, and *Dialysis* in the case of diffusible substances. All bodies can be divided into two groups, *crystalloids* and *colloids.* To the former group belong bodies having a crystalline form, which readily go into solution in water. All such bodies are diffusible (dialyzable), their power of dialysis, however, varying considerably. To the second group belong such bodies as have no crystalline form (amorphous). These are generally bodies with a large molecule, which form colloidal suspensions in water, and are only slightly or not at all diffusible. An exception to this second group is hemoglobin, which has a very large molecule but is crystalline and is diffusible."—(Kirkes' *Physiology.*)

Physiological applications: "In the animal body the fluids are separated by delicate membranes across which the constituents of the fluids, inorganic and organic, are continually passing. Thus prepared foods in the intestine pass across the intestinal wall into the blood and lymph-vessels; the constituents of the blood pass across the wall of the capillary vessel into the tissue spaces, from which they pass (*a*) through the walls of various glands to take part in the formation of their secretion; (*b*) across the sarcolemma into the interior of the muscle fiber; (*c*) across the limiting surface of and into the interior of all tissue cells. The waste products, the results of tissue and food metabolism, pass from the interior of cells across their limiting membranes or surfaces into the tissue spaces; thence across the wall of the capillary vessel and the epithelium of the lung, the kidney, the liver, etc., to take part in the formation of the excretions. These and other processes are believed to be accomplished by the factors, diffusion, osmosis, and filtration."—(Brubaker's *Physiology.*)

7. The normal temperature of the body is between 98° and 99° Fahr. But the temperature of the skin is lower than that of the mouth or rectum; because heat is lost from skin by evaporation and radiation. The temperature of the blood from the liver is higher than in other parts of the body, owing to the active metabolism occurring in the liver.

8. *Rigor mortis* is a condition of rigidity assumed by the muscles after death. It is supposed to be due to the coagulation of the myosinogen. The muscles lose their irritability and pass into a condition of contraction. Heat is evolved, carbon dioxide is given off, and the muscles become acid in reaction due to the development of sarcolactic acid. Rigor mortis usually sets in first in the muscles of the lower jaw, face, and neck, then in those of the thorax, abdomen, upper extremity and lower extremity. It usually lasts for from twenty-four to forty-eight hours, and disappears in the same order as the onset.

9. *Composition of normal urine:*

	(PARTS IN 1000.)	
Water	950.00	
Urea	28.00	Organic matter, 37.60
Uric acid	0.60	
Hippuric acid	0.35	
Creatinin	0.65	
Extractives	8.00	
Sodium chloride	8.00	Inorganic matter, 12.40
Phosphoric acid	2.00	
Sulphuric acid	1.25	
Lime (CaO)	0.25	
Magnesia (MgO)	0.30	
Potash (K_2O) and soda (Na_2O)	0.60	
Total	1000.00	

10. *Physiological action of the pneumogastric nerve:* "Throughout its whole course the vagus contains both sensory and motor fibers. To summarize the many functions of this nerve . . . it may be said that it supplies (1) *motor* influence to the pharynx and esophagus, stomach, and intestines, to the larynx, trachea, bronchi, and lungs; (2) *sensory* and, in part, (3) *vasomotor* influence, to the same regions; (4) *inhibitory* influence to the *heart;* (5) *inhibitory* afferent impulses to the *vasomotor center;* (6) *excito-secretory* to the salivary glands; (7) *excitomotor* in coughing, vomiting, etc."—(Kirkes' *Physiology.*)

CHEMISTRY.

1. Chemically, chloroform is trichlormethane, $CHCl_3$. It may be made by heating chloral hydrate with an alkali: $C_2HCl_3(OH)_2 + KOH = CHCl_3 + HCOOK + H_2O$.

2. *Alkaloids* are organic, basic, nitrogenous substances, alkaline in reaction, and capable of combining with acids in the same way that ammonia does.

Three alkaloids used in medicine: Strychnine, atropine, and morphine.

3. Urea originates in the body from the protein substances in the body and in the food ingested. The proteins ingested become changed into proteoses, peptones, polypeptides, and amino-acids; these last are split up into ammonia, and this is oxidized to become urea.

The *urea in the body is diminished* in old age, starvation, and conditions which interfere with the ordinary processes of protein digestion.

The *urea is increased* when much water is ingested, in the early stages of fevers, in diabetes, and in chronic nephritis.

4. *Two tests for glucose:* (1) *Fehling's test for glucose:* Place in a test-tube a few c.c. of the liquid prepared as stated below, and boil; no reddish tinge should be observable, even after five minutes' repose. Add the liquid under examination gradually, and boil after each addition. In the presence of sugar a yellow or red precipitate is formed. In the presence of *traces* of glucose, only a small amount of precipitate is produced, which adheres to the glass, and is best seen when the blue liquid is poured out.

[The reagent must be kept in two solutions, which are to be mixed immediately before use. Solution I consists of 34,653 gms. of crystallized $CuSO_4$, dissolved in water to 500 c.c.; and Solution II of 130 gms. of Rochelle salt dissolved to 500 c.c. in NaHO solution of sp. gr. 1.12. When required for use equal volumes of the two solutions are mixed, and the mixture diluted with four volumes of water.]

(2) A solution containing glucose, if heated with a strong solution of potassium hydroxide, gives a brown color and an odor of burning caramel.

5. The reaction of normal gastric juice is acid, due to hydrochloric acid.

MATERIA MEDICA AND THERAPEUTICS.

1. *Uses of narcotics:* To induce sleep; to allay pain, irritation, spasm, nervous agitation and unrest; to lower morbidly acute perception. The *principal narcotics (with dose)* are: Opium, ½ to 2 grains; chloral, 10 to 20 grains; belladonna, 1 to 5 grains, of the leaves; hyoscyamus, 7 to 15 grains; cannabis indica, 2 to 4 grains; lupulin, 10 to 25 grains; stramonium, 3 grains; alcohol, and the anesthetics.

2. A serum may be used in diphtheria and tetanus.

In *diphtheria*, the serum antidiphthericum is indicated; 1,000 units may be given as an immunizing or prophylactic dose, and from 5,000 to 20,000 units as a curative dose; this latter is to be repeated if necessary. It should be injected into the loose subcutaneous tissue of the back.

In *tetanus*, the serum antitetanicum may be used; the immunizing dose is 1,500 units, subcutaneously; as a curative agent, 3,000 to 5,000 units may be given by subdural injection, followed by 10,000 units intravenously.

3. IPECAC. *Indications:* As an emetic, to clear the respiratory passages, to relieve the stomach, in bronchitis, emphysema, dysentery, and jaundice, and as a diaphoretic in rheumatism. *Dose*, as an emetic, 15 grains; for other purposes, 1 grain.

QUININE. *Indications:* In malaria; as a tonic; in influenza, in dyspepsia, in asthma; as an antipyretic; and locally, for sores in diphtheria, and in hay fever. *Dose*, 15 grains at the time of the chill in malaria; in other cases about 4 grains.

SALOL. *Dose:* gr. vijss. *Indications for use:* As a disinfectant, in inflammations of mouth and pharynx, in cystitis, as an intestinal antiseptic in typhoid fever, in muscular rheumatism, in intestinal indigestion and fermentation, in cholera. In the stomach it is subdivided into salicylic acid and carbolic acid.

4. POTASSIUM SALTS. The *bicarbonate* is used for itching and for skin diseases; also for dyspepsia, rheumatism, gout, jaundice, and gallstones. The *acetate* and *citrate* are used for gout, rheumatism, in dropsy, renal diseases, cardiac diseases, and in general as diuretics. The *sulphate* and *bitartrate* are used as cathartics, the latter also as a diuretic. The *dose* of the bicarbonate is 30 grains; citrate, 15 grains; sulphate and bitartrate, 30 grains.

5. SODIUM NITRITE. *Action:* Causes a fall in blood-pressure, stimulates respiration, then depresses it. *Used* in angina pectoris, high arterial tension, cardiac dyspnea, epilepsy, and as an anti-spasmodic. *Dose*, one grain.

DIGITALIS. *Physiological action:* It is a gastro-intestinal irritant, it slows the rate of the heart, prolongs diastole, increases the force of the heart, it contracts the blood-vessels, and causes a rise in blood pressure, it also acts as a diuretic. *Therapeutic use:* Digitalis is indicated in diseases of the heart: (1) when the heart action is rapid and feeble, with low arterial tension; (2) in mitral lesions when compensation has begun to fail; (3) in non-valvular cardiac affections; (4) in irritable heart, due to nerve exhaustion. Digitalis is *contraindicated* in diseases of the heart; (1) in aortic lesions when uncombined with mitral lesions; (2) when the heart action is strong, and arterial tension high. Digitalis is also a diuretic; and it is also used in some forms of nephritis, exophthalmic goiter, pneumonia, chronic bronchitis, etc. *Dangers: Overdose or constant use* will cause irregularity of the heart, headache, vomiting, and hobbling dicrotic pulse, particularly when the patient changes from the recumbent to a sitting posture. *Dose:* Of the tincture, 15 minims.

6. DIURETICS *act:*—(1) By increasing the action of the heart or by contracting the intestinal and other vessels, thus raising the general blood-pressure. (2) By dilating the afferent renal vessels, thereby increasing the renal blood supply and raising the pressure in the glomeruli. (3) By contracting the efferent vessels, raising the pressure in the glomeruli and lessening absorption in the tubules, or both. (4) By stimulating the secreting cells or nerves of the kidneys. (5) By flushing the kidneys, as by the ingestion of water in large quantity.

Diuretics are *employed in medicine* for certain definite purposes, as follows:—to remove fluid from the tissues and cavities of the body in cases of dropsy; to promote the elimination of waste-products and other poisons from the blood; to maintain the action of the kidneys; to dilute the urine, and to alter morbid conditions of that excretion.—(From Potter's *Materia Medica.*)

7. MAGNESIUM SULPHATE. *Common name*, Epsom Salt. *Action:* Saline cathartic. *Use:* As a purgative, also used in dropsy, inflammatory conditions, constipation, portal obstruction, increased blood pressure in the brain; locally it has been used as an application in erysipelas or orchitis. *Dose*, 3 or 4 drams.

8. *Indications for the use of arsenic:*—"Arsenous acid was formerly much used as a caustic for destroying growths of various kinds. In commencing a course of arsenical treatment the dose at first should always be small, and it is important that as a rule the drug should be taken after meals. In some cases of vomiting and of irritative dyspepsia, however, it is preferable to give it before eating. Arsenic is useful to improve the digestion and general nutrition, and may be of service in gastric ulcer and cancer, and some forms of diarrhea. Next to quinine, arsenic is the most reliable remedy for malarial infection, and it is often valuable in anemia and chlorosis and in nervous disorders, especially chorea. In chronic bronchitis and other respiratory disorders and in some cases of organic heart disease it is also beneficial. One of its most useful and general applications is in the treatment of cutaneous affections of many varieties, especially when the acute inflammatory stage is past. Cacodylic acid and sodium cacodylate have recently been brought forward as eligible methods for the administration of arsenic: their solubility, relatively small toxicity, and the diminished local irritation which they produce are advantages to be borne in mind."—(Wilcox's *Materia Medica.*)

Some preparations with doses:—Arseni iodidum, 1/12 grain; arseni trioxidum, 1/30 grain; liquor potassii arsenitis, 3 minims; liquor sodii arsenatis, 3 minims; sodii arsenas 1/12 grain; sodii cacodylas, 1 grain.

9. ATROPINE. *Source:* — The *Atropa Belladonna*, belladonna plant, or deadly nightshade.

Physiological action: anodyne, mydriatic, inhibits secretions, depressant of terminations of nerves, accelerates the heart beat, causes rise in blood pressure, but toxic doses cause the blood pressure to fall, stimulates the respiratory center, but large doses depress the same; it may cause vertigo, restlessness, excitement, delirium, or mania.

Therapeutic indications: To relieve pain, relax spasm, check sweating, as a mydriatic, for night sweats, to check griping of purgatives; in asthma, to check fevers, in heart disease, shock and collapse, acute coryza, urinary incontinence, chordee, low delirium of fevers, mania, alcoholism; as an antigalactagogue, spasmodic cough.

10. THERAPEUTICS OF HEAT.—"As a local application in many *acute inflammatory diseases*. Generally, it may be used interchangeably with cold, the chief guide in the selection of one or the other being the feelings of the patient. Moist heat in the form of fomentations or hot baths is a valuable adjuvant to morphine in relaxing the spasm of *unstriped muscles* which occurs in *intestinal, biliary* and *nephritic colics*, in *spasmodic croup*, and in *retention of urine*. Hot baths are also useful in breaking up *general convulsions*, especially those occurring in children. Hot footbaths, through their reflex effect upon the circulation, often afford relief in *cerebral congestion, acute coryza*, and *amenorrhea from exposure to cold*. In *acute and chronic parenchymatous nephritis* hot-air baths, hot-packs and hot-water baths are of the greatest service in producing diaphoresis, especially when there is dropsy or uremia. Warm effervescent baths are useful in certain cases of *chronic heart-disease*. The continuous immersion of the patient in a warm bath (90°-100° F.) has been found useful in *extensive burns* and in some cases of *phagedena*. A course of Turkish baths is frequently beneficial in *chronic gout*, in *chronic rheumatism*, and in the early stages of *chronic Bright's disease* and *diabetes*.

"In conditions attended with subnormal temperature, such as *surgical shock* and *collapse from disease* or *poisoning*, the general application of heat, especially in the form of the hot bath, is the most important factor of the treatment.

"The local application of intense dry heat (250°-350° F.) is often very advantageous in certain affections of the joints, especially in *chronic synovitis, traumatic arthritis, sprains, tendinous inflammations*, and in the after-treatment of *fractures* and *luxations*. In *subacute* and *chronic rheumatism* it is also occasionally useful, but in *rheumatoid arthritis* it is of little value."

THERAPEUTICS OF COLD.—"In the early stage of *acute inflammation*, especially that resulting from traumatism, a cold-water dressing often acts most happily. In *diphtheria, scarlet fever* and *acute tonsillitis* the application of cold compresses or of an ice-bag to the throat generally affords more relief than poultices or fomentations. In *chilblain* or *frost-bite* the intensity of the reaction should be moderated by rubbing the part with snow or ice. In *croupous pneumonia*, when the temperature is high and the pulse strong, an ice-bag or an ice-poultice adjusted over the affected lung reduces the fever, allays the pain, and quiets the patient. In *acute dysentery* ice-suppositories inserted for a length of time, one after another, are very useful in allaying tenesmus. An ice-cap or an ice-bag may be applied to the head with advantage in *meningitis, apoplexy, cerebral congestion, headache*, and the *delirium of fevers*. In *neuralgia* dry cold sometimes affords temporary relief, but, as a rule, heat is more grateful. In *exophthalmic goiter, paroxysmal tachycardia* and *symptomatic palpitation* an ice-bag or a Leiter's coil over the precordia often exerts a sedative influence upon the heart. An ice-bag may also temporarily relieve distress in *aortic aneurysm*, especially when the sac is superficial. In *internal hemorrhage* the application of an ice-bag over the affected region is a useful adjuvant to other measures. Cold bathing is also indicated in *typhoid* and other *continued fevers*."

(From Stevens' *Materia Medica and Therapeutics.*)

BACTERIOLOGY, PATHOLOGY, AND HYGIENE.

1. An *antitoxin* is a substance formed in the body, of a protective character, and capable of rendering inert the poisonous products of bacteria.

"A *serum* is a product obtained by injecting into an animal, usually a horse, a culture (*e.g.* Diphtheria) or the toxin from a culture (*e.g.* Streptococcus) of the organism. Serums may be divided into—(a) *Antitoxic serums*, such as Diphtheria and Tetanus, which are obtained by injecting filtered cultures into the animal used to provide the serum. (b) *Anti-bacterial serums*, such as Anti-Streptococcus and Anti-Gonococcus, in the preparation of which unfiltered cultures are used. Serums are usually injected in the flank or between the shoulder blades, the skin having previously been cleansed and the syringe carefully sterilized. Cases are on record where they have been given intravenously with normal saline solution and also per rectum.

"A *vaccine* is a finely divided suspension of killed cultures of a microorganism which is injected directly into the human subject. The object is to stimulate the individual to elaborate his own antibodies, which results in increased resistance to the ravages of bacterial infection. Vaccines are of two kinds—(a) *Autogenous*—prepared from the organism isolated from pathological material taken from the patient. (b) *Stock* prepared from virulent cultures of the organism, isolated from other cases of similar bacterial origin. Vaccines are administered by subcutaneous injection by means of an all-glass hypodermic syringe. The site of injection may be the flank, thigh, shoulder, or back. The skin is first sterilized by a pledget of cotton wool saturated with a suitable antiseptic, *e.g.* lysol.

"Briefly, the difference is that with a serum the opposing influence to the toxins is produced outside the human body, while with the vaccine it is produced inside and the degree of immunity conferred is greater with the latter than the former. It should also be noted that the dose of a serum is much higher, from the standpoint of the amount of fluid injected, than in the case of a vaccine. With the former the dose usually ranges from 10 c.c. to 50 c.c., while with the latter it is, as a rule, not more than 1 c.c." (Holland's *Pharmacy Handbook.*)

2. "The *tuberculin reaction* has been made a cardinal feature in the diagnosis of tuberculosis in cattle, and to some extent in man. Its chief practical application is in detecting the disease in dairy cows. The test on cows is made by injecting subcutaneously from 20 to 40 centigrams of tuberculin and noting any change in the temperature of the suspected animal. The normal temperature should be taken every two hours on the day prior to the injection, and after the injection should be taken on that day and on the following day at least every two hours. The normal temperature of the cow may vary considerably, and should always first be determined; a rise of from 1.5° to 3° C. warrants the inference that the animal is tuberculous; the tuberculin reaction has been often controlled by autopsy, and for all practical purposes is specific and unequivocal. The information afforded by a positive outcome, as a rule can be relied on implicitly, but a negative reaction is not always proof of the absence of infection. Failure of the test is most likely to occur in advanced and clinically recognizable cases." —(Jordan's *Bacteriology.*)

3. The *Bacillus influenzæ* is a small bacillus, about 0.5 mikron long and 0.2 mikron wide; it has rounded ends, is non-motile, does not form spores, is Gram negative, stains with Loeffler's methylene blue but not readily with the usual anilin dyes, it is aerobic and is difficult to cultivate.

The *pneumococcus* (of Friedlander) is an encapsulated bacillus of variable length, non-motile, non-flagellated, aerobic and optionally anaerobic, non-liquefying, and pathogenic; it stains with the ordinary anilin dyes, but does not retain the color when stained by Gram's method. Its form is so variable that it has been described by different writers as a coccus or a bacillus.

A differentiation may be made by examining stained preparations of the sputum.

4. *Preceding (and accompanying) decompensation,* there will be found reduced arterial tension, cardiac hypertrophy and dilatation, increased venous pressure; later the arterial tension may be increased, and dilatation may replace the hypertrophy; the heart is poorly nourished, receiving less arterial blood and becoming congested with venous blood; the heart loses tone, and its rhythm becomes disturbed; it becomes the seat of degenerative changes.

5. *Formation of a tuberculous cavity in the lung:* "The anatomical lesion, the tubercle, first appears as a grayish-white, translucent, semisolid granulation, about the size of a millet-seed, usually deposited in the walls of the bronchioles or around the small blood-vessels. From its presence in these situations it induces a low form of inflammation which ultimately results in its destruction. The tubercles then undergo softening or cheesy necrosis with the formation of cavities and consequent destruction of lung-tissue. The small tubercles may coalesce, forming larger nodules, or diffuse tuberculous infiltration."—(Hughes' *Practice of Medicine.*)

6. *Different forms of enlarged prostate.* "It is possible to recognize at least two forms of prostatic hypertrophy depending upon whether the new tissue is composed of elements derived from (a) the interstitial tissues or (b) the epithelial or glandular substance; organs in which both structures participate are frequently encountered, usually, however, one dominates. In the first of these groups the newly formed elements are largely unstriped muscle and fibrous tissue, histologically resembling myofibroma of the uterus. In some instances the fibrous tissue is in excess and in others the lesion appears myomatous. It is also possible to recognize circumscribed or nodose types and organs in which the lesion is diffuse. The fibrous or fibromyomatous prostate is usually firm, resists incision, the cut surfaces bulge, and are gray or grayish-white. Histologically the new tissue is composed of unstriped muscle containing more or less new fibrous tissue. The muscle cells may be in whorls, formed by multicentric grouping, or more diffuse. Cyst-like dilatations of gland spaces and areas of necrosis are sometimes present. The glandular or adenomatous type of prostatic hypertrophy gives rise to large, soft, spongy, often succulent masses which may be symmetric or nodular. Dilatation of gland spaces often results in the formation of cysts. This type has also been called parenchymatous prostatic enlargement. Histologically the condition resembles adenoma. In distended acini the epithelium is often flattened, occasionally necrotic and desquamating, sometimes in part destroyed." (Coplin's *Manual of Pathology.*)

7. A milk epidemic is characterized by the suddenness with which it makes its appearance, the sufferers being for the most part attacked at about the same time. The infected houses will be found to have been supplied, almost without exception, by the particular milk vendor whose supply is at fault; but it will occasionally happen that infected houses are discovered to which milk has been supplied by a different vendor, this circumstance being often due to the fact that the vendors on their rounds very commonly buy small quantities of milk from each other. Sometimes valuable corroborative testimony implicating the milk is forthcoming in the circumstance that some of those in the infected households who have consumed no unboiled milk, have escaped; and that households supplied from the implicated dairy, but in which no unboiled milk is consumed at all, have entirely escaped.—(Parkes' *Hygiene.*)

8. *Prophylaxis in case of diphtheria.* "Prompt isolation of sick and of suspects until bacteriological examination has shown that the disease is not diphtheria. Diphtheria is particularly well adapted to treatment in contagious disease hospitals. No one should be released from the quarantine, even if not apparently sick, until cultures taken from the throat are shown to be negative. The dead must be cared for by thorough disinfection and further prepared as directed by the health authorities before being transported for burial. The tendency of the bacilli to persist in throat and nose for long periods of time after convalescence is established should not be forgotten. All children and to a lesser degree adults who have been in contact with the disease should have swabs made and cultures taken, and if positive results are obtained, must be isolated until negative results are obtained, preferably on two successive days." (Gardner and Simonds' *Practical Sanitation*). Immunizing doses of antitoxin may also be given to those who have been exposed to infection.

9. *Potable water* should be colorless, odorless, cool, limpid, soft; it should have an agreeable taste, neither salty nor sweet nor flat; it should dissolve soap readily without formation of a curdy precipitate; it should contain not more than about twenty-five to thirty grains of solids per gallon, and should not be polluted with sewage.

The sources and varieties of water have been classified thus:

Wholesome	1. Spring water.... very palatable.	
	2. Deep-well water..	moderately palatable
	3. Upland surface water.	
Suspicious.	4. Stored rain water	
	5. Surface water from cultivated land	palatable.
Dangerous.	6. River water, to which sewage gains access.....	
	7. Shallow-well water.....	

10. *Quarantinable diseases.*—"Maritime quarantine in this country is enforced only against six diseases, viz., cholera, yellow fever, plague, typhus fever, smallpox, and leprosy. We do not quarantine against typhoid fever, tuberculosis, measles, and other infections which are not greatly feared and which are constantly with us. Infections of a non-quarantinable nature, such as scarlet fever, measles, etc., arriving at a port are permitted to enter, but must then comply with the local laws and regulations. The period of detention is based upon the usual period of incubation for each disease, and is as follows:—Cholera, 5 days; yellow fever, 5 or 6 days; plague, 7 days; typhus fever, 12 days; smallpox, 14 days; leprosy, not admitted. The time of detention is usually counted from the completion of disinfection or at least from the last possible exposure to the infection. This is usually not a very difficult matter to decide but in case of doubt the public is given the benefit." (Rosenau's *Preventive Medicine and Hygiene*).

(*To be concluded.*)

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

SANE SEX LIFE AND SANE SEX LIVING. By H. W. LONG, M.D., M.R.C. Price $5 00. 157 pages. Published by Richard G. Badger, The Gorham Press, Boston Mass.

OPERATIONS OF OBSTETRICS. By F. E. LEAVITT, M.D. Price $6.00. 441 pages. Published by the C. V. Mosby Company, St. Louis, Mo.

THE SCIENCE AND ART OF DEEP BREATHING. By S. OTABE, M.B. Tokio, M.D. Bale. Price $1.75. 111 pages. Published by Wm. Wood & Co., New York, N. Y.

MALARIA, AND ITS TREATMENT. By A. C. ALPORT. Price $6.00. 267 pages. Illustrated. Published by William Wood & Co. New York, N. Y.

LA DYSCYTOGENÈSE HYPOCYTOPOÏÉTIQUE DYSEUTROPHIQUE, OU CANCER. Par Docteur NAAMÉ de Tunis. 45 pages. Published by A. Maloine et Fils, Paris.

DISEASES OF THE SKIN. By JAMES H. SEQUEIRA, M.D.Lond., F.R.C.P.Lond., F.R.C.S.Eng. Price $12.00. 622 pages. Illustrated. Published by P. Blakiston's Son & Co., Philadelphia, Pa.

SURGERY WITH SPECIAL REFERENCE TO PEDIATRY. By M. STERN, M.D. and E. ADAMS, M.D. 270 pages. Published by the School of Chiropody of New York, N. Y.

PRACTICAL PEDIATRY. By ALFRED JOSEPH. 432 pages. Illustrated. Published by the First Institute of Pediatry, New York, N. Y.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 95, No. 25.
Whole No. 2537.

NEW YORK, JUNE 21, 1919.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

OUTLOOK AND PROBLEMS OF PUBLIC HEALTH.

BY ALVAH H. DOTY, M.D.,

NEW YORK.

THE recent epidemic of influenza and the rapidity with which it spread demonstrated in a measure the lack of success of health authorities in insuring prompt and successful control of this disease. This has been shown, moreover, in outbreaks of other communicable diseases. In certain localities influenza made comparatively slow progress; in others, it extended with great rapidity and apparently was unchecked by the preventive measures employed. It cannot be expected that a disease as quickly disseminated as influenza can promptly be brought under control even by energetic action by health officials, but it is quite certain that there are means by which more satisfactory results may be obtained in dealing with influenza as well as with outbreaks of other communicable diseases. It is not my purpose to speak of influenza only, nor to deal especially with its origin or means of transmission, but rather to discuss this disease in connection with a general consideration of the measures now employed in the protection of the public health and the methods which should bring about more successful results.

There is no good reason to believe that the recent epidemic of influenza differed radically from previous ones. It is true that the lungs of those affected were often seriously involved but in none of the outbreaks, present or past, have the general characteristics of this disease been obscured by complications.

It is to be noted that histories of previous outbreaks not infrequently refer to malignant pulmonary affections with a very high mortality, which corresponds closely to reports of the recent outbreak; and previous histories refer to complications not prominent in this one. It is, therefore, not unreasonable to conclude that the course of influenza, like other communicable diseases, may be affected by the physical condition of the people and also, quite possibly, by climatic conditions. Writers on previous epidemics advise the public to maintain good health in order to combat disease; this is just as true today as it was a century ago. The appalling conditions following outbreaks of certain communicable diseases during the Middle Ages bear witness to this, for they continued uninterruptedly for many years and destroyed at least twenty-five per cent. of the population of Western Europe, due chiefly to the impoverished and exhausted condition of the people and the absence of official health control. At the present time, under almost the same conditions, epidemics of infectious diseases have practically devastated certain communities in various parts of the world. Not that the people of the United States have been reduced to such an unfavorable physical condition, but it is a fact that the resisting power of the people of this country has been considerably lowered by recent events. No one familiar in a practical way with the subject maintains that persons in robust health do not contract influenza or other communicable diseases, but the fact remains that those who have a good resistance stand a better chance of escaping these diseases and more particularly the unfavorable complications which frequently occur. No one doubts that this is true of tuberculosis.

At no time in the history of this country has an outbreak of infectious disease occurred under more disturbing circumstances than has the recent visitation of influenza. We had been subjected to a long period of nervous tension and depression. For the first time the people were officially requested to eat less food and to make radical changes in their diet. We had to provide an abundant supply of food for our army abroad and to make necessary contributions of food to war-devastated peoples. Such a state of affairs lasting for three or four years was certain to lower the general vitality, particularly when associated with a prolonged nervous strain. Fortunately, food restrictions were not carried to an extreme point, nor continued for a long period, but the resisting power of the public was visibly affected. An individual is not always aware when his health is below par; the public is far less observing when its vitality is reduced.

During August, 1918, a careful investigation was made in the City of New York to determine as far as possible the effect of food restriction, change in diet, nervous tension, etc., upon the public health. This test, confined to one locality, was not expected to furnish conclusive evidence, but it is reasonable to assume that pertinent and dependable information was thus obtained. Over five hundred families were visited, chiefly on the extreme east and west sides of the city—homes of the laboring and the poor classes. Outbreaks of infectious diseases usually appear first and often are propagated with great rapidity among this class of people. At the time of the investigation

the sale of unmixed white wheat flour was not permitted. Millers were required to add to white wheat flour a certain amount of other specified cereals before milling, and even this mixture could not be purchased by the public without buying at the same time an equal amount of a substitute, such as oatmeal or rice. When it is borne in mind that bread is a most important article of food, particularly in the restricted diet of the poor, the effect of this regulation is evident. The cost of the cereals used as substitutes was frequently greater than that of the wheat flour. The amount of wheat flour purchased was, therefore, necessarily restricted. The substitutes were often of a poor quality and unpalatable and little was eaten. Mothers reported that the children would not accept cereals as substitute for bread and while a certain amount was eaten by the adult members of the family, much was thrown away. Bread made with a mixture of the white wheat flour, prepared under Government order for general use, and the various substitutes was usually a failure. It was very distasteful and often could not be eaten, largely for the following reasons: The gluten in wheat has very pronounced "binding" qualities, *i.e.* its elasticity and tenacity permit expansion of the dough during "rising" without rupture of the mass. Bread made in the old way is light, porous, palatable, and healthful. Cereals have this "binding" quality to a very limited extent, and bread made with them cracks open and collapses and is soggy, unpalatable, and indigestible. Little or no relief was gained by buying bread from the baker, for he, too, was obliged to buy a certain amount of substitutes for use with wheat flour. Other foodstuffs were extremely high in price and, as a rule, enough could not be purchased by the poor to furnish sufficient nourishment. It was commonly remarked that children often left the table hungry and clamored for food between meals. The adult members of the family also experienced hunger but wished to do their patriotic duty and made no complaint. It was said that good bread was seldom found in the workingman's dinner pail. During this investigation it was often stated that children were irritable and did not sleep well. This affected the comfort and health of the parents, especially when the apartment consisted of two or three rooms, for if their rest was disturbed they were not fitted for the next day's work. It is true that during this period the laborer received increased wages, but food, clothing, etc., were correspondingly high in price and little relief was obtained.

The investigation also dealt with those who were financially able to purchase a generous supply of food at a greatly increased price. Largely from patriotic motives, however, the diet of these people was restricted in amount and radical changes were made in the character of their food. Until late in 1918, when most of the food restrictions were removed, it was practically impossible to get good white bread anywhere. Even the best hotels and restaurants could not supply it. Many people stated that their food had not been satisfactory or sustaining and that they were not up to their usual standard of health, and many had lost weight, conditions which might be expected among people on a limited and defective diet and under nervous tension for a long period. There is no doubt that the general lowered vitality had a great deal to do with the complications and dangerous sequelæ associated with the recent outbreak of influenza. The public know little about the importance of proper nourishment and our dependence upon it for the preservation of health and resistance to disease, and unfortunately they received only meager information upon this subject. The owner of a motor car will provide it with proper fuel for he knows if this is not attended to it will not render satisfactory service, but this person will probably give little or no attention to the most perfect machine in his keeping and the one which calls for the most careful feeding.

Influenza was especially prevalent in military camps throughout the country. Some persons who believe that the physical condition of the individual plays little or no part in protection against disease point to this fact as evidence that persons in good, healthy condition are as susceptible to communicable diseases as those in a run-down state of health. It was stated that soldiers in the camps were a strong and healthy group of young men; this is true only to a certain extent. The men in the camps were mainly draftees who had been expecting for some time to be called upon for service, and many had undergone a long period of nervous tension. They came from every walk of life; a large number were undernourished and were anemic and emaciated in appearance. The draft law did not relieve such persons from duty except in rare instances, holding that camp life would soon improve their physical condition. This is quite true, but they had not undergone this change when the influenza appeared at the camps. The great concentration in the camps and the inability of the medical department to isolate the sick went far to aid in the dissemination of influenza.

The preventive measures in operation during the recent outbreak of influenza are typical to a great extent of the methods usually employed in dealing with outbreaks of all diseases. It is hardly necessary to state that there is a marked difference of opinion concerning the propriety and efficiency of these measures. In minor details this is inevitable, but there are underlying principles which should govern these matters and insure a concerted and harmonious action in instituting preventive measures; for instance, some health officials believe that churches and theaters should be closed during extended outbreaks of some communicable diseases, others believe they should remain open. These disagreements are disturbing not only to the medical profession, but to the public, for it is assumed that if there is no uniformity of action there can be no well defined fundamental principles to guide us, which is not the case.

Public schools are not infrequently closed during epidemics, presumably to prevent children from coming in close contact with each other. The closing of schools is based upon theory rather than upon practical experience. This procedure in fact encourages the transmission of in-

fective agents, for it forces the children out of school where they may be kept under careful observation and they then congregate in large groups about the hallways of tenements and in other places where they are under no control or observation. Children, as well as adults, will come together in different places without regard to health regulations, particularly in poor districts where epidemics make greatest headway. Mild and unrecognized cases which constitute the most dangerous medium of infection are far more apt to be detected and dealt with promptly when brought under careful observation by competent examiners. Furthermore, the closing of public schools suspends education, sometimes for two or three months; this is a serious matter and particularly unfortunate if it is not of definite protective value. It is far better that public schools should remain open during outbreaks of infectious disease, and the children upon arriving in the morning should pass in review and be given a careful visual examination by a trained nurse or an intelligent layman whose training would require but a short time. Well marked and even mild cases and previously unrecognized cases are quite certain to be detected in this way, particularly if the teachers keep careful watch during the day. Children presenting evidence of disease should be promptly removed from school and given a physical examination. Actual and suspicious cases are thus discovered, and in addition other cases in the little patient's family and in the neighborhood are brought to light. It may be said that there is no more effective means of educating children regarding preventive measures and the preservation of health than by the method just referred to.

Other meeting places, such as churches and theaters, are often closed during outbreaks of infectious disease. Here also, it is possible to keep people under some form of effective observation and discipline, which may be of great value in public education as well as a means of prevention. We should bear in mind that people will congregate notwithstanding laws to the contrary, and if not allowed to go to the places above referred to where they are amused or benefited, they will go elsewhere. It cannot be stopped. The public should not be deprived of entertainment during an epidemic. Entertainment goes far to relieve worry and tension and it may secure better cooperation of the public with health authorities. It is true that persons suffering with infectious diseases will enter schools, churches, theaters, etc., unrecognized. If they do not go to these places, however, they will associate with other groups of people where the danger of infection is far greater than in churches and theaters where the people remain seated and to not wander about the place, thereby increasing the danger of transmitting the disease. Officers and employees of public meeting places may easily be trained to render valuable cooperation during epidemics. A casual inspection of those entering the building would quite likely detect such persons; the suspect might be questioned quietly, and if necessary, requested to leave. If this procedure was followed in all meeting places by official order, the publicity would go far to deter those who were ill from visiting these places. A few words from the pulpit or stage regarding the manner in which the disease is transmitted and how it may be prevented would also be a means of public education.

The value of disinfection of street and railway cars as well as other public vehicles has been freely discussed and various opinions diametrically opposed have been expressed as to the justification of such a measure. I believe it has not only no practical value but it is misleading to the public, for it does not indicate the real means by which infectious diseases are transmitted. Such a measure involves an enormous expense and delay to transportation companies and interferes very seriously with public travel. It may be assumed that the disinfection of public conveyances is recommended on the ground that these vehicles harbor pathogenic organisms in an active state and in condition to transmit disease. While this theory is plausible the fact is that diseases are transmitted in public conveyances in the usual way—by personal contact.

It is reported that during the recent epidemic of influenza in certain cities, the general use of face masks was ordered by the municipal authorities. The purpose of a face mask in dealing with influenza or other acute infectious diseases of the air passages is to intercept infective agents; therefore, their use in connection with the sick either in hospitals or at home may be of value as a measure of prevention. Reliable evidence to this effect has been presented; however, for general use by the public it is an impracticable and insanitary measure and should never be enforced. What supervision would a department of health have over the wearer as to the length of time the mask should be worn—when it should be removed —and when and how these articles should be sterilized? In one of the cities recently visited by influenza where masks were worn at the option of the individual, it appeared to be the practice to slip the mask down under the chin during conversation; such an abuse of the measure makes it ridiculous and useless as a means of protection, and belittles cleanliness, a most important means of prevention.

The reason why uniform preventive measures are not employed is chiefly the difference of opinion as to the means by which infectious matter is transmitted. The domination of the belief that infective agents are commonly transmitted from one person to another through the medium of clothing, baggage, money, merchandise, etc., is largely responsible for this, and until it is disposed of conflicting measures will continue to be employed in dealing with outbreaks of communicable diseases. This belief which is of ancient origin is referred to by earlier writers as the "fomites" theory. It still has many advocates among the medical profession and is very popular with the public. The theory is extremely plausible and offers a ready explanation for any outbreak of disease whose origin is unknown. It encourages carelessness and discourages painstaking investigation for the real cause of infection; it has in this way been largely responsible

for the extension of disease. I have personally investigated many statements that persons have contracted diseases in this way, but after careful and exhaustive examination have usually found that the infectious matter was conveyed in the usual way—by contact with the sick. Superficial investigation is the chief support of this theory. This statement also applies to the aerial theory of the transmission of disease, which is hardly deserving of consideration.

When maritime quarantine was instituted in Venice during the fourteenth century the fomites theory held full sway. It is authentically reported that incoming vessels were required to remain at anchor in the harbor for weeks while their cargoes were placed on deck for exposure and so-called purification. No mention is made of the detention of the passengers and crews on board or of prohibiting persons from shore from visiting the vessel. There is good reason to believe that there was free intercourse in this way, and that the true source of danger—personal contact—was thus ignored. It is no wonder that contemporaneous reports were not enthusiastic over the results of the innovation in the way of preventive measures. As late as the eighteenth century vessels from infected ports were not, in some instances, allowed to proceed to their destination but were sunk at sea by official order to prevent infection through the medium of the cargo. Even in recent times equally worthless methods were employed as a means of protection. Not many years ago, iron rails were ordered to be disinfected in certain sections of this country in order to prevent the spread of yellow fever, a disease which we now know is transmitted only by a certain variety of the mosquito. Even in the year of our Lord 1918, almost as useless requirements were imposed upon the public as a measure of protection against influenza.

Little by little, those who have worked in the field and have had long practical experience with infectious diseases, have learned that it is persons and not things which transmit disease. Success in preventive medicine depends upon knowing the true media of infection and upon the early detection and isolation of cases of infectious diseases. Every effort should be made to discover mild, ambulant, and unrecognized cases, which are the most dangerous source of infection since they commonly escape notice and are under no supervision. For a long time it was believed that the great increase in the number of cases of infectious diseases at the beginning of the school year was largely due to the transmission of infectious matter by means of the clothing of children in whose homes some form of communicable disease existed. "School corps" which were organized by departments of health to investigate details connected with the spread of disease among school children, soon presented conclusive evidence that it was not so-called infected clothing but the presence of mild and unrecognized cases in the school that was responsible for the increase of infectious diseases at the opening of school.

Some time ago, there were many second-hand clothing stores in New York City whose proprietors were engaged in a thriving business. These stores were usually on the first, or street floor of the building, the rear rooms opening into the store being the living quarters of the proprietor and his family. The various members of the family were in the store in close contact with the clothing a large part of the time. There is probably no doubt that some of the articles of clothing offered for sale belonged to persons who had died of infectious diseases. There were no health regulations at the time requiring the disinfection of such articles, yet after a long and careful investigation not the least reasonable evidence was obtained that the families of the proprietors of these places who were constantly exposed to the clothing contracted disease through this source. The same result followed the investigation of rag-picking which at that time was engaged in extensively. Rag-picking was carried on by Italians in dark and poorly ventilated cellars, sometimes under tenement houses. Whole families took an active part in the work and there were practically no regulations as to disinfection of the rags, yet there was not the slightest ground for believing that these people contracted disease in this way.

A number of years ago I investigated in Egypt the danger of infection through rags brought from there to the United States for the manufacture of paper. Egypt is constantly visited by outbreaks of infectious disease which exact a very heavy toll from the population, due largely to the poverty and ignorance of the people. At the time of the investigation, Egyptian rags were composed chiefly of the cast-off clothing of the natives whose costume consisted usually of a single garment. It need hardly be said that these garments were not discarded until they were unfit for use and were usually in a filthy condition. The rags were collected throughout the country, placed in rope crates and sent to Alexandria for sorting. This was done in badly ventilated apartments, chiefly by women and children who were in close contact with the clothing for long periods. Egypt was then practically under British rule, and the carefully prepared statistics presented no evidence that the rags were the source of infection. It was therefore concluded that if the rags did not convey disease to the rag-pickers of Alexandria, they would not be a source of danger after reaching this country, many months later.

In this connection, it may be said that a visit to the Treasury Department at Washington furnished valuable and impressive evidence concerning the fallacy of the fomites theory. Here an enormous quantity of old and dirty paper money was being handled and rehandled by a large force of employees prior to destruction. I was informed by the officers in charge that there was no evidence that clerks had been infected through this source although no disinfection had been done or other special action taken as protection. Evidence in support of the fomites theory is usually based on the most scanty information. For instance, it was recently reported in the daily papers, that a cashier in a restaurant died of scarlet fever and that he was undoubtedly infected by money which had passed through his hands. There was not the slightest proof of this, but the theory was plausible and was readily accepted.

It must be borne in mind that rag-pickers, dealers in old clothes, employees in banks, and others who are constantly handling or coming in close contact with articles alleged to be media of infection, are subject in a general way to the same exposure that others are, and there is no reason why they should not contract infectious diseases in the usual way. If the fomites theory was sound these people would be far oftener infected than others. *No such facts, however, have appeared.*

The disinfection of apartments at the termination of infectious disease was formerly held to be absolutely necessary. It was believed that pathogenic organisms in an active state were present in these rooms and that disease could be contracted by those entering the apartment. This was so generally believed that discharges of the patient were not promptly destroyed and other details of cleanliness were largely overlooked; everything was left for so-called terminal disinfection. Now we know that protection depends upon the prompt destruction of infective agents in their active state, as they come from the body of the sick. This, it will be seen, is closely associated with cleanliness. If this is carefully attended to we need fear little from the room itself. In several cities where modern preventive methods are employed with the most gratifying results, the disinfection of apartments has been practically abandoned. The great influence of fresh air upon the welfare and comfort of the patient at all times is now more fully appreciated. Until health officials recognize the imperative necessity of carrying out modern methods there can be no uniform and successful measures in preventive medicine.

The education and cooperation of the public are vitally necessary to the protection of the public health. People know comparatively little regarding the preservation of health and the prevention of disease, notwithstanding a belief to the contrary. It may be said in passing that differences of opinion among health officials and conflicting action are not likely to furnish the public with satisfactory and dependable information upon this subject. The importance of modern research in identifying specific organisms and the means of combating them cannot be overestimated; yet it is equally important that the most careful researches should be made to discover the source of infection and to observe under what conditions the individual is most susceptible and most resistant. Important discoveries in bacteriology are far ahead of their practical application so far as the education of the public is concerned.

Articles on public health frequently appear in daily newspapers and magazines, and while these may be interesting, this literature is often based upon theory, and the opinions expressed frequently differ widely on essential points upon which all should agree. This is due largely to the fact that such articles commonly do not emanate from authoritative sources. Bulletins of various kinds are issued by health departments, but these are for the most part largely technical in character, and as a rule do not go beyond the hands of physicians. Even bulletins prepared for general distribution do not reach the homes of those most in need of this information. Departments of health throughout the country, although constantly devising means for health protection, have taken no concerted action in the education of all classes of society upon the subject of the preservation of health and the prevention of disease, and little real advance has been made in this direction. The country is surfeited with health ordinances, but these cannot attain the desired result, and never will, without the aid and cooperation of the public. Many societies throughout the country render valuable aid in public health instruction, but they are local—are not allied with nor do they follow the same line of teaching as other organizations in other parts of the country; besides they reach only a small fraction of the population, whereas practical success in this field demands uniform and universal methods.

Two years ago an extended investigation was made to ascertain the views of the public, particularly of the poor and laboring classes, upon the subject of health preservation and the prevention of diseases. A thousand families probably were visited on the extreme west and east sides of the city. The investigation was made by experienced trained nurses and the information was generally obtained from the mother of the family. These people were asked to give their opinion regarding the means by which infectious diseases are transmitted and if they were willing to aid and cooperate in the protection of the public health. They were then asked also if they had received any instruction on the subject and in what way it had been presented. It would be difficult to imagine more fantastic and erroneous theories regarding the transmission of disease than those expressed during this investigation. Almost all of those interviewed expressed a genuine desire to be instructed in order that they might be able to protect their children. No one reported receiving any definite or satisfactory information upon the subject, at least not in a way that was satisfactory or effective.

The value of public education regarding the preservation of health and the prevention of disease cannot be overestimated; every class of society should be instructed in this direction. It requires but little study of this subject to appreciate that only doubtful success follows the action of a municipal health department in dealing with an outbreak of infectious disease if the public remain inactive and each citizen does not understand he must play an important part in the prevention of disease and the preservation of health; until this cooperation is gained only indifferent success will be secured in the protection of the public health.

Employers should be taught that they constitute an exceedingly important factor in obtaining this result, for the possibilities of aid in this direction are very great. Active work has already been begun in this direction. During the past year influenza invaded the coal fields of Pennsylvania and claimed many victims. At least one of the coal companies appreciated the importance of extending aid in securing the cooperation of their employees in this emergency. The method em-

ployed was as follows: Six intelligent workmen from each mine were brought together and briefly instructed regarding the cause of influenza, the means of transmission and the usual symptoms of the disease. One of these men was stationed at the mouth of each mine shaft when the miners went to work, at or before seven o'clock in the morning. If any looked ill or were found coughing or sneezing or were regarded as suspects they were requested to remain in a nearby apartment until an examination could be made by one of the staff of visiting physicians who called about 8 A. M. At each examination one or more cases of influenza were detected and the patients were sent home. Their addresses were given to the nurses on duty who soon afterwards visited them at their residences to ascertain the conditions present, and to see if they could render assistance. Frequently other members of the family were found to be ill with the disease, often with no medical assistance and no precautionary measures against further spread. In many instances the nurse took charge and rendered all possible aid. The coal company also cooperated with the local health authorities by reporting all cases which came under its observation. It may be added that a bulletin, printed in six different languages, containing in simple terms a brief statement regarding the cause of influenza, the manner in which it is transmitted, and the usual symptoms of the disease, was distributed freely among the miners and their families with very satisfactory results. These means were not only most effective in preventing the extension of disease but undoubtedly saved many lives.

This modern method of prevention by gaining the cooperation of the public through the agency of the employer and his employees came under the observation of the writer and furnished a striking illustration of the very great aid which may be gained in this way. Among other things it showed the untruthfulness of the statement that the poor or working classes show but little or no interest in the prevention of disease and the preservation of health. In this instance, keen interest was shown from the beginning by the miners in the preventive measures undertaken by their employer, and the young men selected for the visual examination of workmen at the mine shafts were not only greatly pleased by being selected for this purpose but were faithful in the performance of their duties; besides the miners expressed their approval of the selection of members of their own body for this purpose. The nurses who visited the various settlements in connection with this work received grateful acknowledgments on the part of the miners and their families concerning the aid extended by their employers. The nurses were escorted from one place to another by women and children eager for them to visit their homes, and in many ways showed their gratitude for what they had done in their behalf. The miners were manifestly pleased with the aid extended by their employers, which goes far to prove the inestimable value of welfare work among employees. If this practice could be extended, it would not only promote health and happiness among these people but would lessen the gulf between capital and labor.

Employers as well as the general public have but little or no definite instruction in this direction, therefore the full value of their aid in the prevention of disease and the preservation of health will not prove fully satisfactory until they have received proper information upon the subject. As a rule, employers are anxious to do their share, but in the absence of proper knowledge concerning the most effective means of extending aid, they are quite apt to decide for themselves what they should do. We find this in the elaborate and expensive fitting of rest rooms, toilets, and lavoratories for employees, which while they appeal to the eye, is largely an extravagance without any educational effects. It is of very little value to the employees, for they cannot maintain these conditions at home, and it teaches little or nothing so far as the maintenance of health is concerned, which would not be conveyed by modern simple and inexperienced fittings. The unnecessary amount of money which is spent in this way would go far to carry out reasonable and effective preventive measures.

In what manner public information concerning the preservation of health and the prevention of disease is to be conveyed to the public in order to fulfil its purpose is a problem which must be given the most careful and serious consideration. It may be safely said that it cannot be successfully accomplished by the multiplication of health ordinances which repel rather than attract interest and cooperation on the part of the public. It must be through agencies which reach the people directly and which have the respect and confidence of various classes of society. It is not impossible to reach every household if proper means are employed. We have learned something of this in connection with the activities of those in charge of the liberty loans.

While the aid of health authorities is most valuable in imparting this information, it is necessary that the organization in charge of the matter should be national, it should speak authoritatively and should be capable of deciding upon the best means of public education, which would be instrumental in bringing together in harmonious action all the various agencies to take part in the work. This must be done largely as a public duty and without remuneration; the important factor being the uniformity of instruction and the dissemination of information approved by a body of experienced and practical sanitarians. There is no doubt that clergymen would be ready and willing to aid in this important work. They are influential and frequently speak from the pulpit upon matters of public interest, and a few moments' instruction would be of very great value. Others who have the confidence of various societies and associations would also constitute a most important means of conveying authorized information to their hearers. It is unnecessary to speak of the value of trained nurses in disseminating knowledge concerning the preservation of public health, whenever they are available for this purpose. Moving pictures, exhibitions, bulletins, simply and properly prepared, and the like would also be of aid in this direction. It is not

difficult to understand that whatever the various agencies may be by which instruction is conveyed there must be a parent organization to direct and insure uniform measures. Under these conditions there is not the slightest doubt as to the success of a movement of this kind and its inestimable value in contributing to the health and happiness of the people.

205 West Fifty-seventh Street.

JAUNDICE.*

By MAX EINHORN, M.D.,

NEW YORK.

PROFESSOR OF MEDICINE AT THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND VISITING PHYSICIAN TO THE LENOX HILL HOSPITAL.

You may be surprised that I should speak to you tonight on a subject that is as old as medicine itself. For ever since medicine has been known jaundice with its symptom complex has been recognized and treated. But the reason I have chosen to speak on it is because of its great practical importance, and because there are new points to be applied nowadays which are helpful in the differential diagnosis.

When we have a case of jaundice, the first thing to be done is to discover its origin. With jaundice we have a condition in which the skin is impregnated with biliary pigments; it is yellow, and the sclera is yellow. The word "jaundice" derives its origin from the French word *jaune*, meaning yellow, and therefore the word means nothing but a yellow color. We find this yellow color, this jaundice, existing in different diseases which have to do principally with the gall-bladder. We all know that the liver is the organ which manufactures the bile; this organ contains a system of canals which lead ultimately through a little reservoir, the gall-bladder, into the duodenum. If for some reason or another one of these canals becomes closed and the bile cannot reach its outlet there will be a damming back of the bile and instead of going to the intestine it will find its way into the blood and from there reach the skin; from the skin it can again be eliminated by way of the circulatory system and passed through the kidneys with the urine.

Another type of jaundice occurs when the liver cells which manufacture the bile lose the power of sending the bile through the biliary canals; they are still able to manufacture the bile but are weak, cannot discharge it properly, and it goes in another direction and reaches the lymph system, and the blood system, thus producing what is known as hepatic jaundice.

There is a third type of jaundice in which it is believed that the bile is manufactured in the blood itself, the liver having nothing to do with it, or very little. But I should think that in this type—called hemolytic jaundice, in which the blood corpuscles break up easily and the blood itself is found to contain bile—the liver itself must also be in some way involved.

When we are confronted with jaundice, which is only a symptom complex, we must try to find the cause, the origin of the trouble, and make a differential diagnosis.

*An address delivered before the Academy of Medicine at Syracuse, N. Y., on April 15, 1919.

Before we go into the symptomatology, and especially the differential diagnosis of the different types of jaundice, it will be well to dwell for a few moments upon the symptoms found in jaundice. When there is trouble with the bile and it accumulates in the tissues, then we have some symptoms that are due to this accumulation, and other symptoms which are due to the original disease, and we have to combine the two to make the complete picture. The symptoms which we usually find and which are due to the bile as such are slow pulse, drowsiness, lack of mental concentration, lack of energy, and quite often an itching sensation. These are all subjective symptoms. These symptoms are accompanied by others which are due to the original disease. Many cases have no pain at all; in others, the patients suffer severe pains, chills, fever, and are very sick—seem almost dying. One can go from one extreme to the other—some being very sick, others very slightly so.

Now, as to the differential diagnosis of the different types of jaundice. First we will consider those forms which are very common, beginning with catarrhal jaundice, which is the type most frequently encountered. Here there are mild digestive disturbances, lack of appetite, nausea, perhaps vomiting, constipation. The patient has thus suffered for a few days or a week, and then all of a sudden he turns yellow, but there is no pain; then the yellow color increases, the urine becomes dark brown, and at examination bile is found. The stools are clay colored. Most of these patients never had severe attacks of pain. They come to the office and say they have been sick for only a few days, yet they are quite yellow. This is called catarrhal jaundice and it is classified as the obstructive type; that means that the duct—the bile duct or the common duct—is filled with mucus, and the bile cannot enter the duodenum; there is obstruction to the escape of the bile, and reabsorption. Some do not accept this as a satisfactory explanation, for mucus does not seem enough of an obstacle to cause the damming up of the bile. The examination of the duodenal contents, which I have frequently undertaken, shows that usually there is some bile coming into the duodenum, and ordinarily there is some mucus in the first twelve days of the disease; so that I would rather take it for granted that the mucus has something to do with the condition. Whether there is anything else behind that, it is difficult to say; perhaps there is a spasm at times—a spasm of the sphincter at the end of the common duct. Later I will cite some instances which are apt to prove that such a condition exists and gives rise to jaundice.

This catarrhal jaundice usually offers the best prognosis. All of the patients get well though in a year or two some of them may have a similar attack, and again get well.

The other group which also appears in an acute form is that where the jaundice is caused by a distinct obstruction of the canals of the biliary system, due to stones. It is characteristic of this type that there are severe pains preceding the attack, severe cramps different from the pain usually accompanying gastric affections—a pain which comes on suddenly and is very acute; in some cases it is radiating, reaching to the center and then back to

the right; but in all cases of stone, no matter where—cystic duct, common duct—there may be a slight jaundice that appears after a few days. In most of the cases in which the common duct is not involved—for instance, stones in the gall bladder alone, I think we have to deal with a spasm, and this spasm probably helps to bring on the pains; after a while the spasm is relieved, and the bile again escapes.

Sometimes we see cases of duodenal ulcer in which there are no stones at all, which have pains characteristic of gallstones and jaundice, perhaps with temperature, and yet there are no stones. Some years ago I described these cases, but tonight I will only mention one which is characteristic of the group, showing how in some instances we can reach the correct diagnosis. About ten years ago Dr. Willy Meyer operated on a patient who gave a history of very severe pains coming on every six or ten months, so severe as to require hypodermics of morphine to relieve them. He also had been treated at Carlsbad for several years for gallstones, every one believing that he had them. He came to me shortly after an attack of pain, but had no jaundice. I examined him and found that he had hypersecretion of a high degree; he complained of vomiting a great deal, and I advised him to go to the hospital for further examination. While in the hospital he became slightly jaundiced, and had a typical attack of severe pain; he also had slight elevation of temperature and vomiting. That was about the time that I began to use the duodenal bucket, with a string attached and he was one of the first upon whom I tried it. He retained it for several hours and then vomited it, but the bucket had had time to enter the duodenum, and when I examined it I found on the string a distinct mark of blood, two little streaks half an inch apart, about 23 inches from the lips, indicating that he had a duodenal ulcer. That patient had been presented by me in one of my lectures before his operation. Dr. Willy Meyer operated upon him in he Lenox Hill Hospital and found no stones at all, and the gall bladder normal, but there was a pylorospasm on account of the presence of the duodenal ulcer, which led to that continued secretion of gastric juice and at times also to a spasm of the papilla of Vater producing jaundice. In this case of duodenal ulcer without gallstones there had existed at times jaundice with fever. How does the jaundice originate in such a case or how can that be explained unless we recognize that the duodenum also for some reason or other can cause a distinct spasm in a sphincter near by or the sphincter of Oddi. This I think is a good demonstration of the existence of such a spasm and that such a spasm can cause distinct jaundice.

From the result of my experience I am inclined to assume that a mild closure, a mild spasm of that kind can exist without causing much pain. At least I think so, for the following reason: Very often if we try to obtain the duodenal contents by aspirating with the duodenal tube in the right place, we can do it for 15 or 20 minutes and yet get nothing,—no bile; only a few drops of duodenal contents, very little fluid without bile. Now sometimes it is very important to obtain the bile, so I tried again, as follows, and I did succeed. I put in warm water and let it run into the duodenum through the barrel of the syringe; then I try to lower the barrel and let the water come back by siphonage. If you do that and let the water come out, and have one syringe, and then put in another syringe and let it run out, then all of a sudden you will notice a little bile. This I think can be explained frequently by some closure of some muscle, which owing to the slight mild washing quiets down and opens up. In all of the cases that I have tried after using that method, we have almost always succeeded in getting the bile, and nice bile.

Stones in the gall bladder or its vicinity can produce such a spasm, and jaundice too.

Now if we have jaundice and have pain about the gall bladder can we make a diagnosis which will show us definitely whether there is a diseased gall bladder present or whether the stone is situated in the common duct, or in the cystic duct, or in the hepatic duct? By examination of the duodenal contents I think we can frequently gain some points which will help to differentiate these things.

If we have to deal with a diseased gall bladder, with or without stones, and decomposed bile, then we usually have a bile that is not clear and golden as it should be, but turbid; very often it looks like pea soup, dirty instead of golden yellow, and sometimes it looks greenish as though it had been stagnating somewhere. Then we certainly know that we have to deal with a diseased system about the gall blader. That is certainly the case with those patients who suffer a long time and come at a late period for their examinations. If the stone is situated in the choledochus, a good sized stone closing up that canal, then we find that bile would not be found in the duodenum while pancreatic juice would be present. I know of a patient who was operated upon not long ago in whom this state of affairs existed; he had no fever, he was jaundiced, and the duodenal contents showed no trace of bile; the pancreatic elements were absent too. Here I had to make a diagnosis of stone in the common duct; nothing entered; the pancreatic juice did not enter, bile did not enter the duodenum. He was operated upon and my diagnosis was found to be correct; he had stones in the gall bladder also. He had a big gall bladder, about the size of half a wineglass filled with big stones. You all know Courvoisier's law, that a large gall bladder speaks for malignancy, a small gall bladder for stones. I have not seen many autopsies regarding this law, but I have seen many patients at operations, and I find that there are many very big gall bladders with a stone and a good nature; they have no malignant disease. The one I referred to had that type—a big gall bladder with stones. So we cannot depend upon that rule, though the majority may be like that. It is very different whether we judge by the living or the dead body, for at autopsy we see only the end cases, whereas in life we have to deal with different conditions. I would not say in half, but I would certainly say that Courvoisier's law would not apply positively in a number of cases in making a diagnosis on the living, for I very often feel these gall bladders and they are big and yet there is no malignant disease.

We will now consider the jaundice that is of a protracted character. Here we can deal with stones

too, and we can also have some other affections which are the cause of that yellow color. Pains recurring at periods always speak for stones. Protracted jaundice, without pains at all, usually is due to that type which is termed biliary cirrhosis of the liver—big liver. There we may find not much suffering, not much pain. The patient can live quite a while and continue going about. I do not say he is not a sick man. But there is another type in which there is suffering with no distinct periods of interruption, and with it jaundice in addition; that is the malignant type. Another point of importance is that in the malignant type we may find plenty of bile in the duodenum, even clear bile. Bile in the stools, too; and not withstanding all that extreme jaundice. The reason for that is that the malignant disease starting in either the stomach and extending toward the liver, or starting in the pancreas or the gall bladder, will involve a certain field of the bile area of the liver constricting some of the canals and a certain amount of the bile has to go back, but a great deal of the bile in the healthy part of the liver which is collected will enter into the free passages. That is what happens in a great many of these cases.

In this connection I will mention a patient whom I have observed very recently. The case is interesting on account of the diagnosis. This patient did not suffer much, but he had lost quite a little weight and became extremely jaundiced. He also had some nodules in his forehead. These nodules were excised, and the pathologist reported a malignant disease. The gastric contents showed absence of hydrochloric acid, presence of blood, and lactic acid. Palpation revealed some resistance in the liver region. Examination with the duodenal bucket showed the pylorus to be free and gave no evidence of ulcer in the duodenum. The duodenal tube showed clear bile; but the pancreatic juice revealed absence of the trypsin ferment. This is often found in severe pancreatic lesions. In this case I made a diagnosis of cancer of the stomach involving the pancreas and liver. The liver could be palpated, but we had to base the diagnosis of cancer of the stomach and pancreas on the clinical findings in conjunction with the history. This patient died, and an autopsy was made, and contrary to our belief that it was a malignant disease of the stomach involving secondarily the liver and pancreas, the pathologist made a diagnosis of primary carcinoma of the pancreas. We were entitled to think that the primary place of the affection was in the stomach, for the liver is very seldom primarily affected with the cancer. . . . It is of interest to see that extreme jaundice should show plenty of bile in the duodenum, clear bile, and still a deficient pancreatic juice, and that led me to the right diagnosis in regard to the pancreas.

At present I have under my care a lady who is suffering from extreme jaundice; her color is much darker than that of a lemon, a mulatto color. She is about 70 years of age. For years she has had sugar in her urine, and besides that has had paralysis, a very severe type of the disease. She is the wife of a physician, and several surgeons have been consulted in regard to the diagnosis. I think that here we have to deal with a severe pancreatic disease which may also be the cause of the severe jaundice by pressure. I hardly think she has a malignant disease. There is no reason to believe there is a stone anywhere. She has never had pain. That is a very important point in the differentiation of these cases, with these severe forms of jaundice. The prognosis here is very grave. The surgeons don't want to touch the patient, and I don't blame them, for she would die. If she were twenty years younger, I would recommend an operation for draining the gall bladder, or making a cholecystenterostomy. What I especially want to emphasize, however, is that notwithstanding that she has so very much jaundice that I would consider it the greatest type in regard to color, she has no trace of bile in the urine. I examined the urine to-day: 3 per cent. sugar, no bile, and the stool is absolutely white, no color at all. How are we to explain this? It is quite difficult. There are two possibilities: either the liver is so diseased that there is no formation of bile or the liver has failed to send out the bile ultimately; it cannot do it; the skin is already full; it has stopped sending it out to the urine, and that is the reason why at present there is an interruption of the biliary excretion. It may come on later, but just now there is no trace of bile in the urine.

This matter of absence of bile in the urine is also found in another type of jaundice, the hemolytic type, in which we see the bile more or less formed in the blood, and there is no damming up of same in the liver, and there the urine usually contains no biliary pigments, the stool is colored, and still the patients have jaundice. In this particular type there is frequently a big spleen; and as all know, the main characteristic of this type of jaundice is that the red blood corpuscles are markedly fragile. They begin to be broken up already at 0.7 per cent. NaCl solution, while normally it begins at 0.4 per cent.

It may be well now to consider briefly the medical treatment of jaundice. In the acute forms the patient should have plenty of water, perhaps Carlsbad salts, and a light diet. That is the treatment for catarrhal jaundice. The same treatment applies in the type in which there is slight fever and jaundice, a form of jaundice which appears almost epidemically, in young persons 15, 18, or 20 years of age. They are sick for a week or two and then they are all right, and the condition does not recur. It is very similar to the catarrhal jaundice excepting that there is some temperature, usually of a mild type present. All the patients I have seen have gotten well. Here the treatment is rest in bed and light diet; the same régime as above, water, saline laxatives.

If, however, we have to deal with a patient who has stones, and is suffering with a severe attack of pain, perhaps no fever, we give hypodermics of morphine, and the next day he may be all right; he is jaundiced then for a few days; his blood is normal; no temperature. In such a case we simply keep the patient quiet, nourish him frequently with light food, and then give him bicarbonate of soda with glycerin—and he gets well. We can wait and see. If he has another attack, and if these attacks occur with frequency, then we have to be very much more careful, and we have to consider whether an opera-

tion is indicated. In these cases the *x*-ray helps very much in making a diagnosis, and an *x*-ray picture should always be taken. If stones are visible, and if the patient has had several of these attacks, I would advise operation for the removal of the stones; but if the *x*-ray shows nothing and there is no temperature and a low leucocyte count I would not advise operation; we must be guided by the condition of the patient,—the severity of the symptoms and the desire of the patient; we must combine the indications. If we have an increase of the leucocytes,—the polynuclears being increased, say 80 per cent. or so,—and we find that the duodenal contents in the fasting condition are turbid, I would have the operation performed. It all depends upon the symptoms, whether we can make the diagnosis, or there is something by which we can see that the condition is not dangerous and we can let it wait, or whether we expect something more serious to develop. If we find these anomalies, a turbid bile, increase of leucocytes, polynuclears increased, I am in favor of operation. These attacks are usually accompanied by chills and fever.

Now we will consider the subject of protracted jaundice. If we have to deal with the stone form of jaundice, after it has lasted from five to six weeks without abatement, we are entitled to make the diagnosis of a stone, in the common duct, and these cases should be operated upon, for we cannot tell how long they will go on and continue to get worse. In these cases we usually find either no bile at all in the duodenum, or it is turbid, but the recurring pains are the main indication; an attack of severe pain in which morphine is required, then relief for a time and then another attack. These patients should be operated upon.

Sometimes we may have a case of protracted jaundice without pain, and a stone may be the cause of that. I had a patient of that kind in the hospital not long ago. He had a very large liver; he had also a prolongation beneath the liver, which I thought was the gall-bladder, and in it I could feel something hard which I thought were stones. That patient had no bile in his duodenum, or almost no bile. The duodenal contents were not even straw colored, certainly not yellow, but almost like water. The pancreatic juice revealed the presence of all the ferments, and that is the reason I made the diagnosis in this particular case, that if there is a stone it must be lodged in the choledochus. I wanted that patient to be operated upon, and I think he would have been, but the administration sent him out after he had been there two weeks. I had studied everything, gotten everything ready, but the patient had no money or did not want to pay for the operation, and so he was discharged. That was about two weeks ago. In this particular case the diagnosis was really very difficult; still many symptoms were lacking to make a complete picture of a malignant disease, and that is why I still think that this case was probably due to stone and not to malignancy. Suppose we are in doubt? In such a case operation is demanded. This patient was about 40 or 44 years of age, a man in good condition, who could well stand an operation, and he should have the benefit of the doubt. Suppose he has a cancer? Then he is opened, and in such a case where there is no bile in the duodenum, an operation could be performed to make him more comfortable; the gall-bladder could be attached to the stomach or intestine so that the bile could flow out there; but if it was really due to stones he could get entirely well. Such patients should always have the benefit of the doubt. This particular patient may still turn up some day, and we may arrange to operate yet.

In biliary cirrhosis of the liver the prognosis is not very good. An operation cannot accomplish very much, for there is occlusion of the ducts within the liver and we have to deal with partial contraction of the little canals; but even in such cases we should not give up hope. Not long ago I had such a patient; he had an enlarged liver, was jaundiced and the abdomen was filled with ascites. He had also water in his feet, and could hardly walk. He had been to a renowned surgical clinic and was told that the condition is probably malignant and that an operation could be performed but without much benefit, and that he would die any way. So he was not operated upon. He came to me while I was in the country, with his physician. I examined him and found that state of affairs, and I told his physician that I could not then decide whether or not it was a malignant condition; it might be a biliary condition, one of hypertrophic cirrhosis of the liver, pure and simple and that an operation would not do much good. He came then to the hospital in New York, and waited for me to return. When I came back I found him there in a very bad condition. I was afraid that I might omit some chance in the way of surgery, and did not want to have that on my conscience, so I had some one else in to see him, but this surgeon agreed that he could not do anything. Then I gave the patient small doses of calomel followed by iodides and he began to improve. (A Wassermann test had been made and the reaction was negative.) The man continued to improve; he lost some of the fluid from the abdomen without tapping, his feet grew slim, and he was able to return to his home in Dayton, Ohio, where he continued the regimen I arranged for him. There was some achylia in his case, but he had no cancer symptoms that I could make out; so I gave him a liberal diet and told him to take calomel every second week. He continued to improve, lost all his symptoms, and came back looking well, without a trace of jaundice or ascites, and feeling like any one else. Such a case shows that sometimes we may be mistaken in our conclusions regarding malignancy. We thought he had biliary cirrhosis of the liver which was probably the correct diagnosis. I don't say that a similar treatment would succeed in all these cases, but in some we do succeed, and it is necessary for the physician to try everything and not to give up, especially where nothing can be done surgically.

In the hemolytic type of jaundice there is an enlargement of the spleen present, and a great many surgeons have tried to cure it by cutting out the spleen,—by splenectomy. Personally I have not had much experience with that, but I certainly would recommend such a procedure when it seemed required,—in that form of biliary cirrhosis with big spleen. I had two jaundice patients of that sort—big spleen, big liver. One of these was to be

operated upon, the other did not want an operation. I tried to influence the spleen and liver by radium treatment, and for quite a while radium was applied to both patients One of them improved considerably and was able to leave the hospital and go home. The other died.

I have said nothing of jaundice in infectious diseases, septicemia, etc., but have confined my remarks to those conditions which are more commonly met with.

20 East Sixty-third Street.

A STUDY OF THE ETIOLOGY AND PROPHYLAXIS OF RELAPSE IN MORPHINISM.

By C. B. PEARSON, M.D.,

CATONSVILLE, MD.

Relapse is the great bugbear, and the source of much disappointment and vexation to those who treat or care for the addict. Usually the whole responsibility is shifted to the patient, but I look upon relapse as one of the characteristic features of morphinism, a feature that calls for careful study if we would reduce the percentage of relapses to the minimum.

So far as I have been able to do so I have searched for the cause of every relapse that has come under my observation. For the sake of convenience we will study the causes of relapse under five heads: (1) Misconceptions of the pathology of morphinism, which naturally result in wrong methods of treatment. (2) Misconceptions of the addict himself, which lead to wrong systems of management. (3) Misconceptions concerning the convalescence of morphinism, and the nature of the repair processes that nature attempts to make, which result in faulty advice to the addict and his friends. (4) Certain factors in the make-up and environment of the addict himself. (5) Perverse and foolish conduct upon the part of the addict himself or of his friends and associates.

As in many other diseases, there is still much to be learned about the pathology of morphinism. As indicated by the title, this article is not concerned with an extended study of the pathology of morphinism, but a brief survey is needed for a proper understanding of the causation and prevention of relapse.

By many morphinism is thought to be a toxemia. This is true, but it does not go far enough. However, one who does not recognize this condition of toxemia in morphinism would be likely to fail in a very important part of the therapeusis of this disease.

Others look upon morphinism as being chiefly a neurosis. They regard the addict as being of the neurotic type. Morphinism is most surely a neurosis. The persistent contraction of the pupil, the decreased peristalsis of the bowel, the subesthesia of the skin, or, in rare cases, the opposite condition of hyperesthesia, the loss of sexual desire, which is no doubt due partly at least to the subesthesia of the nerve endings about the genitalia, all point to the fact that morphinism is a neurosis. The point to remember is that these and other nervous symptoms are only a part of the manifestations seen in this disease.

The word morphiomaniac would indicate that there are others who look upon morphinism as a psychosis. There are many psychic symptoms that are both characteristic and persistent. The psychic changes are only a part of the pathology of this disease. It is a psychosis, a neurosis, a toxemia, and in my opinion a number of other things besides.

It is probable that morphine affects adversely various glands of the body; to what extent and in what manner remains to be learned. It is likely that the metabolism of the body is interfered with in this way. We know that the functions of the testicles and the ovaries are interfered with to a very great extent, in many cases amounting to a complete cessation of function. It is more than probable that the action of many other glands of the body is lessened or perverted.

The nutrition of the body is always below par in advanced cases of morphinism. As a general proposition morphine is a great anti-fat. Nearly all cases lose in weight; a few gain in weight, but even in these cases there is malnutrition. There is something wrong about the feel of the flesh in morphine obesity that is very noticeable upon palpation. I think it more than likely that there is a real abnormality about the adipose tissue in these cases.

There is an astonishing change in the appearance of the features in any case of advanced morphinism that passes from morphine narcosis to total abstinence. There is a change not only in the expression of the features, but there is a change in the contour of the face. That is, the thickness of the flesh over the bones changes. This change, however, is not uniform over all parts of the face, hence the great change in contour.

I treated a lady, who had taken morphine 25 years. She had worn a set of false teeth with comfort for many years. As soon as I succeeded in getting her off the drug her teeth were no longer adapted to the changed contour of the mouth. As a matter of fact, to a greater or less extent the contour of the whole body changes. The change is more noticeable in those who carry a good bit of flesh. I treated a fleshy lady who had been an addict for eighteen years. When she came to me for treatment, if she extended the arm the flesh would sag from the shoulder to the elbow. Upon giving the pendent portion of the flesh a little cuff, it would swing back and forth like a hammock. By the time I had this patient down to gr. 1/20 4 times per day, the flesh of the arm became firm and also assumed the normal contour. I mention these matters to convince the reader that the changes that take place, while they may be only functional, are very profound. Morphinism is accompanied by greater changes in metabolism and in nutrition than any other functional disease I know. The changes in nutrition equal those seen in many wasting diseases like diabetes, nephritis, or even tuberculosis.

I am writing this for both the normal physician and the one who has the misfortune to be an addict.

To the normal physician who attempts the treatment of morphinism I say that any physician who thinks that morphinism is only a toxemia, or only a mania, or only a neurosis, or only a sort of a neurasthenia, or a trifling psychosis, will find that his efforts will most certainly be followed by a prodigious number of relapses.

To the physician who is an addict, if he is deceiving himself with the idea that morphine is not very harmful in his case or that it is even beneficial, I would say that the more thoroughly he deceives himself in this respect the less the chances are that he will ever become free from the drug. The successful treatment of morphinism depends in about equal measure upon the efforts of the physician and those of the patient.

On the other hand, the more thoroughly the patient appreciates his deplorable condition, the more intense his desire to get well becomes.

A conception of the pathology of morphinism that fails to take into account the profound and deep-seated nature of the pathological changes will most likely lead to perfunctory methods of treatment. Hence I say that misconceptions of the pathology of morphinism are by far the most prolific cause of relapse that we have to-day.

Next in importance as a cause of relapse are misconceptions as to the addict himself. Of course the psychology of morphinism means to a large extent a knowledge of the addict himself. And the psychology is a part of the pathology of this disease. What I mean in this connection is what the ordinary observer learns about the addict from long association with him and his kind. That is, all the little mannerisms, peculiar beliefs, mental attitudes, moral torts, and habits of thought, likes and dislikes, and lastly the addict's peculiar point of view regarding himself, the drug, and others who are afflicted with the disease, etc.

A lack of this technical knowledge leaves the physician all at sea as regards the management and control of the addict. I depend altogether upon this knowledge of the addict and his devious ways to control him. I never under any circumstances use any form of restraint. Nothing so commands the respect and confidence of the addict as the thought that his physician knows how he thinks and feels better than he does himself. A lack of this practical knowledge will most likely cause the physician to get the addict's ill will in spite of the best of intentions. If you lose the patient's good will you might as well discontinue treatment. The morphine addict is very sensitive about certain things. What these sensitive points are should be known in advance.

The convalescence of morphinism differs from that of other diseases in that there must be a recuperation from a peculiar mental condition, from a peculiarly exhausted nervous condition, together with a recuperation from a characteristic malnutrition of the whole body.

Morphine seems partially to paralyse the motor nerves, apparently making it necessary for the brain to send out greater and stronger motor impulses, as the addict becomes more deeply involved in his addiction. On the other hand, the need for the inhibitory impulse becomes progressively less. At least I judge that this is the case from what we see when the drug is too quickly withdrawn. The heart beat becomes rapid and irregular. The bowels that, while taking the drug, were in a condition of semiparalysis, become exceedingly active, resulting in cramps, diarrhea, tenesmus, and pain. We also get cramps in the legs and arms. In fact, the whole body seems to be working like an engine with the governor belt thrown off. The sexual powers that have lain dormant for years manifest an extreme activity resulting in eroticism and frequent involuntary emissions of semen in men, and often in nymphomania in women and in profuse menstruation in those who have not menstruated in years. I do not believe in removing the drug in such a way as to bring on these extreme symptoms.

Where the drug is rapidly removed, the mental machinery is as violently disturbed as the physical mechanism. Even when the drug is removed slowly and cautiously, there is a lack of emotional control and a lack of mental inhibition. As to inhibition as regards speech, an elderly lady said, towards the latter part of the reduction, "I was a good Methodist when I came here but I don't know what the devil I will be before I leave."

Even when the reduction is managed slowly and carefully, that is, in from 35 to 70 days, according to the severity of the case, nature does not have quite time enough to adjust herself completely to the change. Towards the close of the reduction the patients laugh or cry with but little provocation in either case.

Another clinical indication of this lack of balance in the motor and inhibitory impulses when the drug is rapidly removed, is seen in the lack of balance in the contraction of those muscles that have to do with maintaining any particular posture. As everyone knows, no one can maintain the erect posture unless the opposing muscles are each contracted so as to balance one another. To maintain any posture with ease the balance should be perfect. When the drug is at once withdrawn nature's power of adjustment is so far lost that the patient cannot stand, sit, or lie at ease. This is perhaps the most distressing feature of rapid withdrawal.

Reduction should never be pushed so rapidly as to bring on these symptoms. Mental depression and restlessness occur long before the above symptoms appear, and serve as a warning not to stop the reduction but to change to a slower rate. Pain and discomfort, especially when long continued, are a severe strain upon both the body and mind. This is just as true in the treatment of morphinism as it is in any other condition. The more of this the patient has to endure during treatment the worse his condition is at the end and the more likely he is to relapse. The patient, after absolute withdrawal, is always in bad condition. This makes the convalescence more trying, much slower, more difficult, and more dangerous as regards relapse.

This many will not admit to be true. But as morphinism becomes better understood they will be compelled to admit this fact. Many do not believe that the drug can be taken away from the addict by the reduction process, without long drawn out stress and suffering. I say that the reduction can be managed without serious discomfort to the patient. I say further that any physician can learn to manage the reduction with comfort and safety to the patient if he will take the trouble to learn how. This may seem unbelievable to many to-day, but the time is coming when all will learn that this is the truth.

I do not say that reduction can be managed with absolute comfort. No invalid can be comfortable in all respects. The addict is an invalid before

reduction, during reduction, and until convalescence has become complete. However, I do say, and my daily experience proves it, that the addict need be no more uncomfortable during reduction than he was while taking the drug *ad libitum*.

No doctor need think that he can manage the reduction with comfort to his patient by the simple process of stringing it out over a long period of time. The time given to the reduction can neither be unduly abridged nor extended without causing extreme discomfort to the patient. The correct management of the reduction is a difficult thing to learn. It must be learned, however, if we wish to cut off a large percentage of relapses. The only way rapid methods of withdrawal can be made successful is to follow the withdrawal by a prolonged period of strict surveillance. This means a useless expenditure of time and further does nothing to build up the convalescent's self-confidence and self-reliance. To my mind this is more important as regards the prevention of relapse, than prolonged surveillance. The reason that these restraints are needed after rapid withdrawal and not during a correctly managed reduction is because the discomfort is so much greater and the mind so much more unstable.

The peculiar emotional condition of the addict during the first few weeks off the drug calls for very careful advice to the patient and to his family physician. It is a time of great danger to the addict during both the latter part of the reduction and the first part of the convalescence. I have seen patients weep at anything at all sentimental in a motion picture. It need hardly be said that all stress of any kind upon the emotions should be avoided.

The emotions that center about sex matters are among the most violent that the human being ever experiences. During this period violent attachments are likely to be made for those of the opposite sex.

It is the part of wisdom for any man under treatment for morphinism to confine his remarks to the female sex to "good morning" or other brief form of greeting during the latter part of his treatment or during convalescence. It is also a matter of prudence in other ways besides reducing the danger of relapse. For one might contract a violent attachment for one of the opposite sex who would not make a suitable companion in any way whatever. Were the addict in his usual mental condition he would perceive this fact. I do not mean that the addict is crazy during convalescence but that his emotions are difficult to control. Therefore it is the part of wisdom for the convalescent to avoid everything that might excite the emotions. Of course these remarks apply to women under treatment as well as to men.

To return again to the disturbance of the motor and inhibitory balance, which we find to a slight degree during the reduction and during convalescence as compared to the violent disturbance as seen in absolute withdrawal, I must say that, even if it be slight, it is a matter that calls for careful study. For during this condition of affairs fatigue comes on very easily. Further, extreme fatigue increases to a marked degree the lack of balance between the motor and inhibitory impulses. And there comes that difficulty of assuming any posture of ease before mentioned. These symptoms are very distressing, and unless the addict has been very carefully instructed and cautioned in regard to this matter he is likely to become at once panicstricken and resort to the drug. A hot bath followed by a few hours in bed and a prolonged period of rest afterwards will set matters right.

A frequent misconception of convalescence consists in the idea that improvement is very rapid. There are two things about the convalescence that make such a misconception at least plausible. One of these is the rapid gain in appearance and usually in flesh; the other is the wonderful improvement in the patient's spirits. The last is so marked as to deceive the convalescent himself. Ask him how he is feeling and he will at once say "never better in my life." He is perfectly honest in saying this. The fact is that no man can take morphine for 10 or 20 or more years and remember anything at all about how he felt before becoming an addict. So in saying that he never felt better in his life he is really comparing his present condition with his condition during the years of his addiction. The proof that I have the right idea consists in the fact that after the convalescent has pronounced himself never better in his life he continues to gain week after week and month after month, providing he remains free from the drug and escapes serious illness or accident.

Rightly understood, this is a tragic illustration of the seriousness of morphinism. It is always well for the convalescent and his physician to remember that the convalescent is never as strong as he looks to be.

Another frequent misconception connected with the convalescence is the supposed part played by the will. The convalescent is advised to use his will power. The convalescent himself usually thinks that this is a good idea. Nothing could be further from the truth. When I have a patient leave me with absolute confidence in his will power I expect him back again. Discretion and common sense are what is needed. The will, like the emotions, should not be put to any strain. Let the convalescent pursue the right course and he will have but little need for his will power. What I mean by this is that if the right course is pursued there will be no temptation to take the drug and consequently no work for the will to perform.

Let the convalescent get himself into a situation where there is a strong temptation to take the drug, the will power will be found to be useless. Of course the reader may say that my argument is weak because will power is needed to pursue a line of conduct that will leave the convalescent free from temptation to use the drug. I do not think so. The right line of conduct is as easy to pursue as any other, and it seems to me that the pursuit of it is a matter of common sense and discretion rather than a matter of will power. The convalescent's will is weak, I grant that, but it will do well enough for the matter in hand if no load is put upon it.

When a person with a strong will becomes an addict (and, by the way, many such characters do become addicts, contrary to the general supposition), his strong will becomes a perverted will and a decided obstacle to success. Especially is this

the case, if, along with that precious strong will of his, he is endowed with unbounded self-conceit; and the two are more often joined together than otherwise. In this case we have a patient who can be neither guided nor taught. Such a patient is very difficult to cure permanently.

Another thing that has a great bearing upon the convalescence of morphinism, in the pathology of this disease, is the fact that in the case of the addict sleep is always poor in quality and very often in quantity. The addict is prone to retire very late at night, in extreme cases not till the next morning. If he has work to do this abridges the quantity of sleep. But even if he gets the right number of hours there is but little refreshment in it. So when at last the drug is withdrawn, the addict is in an exhausted condition. Morphine enables one to draw upon his reserve bank account of nervous energy. The normal person cannot do this except under great stimulus; it is like fighting a fire all night after a hard day's work. So when at last the false stimulant is gone, the addict has not much push left, and he is in no shape to attempt any physical or mental strain.

Now as to the use of hypnotics during convalescence, it is not best for the patient to become anxious about the hours of sleep, for if he gets one hour of natural it is better than a number of hours of drugged sleep. There are only two drugs (neither one is thought to be an hypnotic) that I know of that can be used safely as sleep producers. One is a small dose of pilocarpine at bedtime and the other is small doses of apomorphine (gr. 1/120 to gr. 1/40) every four hours. Chloral, paraldehyde, medinal, veronal, sulphonal, trional, etc., are worse than useless, for they predispose to relapse; they are, indeed, every whit as effective as a cause of relapse as whiskey.

On account of the prolonged interference with both the quality and quantity of sleep the convalescent has no reserve bank account of reserve nervous force to draw upon.

There are, however, two other factors of the pathology that bring about much the same condition, and this is the fact that all the cells of the body, in addition to being fatigued, are both partially starved and poisoned. Starved because of the interference with the appetite and with metabolism. Poisoned both by the direct effect of the drug and by the retained toxins, that accumulate because excretion and elimination are interfered with.

This gives us a clear-cut idea of the physical therapeutic needs. A thorough building-up process is needed. The convalescent must digest many a good meal, must enjoy many nights of normal sleep, before his exhausted bank account of reserve nervous force is restored.

Fresh air both day and night is as beneficial in the convalescence of morphinism as in tuberculosis.

Having pointed out the clear indications, I need say no more as to the building-up process. Each physician can make use of such means as seem good to him. Drugs have but little place in this building-up process; they can do but little good at best. It is psychologically far better for the convalescent to learn that rest and out-door recreation is all that is needed.

It is especially needful that the convalescent should learn to do without all drugs, for it is about the only way to acquire a normal and wholesome mental attitude. Even though a certain line of medication may seem to be indicated, the indication for no drugs is so much more pronounced that it is best to pass up all drug medication.

The indications for the psychological management of convalescence are equally clear-cut and certain. As I have already said, there is a lack of emotional control. The convalescent becomes very romantic; he reads and quotes poetry and sometimes writes it; he becomes very gallant; he sings, or tries to do so.

While he is more alert mentally than when taking the drug, the mind skips from one thing to another. The mind is easily exhausted. The grass looks greener, the sun shines brighter; the convalescent feels so good that he is sometimes impelled to celebrate by getting drunk. Here again let me say a building-up process is needed. Whiskey and the hypnotics tear down faster than nature can build up. The simple life in the most rigid meaning of the term is what is needed. It is best to put aside for a season everything that excites the emotions, like poetry, the drama, religion, and music of a sentimental character; and especially to avoid all entangling alliances with the opposite sex.

Quiet and rest are needed for body and mind. Many patients say that they cannot rest. Every practitioner knows that, when an active person has to be subjected to weight and pulley extension in bed, the first week is very trying, the second week is less so, and after a time the most restless person becomes reconciled. It is thus with the convalescent. If he rests the first week it will be easier to do so the second week, and finally he will reach a condition of mental and physical repose. This is very essential to final recovery. When the convalescent is in this favorable condition, the building-up process goes on very rapidly.

As regards any patient's final recovery a great deal depends upon what manner of man or woman the patient was before becoming an addict.

The successful business or professional man, the skilled mechanic or farmer have many times better prospects of final recovery than the more fickle and useless members of society. The same rule holds good with women. The thorough-going housewife, the competent stenographer, typist, saleswoman, school teacher are good prospects as regards ultimate recovery. The well-disciplined farmer's wife, no matter how long she has taken the drug, makes an ideal patient as regards danger of relapse.

Those members of society who feel the constant need of amusement, excitement, entertainment, etc., make exceedingly perplexing cases to manage. I have a feeling of pity bordering upon contempt for this class of people. Those who derive their enjoyment from worthy tasks well done are easy to guide through the perplexities of convalescence. The chief difficulty is in keeping them from going to work too soon.

I hardly need say that a good environment means a great deal as regards final success. A bad environment seriously complicates things. The practical thing is, can the environment be improved? If the chief part of the environment consists in bad associates, they can be discarded. But if one in making

a living is necessarily thrown into bad company, the outlook is bad indeed. The proper thing in this case is a change of occupation. This is one of the reasons why those of the underworld are so difficult to cure permanently.

Lastly, let us consider the relation of foolish or perverse conduct on the part of the convalescent and his friends. Many patients tell me at the close of the treatment, when I advise a long rest, that they lack the time. They must at once look after their affairs. This sounds plausible. Upon close analysis it will be found that there is nothing in it. The addict's time during the first part of the convalescence is not very valuable at best. If he proposes to use this time in doing things that I have expressly advised him not to do, he will find that his time is not only worthless but that it is many times worse than useless, for he will only get himself into a whole lot of trouble and sorrow. That is, he will get back into morphine taking again. Then he will have to spend more time and more money to get free again. Some convalescents seem to have this insane and senseless mental attitude—"If I cannot drink all the whiskey I wish to drink, if I cannot associate with any class of women I choose to associate with, and if I cannot do exactly as I please without getting back into dope, then back into dope it is." Here is your strong will, reader, with a fool behind it. A strong will, unless guided by discretion and common sense, is much worse than useless.

I advise a convalescent to take his auto, camping outfit, cooking utensils, and start out for a prolonged cross-country trip alone. And I further advise him to give at least three months to this trip, assuring him that, if he will do this, he will most likely never need morphine again. He answers, "I cannot do that." I ask why not. He says, "there is no excitement in doing a thing like that." "Of course there is no excitement in it; have I not told you repeatedly that excitement is the very thing that the convalescent should avoid?" If this fellow could take along with him another bum and a couple of women of easy virtue, a complete stock of whiskey, wine, and beer, the thing might appeal to him. I admit that there might be some excitement in it, but the excitement would all end in less than ten days with a dull, heavy thud. His aching head, his tangled nerves, his rebellious stomach, would call loudly for a stiff hypodermic of morphine. Indeed, "what fools we mortals be."

To another I recommend a prolonged sea voyage. He replies, "Oh, there is nothing to see, nothing to do." "Of course not, that is precisely why I recommend it. Nothing to see and nothing to do by the end of a month will bring about in your case a condition of mental and physical repose. Just the thing you need to help you to reach complete convalescence." "A whole month, doctor? Why, a whole month of such monotony would kill me." Poor thing.

One can rest with but little expense, if he chooses to do so. However, there are many who do not think that they can rest unless they can do it in proper style. The reader may suppose that I have in mind those who are wealthy. Not at all. There are many who feel that their social status would be utterly ruined unless they rested in proper style, who are not worth thirty cents, and who can neither rest in style or do anything else in style except on credit or borrowed money.

What the American people, and most other peoples for that matter, lack is proper training and discipline.

The class of addicts that I have just been writing about are a very discouraging class to treat. Nevertheless, the constant repetition of such sentiments as the above will often bear good fruit, even with this almost hopeless class of addicts.

Fortunately addicts of this class are in the minority. As in the population at large, there are all sorts and types to be found among them.

When the addict returns home after treatment he is easily irritated. Those nearest and dearest to him should bear this fact in mind. They should be very economical in giving advice. Above all things, they should not keep him under constant surveillance. This sort of thing will drive any convalescent almost to distraction. He needs to be alone at times to give his jaded nerves a rest. The constant chattering of one's friends is wearing to the robust. They should not drag him from one entertainment to another in order to keep him amused. Constant entertainment will wear the nerves to a feather edge as quickly as overwork, worry, or dissipation.

Morphinism that has lasted for ten or more years means abridged sleep and abnormal sleep for just that period of time. It means a prolonged starving of every cell in the body. It means the partial poisoning of every cell in the body for ten or more years. It means, in the very nature of things, that there can be no short and easy road to complete convalescence.

A COURSE IN MEDICAL DIETETICS.

By L. BAUMANN, M.D.,

IOWA CITY.

ASSISTANT PROFESSOR AND DIRECTOR OF THE CHEMICAL LABORATORY, DEPARTMENT OF INTERNAL MEDICINE, STATE UNIVERSITY OF IOWA.

About three years ago, Professor Ruth A. Wardall and Miss Margaret Sawyer of the home economics department and the writer planned a course in medical dietetics for graduate students in home economics. The prime object of the instruction was to train students to qualify as assistants to investigators and specialists in the diseases of metabolism, gastrointestinal diseases and other conditions in which diet plays an important rôle.

As there is reason to believe that our educational experiment has been successful, a brief account of the course may interest the readers of this journal.

In addition to the food work given in the home economics department, the students were required to have an elementary knowledge of inorganic, organic, food, and physiological chemistry. The duration of the course was at least one academic year. The instruction was divided into three periods: First a period in the chemical laboratory of the university hospital, during which instruction was given in analytical and microscopic work on the blood, urine, gastric contents and feces. This was designed to enable the stu-

dent to note the effect of diet on the digestion and metabolism of the patient. The second period consisted of dietetic instruction in the food laboratory of the metabolism ward. Here accuracy of measurement and care in the preparation of meals were prime considerations, as the food was administered to patients who were the subjects of dietetic investigation. The wishes of the patient were consulted and the dishes were prepared as attractively as possible. The daily intake of the food constituents was carefully computed during this part of the work. During the final period instruction was given in the preparation of special diets for patients in the private rooms and wards of the hospital. These included among others, the Lenhartz diet for gastric ulcer, the Schmidt diet for studying the functions of the intestine, low protein and salt diets for nephritic cases as well as high calorie diets and those for diabetics.

In addition one lecture each week on abnormal metabolic processes and dietetic therapy was given by the writer. This was supplemented by ward walks and discussions of typical medical histories and bedside notes. This instruction afforded an opportunity to the students to observe the effect of diet on the symptoms and conditions of the patients. They also obtained some knowledge of the medical terms and method of approaching the sick.

The students appeared to be intensely interested in the work. They soon realized that too little is known with regard to the relation of diet to abnormal conditions and appreciated the need for further investigation along these lines.

The recognition of the importance of the rôle of diet in diseases of the stomach, intestines, kidneys, heart, in diabetes, gout, typhoid fever, tuberculosis, and infant feeding has created a demand for such specially trained women. One of her most important functions is to teach the patient or those concerned with his welfare the details of preparation and computation of the diet which has been recommended by the physician. It appears to the writer that once the physician realizes the advantages of cooperation such a dietitian may well become a necessary member of his staff both in private and hospital practice.

A CASE OF TRUE MEDIASTINAL EMPHYSEMA.

By GUSTAV F. BOEHME, Jr., M.D.,

NEW YORK.

CONSULTING NEUROLOGIST, POLICE DEPARTMENT OF NEW YORK CITY; PSYCHIATRIST, EDUCATIONAL CLINIC, COLLEGE CITY OF NEW YORK; ASSISTANT, NEW YORK NEUROLOGICAL INSTITUTE, ETC.

Mediastinal emphysema is of comparatively rare occurrence, and the report of a case is deemed of sufficient interest to warrant publication.

The process in the true form usually is due to the admission of air into the mediastinum from a rupture of lung tissue about the hilus of the lung or one of the smaller bronchi. It may also be caused by the rupture of a lung abscess, a tuberculous cavity, or a softening tumor. Occasionally, injury to the trachea or larger bronchi may be a cause. The air in this way escapes into the mediastinal tissues and works its way into the neck and spreads laterally and downward and upward under the skin of the neck and thorax.

It must be sharply defined from false mediastinal emphysema (subfascial emphysema), in which the air, usually as the result of pneumothorax therapy, finds its way "between the intrathoracal fascia lining the intercostal muscles and the ribs on the one side and the costal pleura on the other" ("Monographic Medicine"), and diffuses into the loose endothoracic fascia. The air remains behind the ribs and does not spread to the neck or the skin.

F. H., aged 18 months, a normal child, born normally, on Oct. 17, 1918, fell ill with a double basal pneumonia. The course was characteristic; crisis occurred on the ninth day and the child was progressing satisfactorily when, on the twelfth day of the disease, it was seized with a violent spell of coughing in the presence of the writer. In ten minutes, the coughing being quite severe (there was no hemoptysis or true pus expectorated), a small crepitant lump appeared in the suprasternal notch. The percussion note over the mediastinum was high pitched and tympanitic. In six hours the emphysema had spread up the neck to the lower border of the mandible and downward laterally over the chest wall to the eighth ribs, and back to below the angle of the scapula. Sedatives were administered, the child was kept absolutely at rest, and the nasal mucosa was desensitized with a weak cocaine solution. The child was seen with Dr. E. Hoenig the next day. For four days the emphysematous area varied with the amount of coughing, and then gradually was absorbed, the child coming to a perfect recovery. An *x*-ray taken after recovery showed no evidences of pulmonary abscess or cavity.

The writer was led to believe this was a true case of mediastinal emphysema, caused probably by the rupture of a small bronchus in a part of its lumen. He is led to this opinion by the fact that the air appeared so quickly in the suprasternal notch, because of its rapid spread, and because of the variability of the amount of the emphysema depending upon the amount of the coughing. It would seem that the bellowslike action of the lungs forced air with each expiration through the ruptured bronchus into the mediastinum. Bronchoscopy might have cleared up the difficulty, but as the child was progressing quite favorably, and the strain of the influenza epidemic was upon us, it was not undertaken.

220 Audubon Avenue.

Rabies Despite Prophylactic Treatment.—Lesieuer, Lhermite, and Jacquet report a case of rabies supervening 22 days after a bite despite intervening Pasteur treatment. Clinically the type was bulbar. The patient exhibited fear states, hallucinations, and convulsions. He was in the prodromal stage extremely emotional with sudden terrors. The affective element was markedly exaggerated. Death occurred in 36 hours with ascending paralysis. At autopsy the bulbar centers, while showing no actual inflammation, presented the changes which are most commonly encountered in toxi-infectious conditions. A rabbit inoculated with the marrow died at the end of 16 days.—*Gazette des hôpitaux.*

Colorimetric Methods for the Determination of Nitrogen in the Urine and Blood.—Salvesen has investigated the Folin-Denis methods for the determination of total nitrogen, ammonia, and urea in the urine and the nonprotein nitrogen in the blood. His results show that the methods are entirely trustworthy and give very prompt findings and are adapted to small laboratories. For the determination of ammonia and urea in the urine they take precedence over all others.—*Norsk Magazin for Laegevidenskaben.*

Medical and Surgical Lessons of the War.

WAR INDUSTRIAL DISEASES.

By ALICE HAMILTON, M.D.,

CHICAGO, ILL.,

OF THE BUREAU OF LABOR STATISTICS, WASHINGTON, D. C.

THE outbreak of the great war in 1914 found the United States equipped with many nitroglycerine plants, a full sufficiency of gun powder factories, one plant making TNT on a rather small scale and a few plants making nitro cotton and smokeless powder. At once the demand began to come from Europe for explosives of many kinds. The French wanted picric acid, the British wanted mixed powders (nitroglycerine, gun cotton powders, such as cordite), and both the British and the Russians wanted shell loaded with TNT. Factories began to spring up, especially for the making of phenol and the nitration of phenol to picric acid—trinitrophenol. This last procedure is easy and does not require an expensive equipment, consequently small picric acid plants were started up all along the Atlantic coast and picric was produced by the most primitive and reckless methods. The manufacture of TNT is complicated and few companies undertook it, but the loading of shell is simpler, and here too the work was undertaken more or less recklessly. By April, 1916, when the Government sent me on my first tour of inspection, there were already between forty and fifty plants manufacturing or handling explosives, and in forty-one of them I found some 30,000 persons employed in work which brought them in contact with some industrial poison. This does not include the manufacture of ordinary gun powder, for there are no poisons involved in that.

The substances that may give rise to intoxications of more or less serious character in the explosives industry are inorganic compounds, the nature of which was pretty well known at that time, and organic compounds which were new even to German and British pathologists and were quite unknown in America. The most important of the former is nitric acid, which in the form of mixed acid is used in all nitration processes, and all of the explosives except gun powder are nitrated bodies. Sulphuric acid is added to the nitric to take up the water liberated in the reaction which otherwise would dilute the nitric acid. At the time the war broke out we were not making nitric acid to any great extent, and therefore factories had to be built for this manufacture, and also to recover and refortify waste acid. The acid used for the higher nitrations is 100 per cent. and is excessively hard to control, for it eats through almost any substance, and leaks are of common occurrence.

The most important organic compounds used are benzene, which is the starting point for our usual method of phenol manufacture, toluene which is nitrated for trinitrotoluene, or TNT, and anilin which is first methylated and then nitrated to tetranitromethylanilin or tetryl, a powerful detonator. Fulminate of mercury is the highly sensitive substance used in percussion caps. It is made by the action of alcohol on mercuric nitrate.

In that first survey I discovered some 2400 cases of industrial poisoning among men and women employed in the manufacture or loading of explosives and I was fully aware that these were not nearly all, for it was impossible to get anything like accurate figures. Many cases were never recognized, coming as they did into the hands of physicians who knew nothing about the poisons to which they had been exposed. Many more were treated by company doctors or insurance doctors who were unwilling to give information which might seem to discredit the company that employed them. At that time there were large factories handling extremely dangerous substances in which no medical care was given the men; they were simply expected to quit the job if they felt sick, indeed they were encouraged to do so in order not to cause embarrassment or expense to the company.

These 2432 cases were almost all men, only seventy-five were women. Not all were seriously poisoned. A fulminate dermatitis was all in 111 cases, an anilin poisoning lasting from twenty-four to forty-eight hours accounted for almost 200 more. The nitrous fume cases were all serious and twenty-eight were fatal; the benzene cases were all serious and seven of the fourteen were fatal. Trinitrotoluene was responsible for 702 intoxications, and though on my list there are but thirteen deaths noted, the information concerning six additional deaths was very positive, but it came to me at second hand and I was not willing to use it. The women were found in the fulminate departments and made up thirty-two of the 111 cases of "fulminate itch." They were also employed in the loading of shell with TNT, and they had forty-three of the 702 TNT cases and two of the thirteen deaths.

At that period in the industry nitric acid and the fumes of nitrogen oxides and atomized acid constituted by far the greatest danger, but the problem of protection against such dangers is mechanical, it is a task for chemists and engineers and as time went on they began to get it in hand While in April, 1916, I saw no less than eight violent outbursts of so-called "nitrous fumes" during a three-hour inspection of a great nitro-cotton works, two years later in that same plant there was hardly one in a fortnight. On the other hand the making and handling of TNT presented a more difficult problem. We knew how nitric acid attacked the body and what lesions it produced; we knew practically nothing about the nitro derivatives of the benzene ring. Indeed before the war the Germans and the British both looked on TNT as almost an ideally safe explosive, inert as regarded the human body, and impossible to explode without a detonator. We learned very soon that the latter was a delusion. All but one of our very disastrous explosions were due to TNT, and as for its action on the body, the fatalities among TNT workers began to become known early in 1916.

It will make the subject much clearer if a brief description is given of the different dangers in explosive manufacture. In making nitric acid and in nitrating cotton for gun cotton and smokeless powder there may be at any moment an escape of fumes consisting of the pale lower oxides of nitrogen and the yellow and orange-colored higher ox-

ides, for when nitric acid comes in contact with the air or with an organic substance a rapid decomposition occurs. Sometimes, especially in nitrating military gun cotton with 100 per cent. HNO_3, the decomposition may be so violent as to blow the lid off the nitrator or centrifuge and reduce the acid to a finely atomized spray which fills the air. When such an accident takes place the men rush for the exits and stay outside till the fumes have cleared away enough to make it safe to go in again. They acquire a good deal of tolerance to these fumes and are able to work in an atmosphere which is quite unendurable to me, but this does not mean a tolerance to a dangerous amount of the fumes. There is no more immunity to nitrous fume poisoning than to nitric acid burns on the skin.

Ordinary nitrocotton for smokeless powder is nitrated usually by the mechanical method, highly nitrated cotton of low ether-alcohol solubility is nitrated by the pot method or direct method. The danger is greater by the latter, but in both the processes of nitration and of centrifuging out the acid—wringing, as it is called—and of washing or "drowning" the cotton from the wringers, are all liable to be accompanied by a sudden "fuming off" with the production of these dangerous nitrogen oxide gases.

A few instances drawn from that survey in 1916 will illustrate the effects of such an accident. A man was working in the pot nitration shed of a nitrocotton plant when a centrifuge blew up and the lid struck him, knocking him senseless. The other men in the shed fled at once before the angry yellow fumes and did not discover for some minutes that this man was missing. When they finally succeeded in dragging him out he had breathed the fumes for some minutes and had drawn them deeply into the lungs. Still, when he came to himself he did not realize that he was injured, he was given the usual first aid treatment of a few drops of chloroform in water with some aromatic ammonia, which quieted his spasmodic cough, and after a couple of hours he was allowed to go home. During the night he woke with a feeling of strangulation, he was obliged to sit propped up in bed, his air hunger and his terror increasing all the time. He had abdominal pain also, but so distressing was his dyspnea that he hardly noticed the pain. The doctor found him unable to speak or move, needing all his strength to breathe, his lungs filled with moist râles, his face livid. In spite of the rather tardy administration of oxygen, he died of edema of the lungs in less than 24 hours after the accident. This case, so similar to the cases of gassing in the trenches, is absolutely typical of industrial poisoning from nitric acid fumes.

When the exposure is less extreme a pneumonia is likely to result, followed sometimes by the lighting up of an old tuberculous process. This was so evident among negroes on the nitrating area that the Du Pont Company decided not to employ negroes in that department, on the ground that they were more likely to have latent tuberculosis than white men. A severe laryngitis, with edema of the glottis, may result from breathing fumes. The older companies, such as the Du Pont and Hercules, instruct the men, if they are exposed to fumes, to take as shallow breaths as possible, so as not to drive the fumes into the whole lung, but unfortunately the instinctive reaction to such fumes is, as I can testify, to hold the breath as long as possible and then take a deep, gasping inspiration and then hold it again. This may result in damage to all the lung tissue.

Erosion of the enamel of the teeth is another effect of the nitrous fumes. Mouth breathers especially may lose all their front teeth. As for the permanent effects of nitrous fume poisoning and the effect of breathing small quantities over a long period of time, no information was to be obtained from the explosive plants. The labor turnover was great, the men did not remain under the observation of any one physician for long, and if they fell ill it was very likely to be in a factory where they had worked only a short time and where nobody knew their past history of exposure. We shall probably learn more about this phase of the question from a study of the later history of cases of trench gassing. In the only instance of industrial poisoning from nitrous fumes in which the victims were followed over a long period of time, it was found that the effects of the accident lasted for months. This was the incident related by Hall and Cooper[1] of Denver, who had under observation eighteen firemen and two printers poisoned by inhaling nitrous fumes from a broken carboy of nitric acid. Four of them died, two from the immediate effects, two from pneumonia developing twenty-two and thirty days after. One-third of the men suffered relapse within three weeks of the accident, and of the sixteen who survived eleven had not yet recovered their health nine months later.

The manufacture of picric acid by nitration of carbolic acid was attended with even more nitrous fume poisoning than was the nitration of cotton, for the industry was, on the whole, less well managed. There were many carelessly run picric acid plants in which the indifference to the safety of the men seemed almost incredible. Some of the worst employed large numbers of negroes from the country districts of Alabama and Mississippi, and the combined effect of a Northern winter, housing in crowded shacks, and exposure to nitrous fumes worked havoc among them, but it was possible to keep the very shocking state of things from the knowledge of the public. To their credit, it must be said that the State labor officials of New Jersey where most of this manufacture went on, labored hard to correct these evils, and gradually succeeded.

Nitrous fume poisoning is not the only danger in picric acid manufacture. The picric itself is poisonous, and so is the phenol. Moreover, the production of phenol for picric involves exposure to benzene a more powerful toxic agent than either. One fatal case of phenol poisoning was reported in the course of this inquiry, many cases of picric dermatitis but only a few of the systemic forms of poisoning with indigestion, abdominal pain, vomiting, diarrhea. Dr. F. O. West[2] of Woburn, Mass., made a study of the urine of picric acid workers with reference to the presence of the acid and evidence of damage to the kidneys. Of 57 men selected for this purpose, 30 had been temporarily affected by fumes in the course of their work, but none seriously. He

succeeded in demonstrating picric acid in the urine of only three, and five contained a trace of albumin. Picric acid is so bitter that men do not swallow much of it. The compound, ammonium picrate, which came into use later on, seems to be quite nonpoisonous.

Benzene in carbolic acid manufacture was responsible for several deaths that year. Usually this was the result of men being sent into tanks to repair pipes, and breathing fumes from the benzene, which was always supposed to have been completely washed out. Very small quantities of benzene are enough to cause serious damage. One case was reported as follows: A man went to the top of a still to see what was wrong. There was a bad leak, and he fainted from the fumes almost instantly, and by the time two others could come to his rescue, which was said to have been not more than two or three minutes, he was dead. Both men who went to help him were overcome and lost consciousness, but were revived. There were also two cases of fatal benzene poisoning in connection with sulphonation of benzene, a stage in the production of phenol.

In England the manufacture of trinitrotoluene seems to have been attended with little if any industrial poisoning; all their reports have come from loading, or, as they call it, filling the shell. That is not true of this country. The making of TNT by nitration of toluene has been attended with a great deal of poisoning, as well as the loading of shell with TNT. The form this intoxication takes is like that of the more slowly absorbed nitro and amido derivatives of the benzene ring. The more volatile compounds, such as the nitrobenzenes, nitrochlorbenzenes, nitranilins, act rapidly, and it is rare to find cases of profound degenerative hepatitis in poisoning from these substances, though the so-called toxic jaundice does occur sometimes. There is also occasionally a case of aplastic anemia from such a compound. I have the record of a case following poisoning with paranitranilin, and another caused by alpha-naphthylamine. But it is chiefly trinitrotoluene* that has caused these two forms of intoxication, acute degenerative hepatitis, and aplastic anemia, in large numbers in Great Britain and in Germany since 1914; and in this country, difficult as it has been to get at the facts, it has been possible to discover a few cases of both forms of TNT poisoning.

In 1916 some 700 cases of TNT poisoning came to my knowledge, and 13 deaths were reported positively, six more were less positive. The 700 include all cases, severe and mild, from a few plants, and the very severe cases from the others. In one plant where the physician was frank and intelligent, there had been about 300 cases, with two deaths. In another, where the physician would give no information at all, five men had died of TNT poisoning, and if the rate was the same here as for the first plant there were 750 cases of less severe poisoning in that plant.

According to W. H. Hudson[3] of the Du Pont Company, who has had much the most experience with this form of intoxication in the United States, the symptoms of what the British call "minor TNT sickness" are as follows: bitter taste in the mouth, gastrointestinal indigestion, constipation, rarely diarrhea. Then severe general malaise, headache, pain in the chest, vertigo, weakness in the limbs. The lips are cyanotic, the skin of the face yellowish. Old chronic cases, or those with repeated mild attacks, develop neuritis of the lower extremities. The men complain also of a bad taste in the mouth, loss of appetite, persistent headache, sometimes nausea and cramps in the abdomen. Others complain more of sore throat, dry cough, sense of constriction in the chest, running eyes, burning in the nose. Almost always they notice that the urine is darker in color. Such a man, if given prompt eliminative treatment, usually recovers rapidly; if neglected, and allowed to keep on in TNT work, he goes on to a more serious stage of the poisoning.

While in Great Britain, physicians connected with the Ministry of Munitions were making a careful study of all forms of TNT poisoning, and publishing their findings for the benefit not only of their own manufacturers and practitioners, but of us Americans as well, we in the United States were pursuing our usual policy of secrecy regarding the dangers in industrial processes, and it was only by rare luck that anything worth while could find its way into our literature on munitions intoxications. The best description of TNT poisoning was given by H. S. Martland[4] of Newark, based on two autopsies which he made, one on a case of toxic jaundice, the other on a case of the more unusual aplastic anemia. In the first he found a toxic hepatitis, with excessive degeneration of the liver, parenchyma, toxic degenerative tubular nephritis, icterus, secondary anemia, showing considerable polychromatophilia. The jaundice in this case was general and extreme. The second case was very typical of the rarer type of TNT poisoning as described by the British. There was a loss of both red and white blood cells, with practically no evidence of regeneration; there were hemorrhages from mucous surfaces; there was no jaundice. Hemorrhages were found in the pericardium and other serous structures, and there was a low-grade parenchymatous degeneration of heart muscle, liver and kidneys, and increased iron pigment in liver and spleen. The bone marrow showed a replacement of erythropoietic tissue by fatty tissue.

In the manufacture of T N T there are in addition to such forms of intoxication as those just described, very rapid forms suggestive of poisoning by some other compound. For instance, Dr. T. H. Harrington[5] of Boston has published several striking cases of this kind. I will quote his description of the first case:

> A carpenter, 42 years of age, employed one week in an establishment where the nitrating of toluene was a part of the process of manufacture, was made dizzy from fumes escaping from a duct under which he was at work. A short stay in the open air revived him. Vertigo and dizziness returned when he remounted the staging. He went home and returned to work the next day. On reaching the working platform he was nauseated, vomited, became dizzy and had to be helped out into the open air. He drove two miles in an open car to his home, during which he was exposed to cold, damp November air. Seven hours later he suddenly grew worse, had convulsions, passed into coma and died at 11.45 P. M. Autopsy confirmed death by gas poisoning.

*Toxic jaundice was caused by exposure to another munition poison, namely tetrachlorethane, which was at first used as a solution in airplane dope, but given up in January, 1917 in Great Britain because of its toxicity.

Cases such as this are believed by some of the British authorities, and by Koelsch of Germany, to be caused by tetranitromethane, not by trinitrotoluene.

After our entrance into the war I was asked to make a second survey of explosives manufactured in the United States, with reference to the incidence of poisoning among the workers. It was evident that much less attention would be necessary to protect employees against nitrous fume poisoning than was required a couple of years before. Great improvements had taken place in the manufacture of nitrocotton, and also in the manufacture of picric acid, although there was still one very large plant making picric acid which left a great deal to be desired. The special danger in 1917 and 1918 was from TNT, both the manufacture and the loading of shell. There was trouble also in the handling of tetryl used for the "booster" charge or detonator.

The reports that had been coming to us from England concerning TNT poisoning in that country had made it evident that there was a difference of opinion as to several points which were important, because upon them depended the proper protection of the men and women handling TNT or exposed to its fumes. In June, 1918, the National Research Council, the Department of Science and Research of our Council of National Defense, determined to take up the study of occupational poisoning in the munitions industry, with a special view to the settlement of these controversial questions, especially in the TNT works. They sent into certain plants in which TNT was manufactured, and others in which shell was loaded, medical students who had been well trained in laboratory methods, in order to collect data as to the danger of dust, fumes, and contact, the absorption and elimination of TNT, and various other points of practical importance. The results of these observations constitute a distinct contribution to the study of TNT poisoning, and are worth a brief summary.

The questions they were especially anxious to solve concerned the following points:

1. The portal of entry for TNT, whether through the skin, or by breathing fumes, or by breathing and swallowing dust.
2. The influence of age, sex, and race on susceptibility to TNT poisoning.
3. How long an exposure is necessary before TNT can be detected in a human system?
4. How long does it take to get rid of the TNT that has been absorbed?
5. What are the earliest symptoms of TNT poisoning?

Of great assistance in making these studies was the so-called Webster test, for the detection of a reduction product of TNT in the urine. This test was worked out in England, and is of great value, making it possible to discover when TNT is being excreted, and therefore furnishing to a certain extent a gauge of the amount that is being absorbed. The test depends on a color reaction, when the acidulated urine is extracted with ether and the ethereal extract treated with alkaline alcohol. The color varies from a faint pink to a deep Burgundy red, and it is customary to describe the reaction by the figures running from 1 to 5.

Four hundred and two workers, only thirty-six of whom were women, were examined in the six plants selected. In one plant toluene was nitrated to TNT. In another, crude TNT was purified and packed. In the other four, shell was loaded with pure TNT and with two mixtures of TNT and ammonium nitrate, known as 50-50 amatol and 80-20 amatol. The plants were situated in northern Wisconsin, in the mountains of Pennsylvania, in the flatlands of New Jersey near the coast, and in eastern Virginia. Negroes were employed in two plants only. As for sanitary conditions, the six plants presented instances of the extremely bad, the excellent, the medium and the poor. The medical service provided would also fall under these same heads. Medical care to be sufficient must include examination of all applicants for employment and careful and frequent inspection of conditions in the workrooms and of the employees while at work, for only in this way can the physician come to know the dangers to which various people are exposed and only in this way can he detect the early symptoms of poisoning. It is not safe to wait for the man to present himself in the office with a complaint of sickness. One plant only had entirely adequate medical care, in two more it was very good, it was fair in the fourth and miserably poor in the fifth and sixth, where the physicians in charge did little more than discharge men and women who they thought might cause trouble and expense to the company by becoming seriously poisoned.

There was a lively controversy last year in England on the subject of skin absorption of TNT versus fumes. Dr. Benjamin Moore espoused the skin theory with great vigor and even went so far as to assert that exhausts for carrying off fumes were a needless expense to the management since poisoning did not take place through the breathing of fumes. Apparently, however, other physicians connected with the Ministry of Munitions insisted on retaining the artificial exhausts that had been ordered and refused to accept Dr. Moore's dictum. We hoped to be able to throw light on this question by selecting groups of workers, some of whom would be exposed to skin contact, others to dust, and others to fumes, but this proved to be practically impossible, partly because the labor turnover was so great that no one group ever contained the same men and women at the end of a fortnight as it had at the beginning, and partly because nobody was exposed to only one kind of poisoning. Every man who was breathing fumes was also coming in direct contact with TNT and the same was true of the men exposed to dust. Nevertheless we were able to arrive at a fairly positive conclusion. This was that, though not the only channel of absorption, the skin is by far the most important one.

Wherever the amount of poisoning was greatest the workers were found to be handling TNT in an easily absorbable form or their skin was dusted over with it. Dusty work did not result in poisoning of a serious kind unless the dust was of such a character as to allow it to pass readily through the skin. Pure TNT when dry is not easily absorbed, although when it falls on a perspiring skin it will cause poisoning, but the mix

tures of TNT and ammonium nitrate are much more easily taken up by the skin because the ammonium nitrate is hygroscopic and the moisture makes the skin more permeable. A man working in amatol has his hands and forearms and other exposed parts of the skin continually moist, in fact one can see tiny droplets of water on the hairs of the arms, and it is these amatol workers who become rapidly poisoned, while men sifting pure TNT or pressing it into demolition blocks are poisoned slowly, if at all.

There was, however, evidence to show the danger of TNT fumes and we would not agree with Dr. Moore that kettles need not be hooded and that fumes from grainers and washing tubs are harmless. A good many cases of sickness have come from just these departments, and in some instances the rapidity of poisoning points to fumes rather than to skin contact. For instance, a new employee went to work the first day stirring a kettle of molten TNT in a pouring room where the fumes were allowed to be very heavy at times. It was a fairly cool day in June, but after a few hours' work he became dizzy and faint and was sent to the doctor, who found his lips blue and his pulse weak and rapid. This was on a Monday and he did not go back to work, but on the following Friday he was still feeling ill and still passing dark colored urine. Another instance of fume poisoning was related to me by a superintendent in charge of the loading of mines and depth charges for the navy. He had under him about 200 men, 150 of them loading mines with molten TNT, and 50 pressing dry TNT for "booster" charges. The two groups worked in separate rooms, the first being exposed to a great deal of TNT fumes from the kettles and from the cooling charges in the mines, and also coming into contact with the TNT, while the other group was not exposed to fumes but was exposed to dust and contact. According to the superintendent, not one man among the 150 engaged in pouring had been able to work for more than three weeks without showing some effect of the poison, and most of them were cyanosed, dizzy, and weak at the end of a week's work. The "booster" men on the other hand had hardly any sickness at all. The superintendent himself came into very little actual contact with the TNT, but he was frequently overcome and had to go out into the fresh air if he was obliged to stay in the loading room throughout the nine-hour shift.

One of the students made an interesting observation on pure fume poisoning. She was attached to a very dirty, crowded, ill ventilated plant, and conditions in the pouring room were excessively bad. On two occasions she remained in this room for two or three hours, being careful not to touch anything during the time. After both these occasions she succeeded in demonstrating TNT in the urine by the Webster test.

It is, of course, by no means certain as yet that the volatile substance given off from molten TNT is not composed of several bodies, among others tetranitromethane. Experiments now being carried on will probably clear up this point.

The second question we sought to answer concerned the influence of age, sex and race on susceptibility to TNT poisoning. With our entrance into the war there was naturally an influx of youthful workers into the munition plants and also of women, although a much smaller number of women were employed in the making of explosives than we had supposed would be the case. Forty per cent. of the employees in the six plants studied were under 35 years of age; 22 per cent. were under 21 years of age. Fortunately the greater number of these youthful employees were employed in two of the good plants.

The student employed in the worst plant noted a distinctly greater susceptibility to TNT poisoning among the younger men. Three lads of 19 years were discharged after three weeks' work because the doctor was unwilling to take the risk of keeping them any longer. One man of 21 years, who was unusually careful and cleanly in his habits, was so sick at the end of the first week that the doctor discharged him. Of all the men who were discharged from this factory during one month on account of sickness, one-third were under twenty-five years of age, yet only one-eighth of the total number of employees belonged to this age group. In the better plants there was no such striking evidence of the over-susceptibility of the young, yet a close analysis of the records brought out the same results. In one very good plant 48 cases of TNT poisoning were selected, 19 of them in middle-aged men and 29 under 21 years of age. It was found that the middle-aged men had worked on an average 49 days before they had noticed the first symptoms of sickness, while the younger men had averaged only 10½ days' work. From two other plants 15 cases were selected in which the history showed that there was a decided over-susceptibility to TNT. All of these men had developed symptoms of poisoning in a very short time, and had had to be transferred to other work. On referring to the age lists, it was found that only one of these had reached the age of 34; the others were under 21 years of age.

As to the influence of sex on susceptibility, the British reports had given us no information because the vast majority of TNT workers in England were women. In our plants just the reverse was true. We had records of only 36 women out of the 400 workers in these six plants and even these women were not employed in any of the more dangerous parts of the work. However, 16 of the 36 were employed in the two worst plants where TNT was spilt and scattered about so carelessly that it was impossible to handle anything without getting some dust on the skin. A group of seven women whose hands were stained from handling shell smeared with TNT were carefully examined. Five complained of slight symptoms, and three gave a moderate Webster reaction in the urine, but none was cyanosed and none had applied for treatment except one married woman who complained of nausea and vomiting and whom the physicians suspected to be pregnant. Another group of nine girls handling small quantities of pure, dry TNT was examined and one, who had been working longer than the others, 24 weeks, showed fairly serious symptoms. None of the others was affected more

than to a very slight degree. The other women were employed under excellent conditions, but ten of them came in contact with amatol and six of these had dermatitis. Obviously unless men and women are employed in the same departments and doing the same kind of work, it is impossible to make any comparison between them. Our studies last summer did not throw any light at all on the question of sex susceptibility.

The same difficulty was encountered when we tried to determine whether the opinion held by practical men that the Negro stands work with TNT better than the white man is based on fact. Unfortunately in one of the plants employing Negroes, the whites and Negroes did not do the same sort of work and there was in addition a great difference between their diet and mode of living. The Negroes lived in their own cabins, ate little meat, and a great deal of fresh fruit and vegetables raised in their own garden. The white men lived in company bunk houses and ate at the company restaurant—a diet very rich in meat, but with almost no fresh vegetables and fruit. Both had plenty of opportunity to take baths in the plant, but the Negroes availed themselves of this opportunity more than did the whites, who were largely from the mountain districts of North Carolina. There are, therefore, several reasons why the Negroes in this plant should suffer less from TNT sickness than the whites. In the other plant which employed Negroes, both races lived in company houses and ate company food, and neither was much given to taking baths. The students attached to this plant could find no difference between the incidence of TNT sickness in the two races. Evidently we shall have to make a more extensive study of Negroes and whites under identical conditions before we can be sure as to this point.

The Webster reaction was what we depended on to show the rapidity of absorption of TNT. It may appear very early. I have already spoken of the student who obtained a faint reaction after two hours exposure to TNT fumes. This same student got a decided reaction in ten newly employed men who had been at work only six hours. An analysis of 133 cases, in which a Webster 5 (maximum) reaction was present, showed that 39 per cent. had not been exposed longer than one to three weeks.

Symptoms of discomfort and distress sometimes appeared on the first or second day of employment, but often these symptoms would pass over and the men would feel quite well for a period and finally developed symptoms of another kind. Often there was a transitory disturbance of digestion with loss of appetite and a bad taste in the mouth, and perhaps diarrhoea, with more or less pain, but all passing over in a few days. The more characteristic symptoms—breathlessness, a sense of constriction in the chest, headache, dizziness, a feeling of "dopiness" and lassitude with pains in the muscles of the calves, weakness of the knees, blue lips and a livid color—began in some cases during the first week or fortnight and persisted. As a usual thing, men who developed symptoms of real poisoning had experienced the first feelings of discomfort fairly early—nearly a third of them before the end of the first fortnight.

If we take the Webster reaction in the urine as a gauge of the elimination of TNT, we find that most men can get rid of all they have absorbed within two weeks after complete removal from the poison, although some take much longer than that. One man continued to give a positive reaction five weeks after removal from TNT work. This is not entirely a matter of individual idiosyncrasy. It depends partly upon the treatment given him to help him elimiate the poison. Repeated tests of the urine showed that a man could get entirely rid of the reaction in his urine in 36 to 48 hours if he were taken into the hospital, given a thorough scrub bath with special attention to the parts of the skin stained with TNT, then given a cathartic, an enema and a diuretic and quantities of warm milk to drink. If, however, he was simply shifted to other work and was allowed to go on wearing dirty overalls and gloves, he might continue to excrete TNT for weeks.

The earliest symptom of intoxication seems to be breathlessness, on exertion, especially going upstairs or climbing a hill. A man who denies that he has been at all affected by the work will almost always admit this symptom if he is asked. Next usually comes dizziness on stooping over, and a more or less persistent headache, or perhaps loss of appetite, bad taste in the mouth and a feeling of nausea in the morning. Men and women working with dry TNT making "booster" charges often complain of running eyes, sore throat, burning in the nose, and nose bleed. Other early symptoms are cramps in the calves of the legs, great fatigue and a sense of tightness in the chest. The change in the color of the urine is noticed very early. At first the color is a clear brown, about as dark as weak tea. Then it may increase till it is as brown as coffee. This color is quite independent of the substance that gives the Webster reaction, for a maximum Webster may be given by a urine with normal color and a dark brown urine may give a negative Webster. In some very serious cases the color is not brown, but deep reddish, and in these cases the Webster reaction is likely to be high. There still remains a good deal of work to be done on the urine of TNT poisoning.

The typical form of severe TNT poisoning is toxic jaundice. During my first survey I had had records of some twenty cases of jaundice, and everything led us to suppose that there would be a much larger number in 1918 because of the much greater number of workers and because of the excessively hot weather in August, for heat always increases the cases of TNT poisoning and their intensity. Contrary to our expectations not one case of typical jaundice developed in the six plants under observation, with the possible exception of a young girl of 16, who was said to have been sent home very deeply jaundiced from one of the worst plants, and was said to have died at home some days later. We were never able to confirm this story.

There are several explanations for the improvement in 1918 over 1916. One is the great improvement in plant sanitation and the even greater

improvement in medical care. In 1916 few physicians knew anything about the prevention of TNT poisoning. No plant had any regular system of shifting the men to safe work when they began to show symptoms of illness, nor had any plant a thorough system of medical supervision. In the summer of 1918 three of the six plants under observation had such excellent medical supervision that it would have been impossibe for a case of sickness to go on to the point of severe jaundice. The two neglected plants were protected by the rule in force that all sick men must be discharged. It is, of course, possible that some of these men developed jaundice later, as we know occurred in several instances among discharged men in 1917, but we have no reports of it. Another factor, and probably a very important one, is the short period of exposure to TNT, especially in the badly managed plants, for in these the labor turnover was truly enormous, the proportion of those employed as long as three months being only 4 and 7 per cent. According to British statistics toxic jaundice usually develops after 8 to 12 weeks' exposure.

The practical points that emerged from this study were the following:

TNT poisoning takes place chiefly, if not wholly, through the skin, and therefore it is essential to protect the workers from direct contact with it by maintaining strict cleanliness of the premises and preventing the splashing of TNT over the outer surface of the shell. Warm, moist TNT is more dangerous than solid TNT. Amatol is more so than pure TNT.

Young people are more susceptible to TNT than the fully grown. They sicken more quickly and suffer more seriously. Negroes are probably less susceptible than whites.

Tests on the urine show that TNT is rapidly absorbed if exposure is great and it can be rapidly eliminated if exposure is stopped. Some men can eliminate over night what has been absorbed during the day. Others can get rid of it over Sunday and start on Monday free from TNT in the system. Therefore a man on an eight hour shift will absorb only two-thirds as much as one on a twelve hour shift, and will have one-third again as much time to eliminate it. A man with one day's rest in seven will be able to stand the work better than a man who works continuously.

The same test showed that the most economical way to treat a workman who is suffering from TNT poisoning is to put him in a hospital and give him vigorous eliminative treatment, and then put him on work free from TNT till his urine is negative. It only prolongs his recovery to give him work that is better than what he has been doing but still involves contact with TNT. Allowing a man to wear dirty gloves and overalls may result in a continual absorption of TNT even if he is put on TNT-free work.

The earlier symptoms of TNT poisoning are short breath on exertion, dizziness on stooping over, headache, fatigue, loss of appetite. These with a positive Webster test in the urine should lead to a temporary shifting from TNT work in order to save the man from serious poisoning.

These studies in munition intoxications were carried on with a view to the protection of the munition worker, but they may serve a purpose in peace-time industries as well. Nitric acid manufacture and the use of nitric acid have not ceased with the signing of the armistice, and nitrous fume poisoning will continue to occur even if we are not making explosives any longer. Picric acid is a fairly important dye. Celluloid and films for moving pictures are made in much the same way as nitrocotton. As for TNT it is said that it may take the place of nitroglycerin for surface blasting. It cannot be used underground because of the poisonous nature of the gases evolved by its detonation, but for surface work it has several advantages over dynamite, being less sensitive and not affected by the cold. Even if it is not used, however, the studies that have been made of its toxicology are of value in helping us to understand the working of the nitro compounds of the benzene ring, many of which are now used in American dye works.

REFERENCES.

1. Hall and Cooper: *Jour. Am. Med. Assn.*, 1905, xlv, p. 396.
2. West, F. O.: *Boston Med. and Surg. Jour.*, 1917, cxxvii, p. 171.
3. Hudson, W. H.: *New York Medical Journal*, 1918, cvii, p. 723.
4. Martland. H. S.: *Jour. Am. Med. Assn.*, 1917, lxviii, p. 855.
5. Harrington, T. H.: *Boston Med. and Surg. Jour.*,

800 South Halsted Street.

Genital Asthenia.—A somewhat unusual condition described by Professor Loumeau of Bordeaux concerns a finely developed and virile man aged 28 without inherited or acquired antecedents who came for relief from defective potency—incomplete erections which no artifice out of many tested could satisfactorily overcome. He wished to marry. No cause could be found or even surmised to account for the impotence, which was attributed for want of better to some unknown reflex of inhibitory character. Despite his extensive experience Loumeau was not above asking counsel from the Bordeaux Medical and Surgical Society, evidently without regard to individual experience. The point involved, however, was not technical but moral, and hence within the province of all members. Should we recommend the man to marry in the expectation that a wife selected by himself on a basis of mutual affection would bring about a cure? The question has of course often been asked but not often in cases of impotence without apparent motivation.—*Journal de Médecine de Bordeaux.*

Paralytic Rabies.—Marie and Chatelin describe a case of what was primarily a polioencephalomyelitis of rabic origin. The patient was 11 years of age and was bitten on the lip late in October. On December 15 he became paraplegic and in the next three days the paralysis had ascended to the muscles of the trunk and upper extremities. Death was due to respiratory paralysis. Autopsy showed plainly the histological pathology of paralytic rabies of subacute type. The remarks of Professor Netter showed that this opinion was not easily reached. The very earliest symptoms were psychic and the incubation period for a bite on the lip was very long. The animal in the case was "doubtful." There is no mention of any preventive treatment. —*Gazette des hôpitaux.*

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, June 21, 1919.

CHRONIC OBSTRUCTION OF THE RESPIRATORY TRACT AND SCOLIOSIS.

THE experiments carried out on rabbits by Ziem some years since, unquestionably proved that the complete obstruction of one nostril provokes an asymmetry of the head, thorax, and spine. In order that these phenomena may occur, however, the obstruction must be marked. In certain subjects it may also happen that chronic inflammation of the nasopharyngeal mucosa will favor the development of a deviation of the spine. The state of muscular debility present in subjects having respiratory insufficiency contributes in no small measure to the development of these deformities, and, since their appearance takes place at the time of growth, unquestionably the excess of organic activity which occurs at this time in both the spine and the thorax places the subject in a more accentuated state of receptivity.

The signs characterizing a scoliosis resulting from obstruction of the respiratory tract may be briefly stated to be a barrel-shaped thorax, the anteroposterior diameter being increased while the transverse is diminished, especially at the base. At this point some writers have mentioned a depression corresponding to the insertions of the diaphragm and resulting from exaggerated efforts made by the patient in order to compensate for the insufficiency of the respiratory capacity. The entire thoracic cage appears to have undergone an arrest in growth and contrasts with the development of the other regions of the body. It should be remarked that the obstruction of the respiratory tract is more surely to result from adenoid growths than from hypertrophy of the tonsils and that the deformities of the spine to which they give rise commence to be manifest about the age of from twelve to sixteen years, and it is precisely at this age that, both adenoid growths and enlarged tonsils having acquired their maximum development, the nasal obstruction has become more complete, while the respiratory difficulty, being more marked, produces the thoracic deformity and curving of the spine at the same time.

These scolioses offer the peculiarity that they are not pronounced; they are often dorsal, are more common in girls, and the convexity is more prone to be on the right. They are invariably accompanied by thoracic deformity, and their evolution is slow, never reaching an exaggerated development, at least in most cases. They make their appearance and undergo their evolution during adolescence, especially at the time of growth. The deformity of the thorax resulting from nasal obstruction is commonly observed in childhood and disappears or improves as soon as the nasopharynx has been delivered from its obstruction.

It would therefore appear that in a certain number of cases of scoliosis in adolescents, the primary and determining causative factor of the spinal process is obstruction of the upper respiratory tract from adenoids, nasopharyngeal inflammation, or enlarged tonsils, which are the cause of a diminution of the intrathoracic pressure, producing as a consequence atrophy of the thoracic cage and favoring the development of the scoliosis. Being aware of the multiplicity of causes which may contribute in the production of this deformity, it is clear that one cannot incriminate lesions of the postnasal cavity and pharynx as the sole cause of a scoliosis, but when making an etiological diagnosis careful inspection of the nose and throat should never be overlooked, and often the practitioner so doing will be rewarded for his pains.

HIGH MORTALITY AND CHILD BEARING.

DESPITE the great advance of asepsis and antisepsis, by which the mortality rates of operations have been much diminished, the maternal death rates associated with childbirth are still unduly high. Mr. Victor Bonney, a London obstetrician, in an address recently delivered, an abstract of which was published in the *Medical Press*, May 14, 1919, severely arraigns the methods and lack of preventive measures which render such results possible. It is pointed out that confinements take place in houses unfit for human habitation, and that even in the houses of the well-to-do there is frequently a lamentable lack of preparedness. The public is unaware of the dangers attending pregnancy because the medical profession does not recognize these dangers nor does it hold the view of midwifery held by Mr. Bonney, "that the product of conception is as truly a neoplasm as any other growth within the uterus, and labor a surgical operation that a woman performs upon herself." According, then, to the writer, midwifery is strictly a surgical art which necessitates for its successful prosecution the full gamut of modern surgical requirements, and the only way in which the procedure can be rendered comparatively safe is to regard it from this point of view and to act accordingly.

It is no doubt true that pregnancy, at any rate under modern conditions, is more serious and dangerous than the majority of the medical profession think it to be. It is rational to suppose that if better precautions were taken the mortality from it

would be considerably lowered. Many of the deaths occur from sepsis, which signifies that there is often something radically wrong in the management of labor. Puerperal fever is uncommon in lying-in hospitals and therefore it would appear to be obvious that its occurrence in private practice is due to unsanitary surroundings or want of precautions on the part of those concerned with the cases. The remedy for this state of affairs would seem to be that medical students should have it impressed upon them that labor is a serious condition and that they should be thoroughly trained in the practice of obstetrics. But it is of as great importance that the lying-in woman should be in a healthy environment and should have the best of nursing care. In order that this may become possible there must be a large number of properly equipped lying-in institutions, which will serve not only as places in which sanitary surroundings are assured, but for the training of students and nurses in the technique of obstetrics and in the care of the parturient woman.

In the same issue of the *Medical Press* in which Mr. Bonney's paper appears is a letter from Dr. F. C. Barlow speculating on the immunity from puerperal sepsis of the poor. The writer brings out the ingenious hypothesis that the normal course run by confinement cases in the loathsome hovels of the filthy poor is, first, because the patient is used to her surroundings, and from being continually subjected to a great variety of infection, has succeeded in brewing a polyvalent autogenous antitoxin. Further, it must be added that at such a time a woman's whole system is profoundly modified, it is on a war footing, all power reserves are mobilized and ready to be drawn upon to their fullest extent. Internal secretions are manufactured upon a more extensive scale and there is a general hypertrophy of all organs and a hyperelaboration of all secretions and excretions. This applies only to those who live in very dirty surroundings and have thereby acquired a certain degree of immunity. The rich are in a measure powerless against infection at such a time. They have been trained to rely upon extraneous protection; their healthy surroundings and rational hygienic mode of living become their undoing when once infection does set in; their protection is not, as in the case of the poor patient, an intimate elaboration to suit surroundings and circumstances, but an adaptation of environment modified to suit the needs of the individual over and above these means of protection afforded to the patient in a dirty room. Barlow thinks that her primitive surroundings and relative neglect are often the woman's salvation; there are no prying fingers to examine and help on parturition, and no ill-timed "prophylactic" measures; the tissues are not partially or totally devitalized by antiseptics or irritated into perverted activity by needless interference. *Vis medicatrix naturæ* is often a most trustworthy physician, although but a poor surgeon.

There is some sound reasoning in the above statements. A degree of immunity against infection is acquired by those who live under unsanitary conditions and it does seem likely that the rich are less able to withstand puerperal infection than the poor. At the same time there is no getting away from the fact that the practice of obstetrics is, generally speaking, not performed so skillfully as it should be performed by the generality of practitioners, and that, despite the great advances of the past three decades, there is still room for improvement in this direction. Statistics carefully collected as to the mortality of maternity cases and the causes thereof would be of the greatest value. There is no more important question in the entire field of medicine and surgery than that of obstetrical practice.

THE KIDNEY AND INFLUENZA.

THE general infection arising in influenza not infrequently involves the renal gland. The renal forms of the grippe, not commonly recognized in general, possess so much importance that two distinct classes of patients can be established, namely, those in whom the kidney remains intact and who merely follow the customary destiny of the pleuropulmonary complications should these occur, and, secondly, those patients in whom the kidney becomes involved in the general infection, with the result that the clinical picture, prognosis, and treatment undergo a fundamental change.

In its simplest form the renal involvement makes itself manifest in the shape of a massive albuminuria, while the more serious types are represented by an acute urinogenous nephritis, a number of examples of which have been recorded during the past few months. Between the two extremes, the renal insufficiency assumes intermediary types, particularly the asphyxic form from hyperacute pulmonary edema, which appears unquestionably due to this pathogenesis and represents a pure example of respiratory uremia. The participation of the kidneys may be easily overlooked, because it takes place along with other very serious visceral complications of influenza, and a careful search is required in order to detect it.

The prognosis of influenza is greatly exaggerated by renal lesions and the majority of fatal cases are among those who presented marked albuminuria, while rapidly fatal cases, with death in a few hours from acute pulmonary edema, or in a few days from acute uremia, are the results of renal insufficiency. The study of the renal functions during the evolution of the grippe is, consequently, of the utmost import and requires a daily analysis of the urine. In cases of massive albuminuria the outlook should be regarded as that of renal disease, the influenza itself becoming a secondary matter. Therefore, the treatment of renal insufficiency should at once be resorted to, without awaiting further developments, while should uremic manifestations ensue, the classical treatment must be adopted without delay.

Mortality After Operation for Duodenal and Gastric Ulcer.

Up to the present time investigations dealing with mortality after operation for duodenal and gastric ulcer have usually taken into account only the percentage of deaths due to the operation. A report published recently by Arthur Hunter, chief actuary of the New York Life Insurance Company, considers the effect on the mortality after the operative deaths have been excluded. The materials for this report were gathered from the Mayo clinic, the brothers Mayo having been the first to have statistics prepared from this standpoint. Some very instructive facts were forthcoming as a result of these investigations. The following is a summary of the results: (1) The percentage of operative deaths in the hospital following operation for gastric ulcer was fully twice that for duodenal ulcer, but the percentage in both cases was very low considering the seriousness of the condition. (2) The mortality among persons operated upon for gastric ulcer is three times as high as among those operated upon for duodenal ulcer during the three years following the operation. (3) The mortality among persons operated upon for gastric ulcer decreases relatively after operation, but the data are not sufficiently extensive to determine the number of years which must elapse before the death rate is similar to that of the general population. (4) The mortality of those operated upon for duodenal ulcer in the Mayo clinic is less than that among the general population. Mr. Hunter points out that it is of interest to know that the average age at time of operation of those operated upon for gastric ulcer was 47 in the case of men and 43 in the case of women; the average ages of those operated upon for duodenal ulcer were 44 and 42 respectively. The seemingly abnormally low mortality among those operated upon for duodenal ulcer may be explained largely by the facts that the mortality rate is lower among the individuals from whom the Mayo clinic draws its clientele than among the general population, because there was not a large number of cases, and because all the cases had not been traced.

Fishes and Mosquito Control in Ponds.

The effective control of mosquitos is the chief factor in the eradication of malaria and therefore any measures which will keep down mosquitos are steps in this direction. In Public Health Reports of May 23, 1919, Samuel F. Hildebrand, Ichthyologist, U. S. Bureau of Fisheries, writes from the ichthyologist's point of view as to exterminating mosquitos. His conclusions are as follows: *Gambusia affinis*, the top minnow, is especially suitable for antimosquito work because (*a*) it seeks its food at the surface; (*b*) it is very prolific; (*c*) it gives birth to well developed young, therefore requiring no special environment for depositing and hatching the eggs; (*d*) it lives and thrives under a large variety of conditions and frequents areas especially suitable for the support of mosquito larvæ; (*e*) it usually lives and multiplies in ponds stocked with predacious fishes, providing it has very shallow water for refuge. Plants which have but slightly submerged leaves and stems, on which form floating masses, are the chief sources of protection for mosquito larvæ against the top minnow. Such plants should be removed from the water or treated in such a way as to make them uninhabitable for the immature mosquito. Mosquitos may, however, breed in water so badly polluted that the minnow is almost instantly killed thereby. *Gambusia affinis* eliminates the wiggler completely from ponds which are fairly free from protective vegetation and débris, but even if much protection is furnished by vegetation and débris, the number of mosquitos reaching the adult stage is greatly reduced. The number of top minnows necessary in a body of water to secure mosquito control depends largely upon the conditions which prevail with respect to places of protection, a comparatively small number being necessary, if the water is fairly free of hiding places for mosquito larvæ.

The Saliva in Pellagra.

Even if pellagra be not strictly speaking a deficiency disease, it is, at least, well established that the alimentary tract is involved. The condition of the month, and of the tongue in particular, is of considerable importance in making a diagnosis of pellagra. The true pellagra tongue is of a vivid red color and more or less swollen. Seeing that the oral cavity is obviously involved in pellagra, biochemical studies of the saliva of pellagrins have been made recently by M. Y. Sullivan, Biochemist and K. K. Jones, Food Analyst in the Pellagra Hospital at Spartanburg, S. C. The results of these investigations have been published in Public Health Reports of May 16, 1919. These showed that while there were cases of increased salivary flow, the salivation spoken of by the patients was often apparent rather than real, and was seemingly due to some inhibition of swallowing combined with a peculiar ropy change in the saliva which made its presence in the mouth more obvious. A tendency toward a greater quantity of solids in the saliva of pellagra patients was also observed. The investigations indicate that the diastatic power of the saliva of pellagara patients is at least as great as that of normal people. In no case, whether the flow of saliva was scanty or very copious, was the diastatic power lacking. The reaction of the saliva in pellagra is somewhat more alkaline than is that of normal saliva.

News of the Week.

Opposition to Finger Printing of Drug Users.— Over one hundred members of the Medical Society of the County of New York have signed a call for a special meeting of the society to discuss the amendment to the Sanitary Code of New York City, proposed by Dr. Copeland, which would provide for the finger printing of every patient for whom narcotic drugs are prescribed. The announcement urges a full attendance at the meeting as this amendment is regarded as full of potential danger not only for the present but for the future, and as something which should

not be enacted without the serious and exhaustive consideration of the medical profession. The meeting will be held on Monday evening, June 23.

Red Cross Aids Women's Hospital Fund.—A gift of $65,000 from the American Red Cross to the American Women's Hospitals toward the fund of $250,000 now being raised to send additional units of women doctors, dentists, nurses, and motor drivers, to Serbia and Palestine, was announced recently. This gift will be applied toward the expenses of the unit which will sail for Serbia this month. The gift includes medical and surgical supplies as well as money and was formally accepted at the Medical Women's National Association at its session in Atlantic City on June 10.

Hospital Work in the Balkans.—The first news received from the American doctors who were sent to Albania and Serbia has reached the headquarters of the American Women's Hospitals in New York and describes conditions among the Balkan peoples as appalling. Some parts of the country are said to have been four years without a physician. Dr. Nell G. W. Bartram reports the opening of a thirty-bed hospital at Tirana, Albania, on April 26. Dr. Regina Flood Keyes, stationed at Monastir, writes that they often see as many as 230 to 250 dispensary cases daily. She states that typhus fever in that locality has been about stamped out, but that the number of accidents from explosives is appalling.

Activities of Child Campaign to Be Continued.—The work conducted by the Children's Bureau of the Department of Labor, in cooperation with the committees of the Women's Council of National Defense completed the work of Children's year on April 6, 1919. They report that in the various child welfare activities of the year 17,000 women's committees cooperated. While the final records are not yet complete, the tabulated results of the measuring and weighing tests show that so far 1,619,283 infants have been registered. In addition to the weighing and measuring tests the committees conducted a recreation drive to save children from war time hazards by giving them a chance for summer vacations and by advocating playgrounds. They also opposed the unnecessary employment of children and initiated a "back to school" movement. The work of the year was so successful that in response to appeals from the State child welfare chairman the Child Welfare Section of the Child Conservation Section of the Field Division of the Council on National Defense, will continue to direct this work until July 1, under the leadership of Mrs. Ina J. N. Perkins of Michigan, who succeeded Dr. Jessica Peixotto in January.

Dr. M. I. Black has returned from army service and has resumed practice at 35 West Eighty-first Street, New York.

Congress Asked to Aid Registration of Births.—The Labor Department and census officials intend to ask the next Congress to provide national machinery to record vital statistics, especially births and deaths. The war has shown the great need of complete vital statistics. Most States make registration of all deaths compulsory, while in only 20 States does the registration of births reach 90 per cent. The only national registration of births is through the Bureau of Census, which accepts the figures of such States as reach this standard. The United States is in this respect far behind European countries and the experience of the war has shown that several thousand slackers might have been detected had the Nation had complete vital statistics.

The "Archives Medical Belges," which, though driven out of its own country, nevertheless continued publication during the war, has now returned to Belgium, being published at the Hospital St. Laurent, Liège. It is at present the only national Belgian medical publication in the sense that it is edited in collaboration with all the medical faculties of the country and is thus the exponent of the medical science of Belgium.

Red Cross Starts World Fight on Typhus.—The Supreme Economic Council of the Red Cross League has planned to submit to the governments composing it a plan for combating the plague of typhus in Eastern and Southeastern Europe. The plan includes the placing at the disposal of the Red Cross societies the surgical and medical supplies of the American and British armies. The Economic Council will also provide transportation while the Red Cross societies will supply the personnel. The League of Red Cross societies is appealing to the societies in the United States, Great Britain, France, Italy and Japan, and to twenty-four national societies in other nations to participate in the campaign against typhus. The League states that it feels justified in calling on all Red Cross organizations to do everything they can at the present moment to stop the disease.

Health Problem Presented by New York Indians.—The April Bulletin of the New York State Department of Health is entitled the "Indian Conference Number" and is devoted to a presentation of the health problems presented by the groups of Indians residing in this State. The Department has also issued a special Bulletin stressing certain facts brought out in an investigation of the health situation in the Indian reservations. It is stated that New York State has an Indian population of 5,000 and that these Indians coming into close contact with a million or more white citizens under present conditions are a serious health menace. The Indian has adopted the white man's way of living in houses but does not pay the same attention to light, ventilation, and other sanitary factors. Consequently, he falls an easy victim to tuberculosis and is prone to acquire other communicable diseases and to spread them among his white neighbors. In the last few years the suppression of smallpox on the reservations has cost the State over $13,000. The State Department of Health has made a sanitary survey of the Onondaga Reservation the results of which show the need of teaching the Indian sanitation and personal hygiene and of making the State Department of Health responsible for health conditions on the reservation. At present the Indians are under the charge of the National Government, a system which has not worked out satisfactorily in practice. A bill has recently been signed by the Governor providing for a State Commission to

confer with the Indian Committees of the two houses of Congress in an effort to better the situation. The State Department of Health is about to extend its survey to other reservations, and plans to employ visiting nurses and to develop a comprehensive system of instruction in sanitation which will aid in eliminating the present health menace.

Standardization Plan for Work of Public Health Nurses.—A scheme of organization and plan of work for the public health nurse has been prepared by Dr. B. R. Wakeman, Sanitary Supervisor of the State Department of Health, covering the community nursing service for the health district of Alfred, N. Y. This outline describes the whole plan of organization, the methods of work, and the business organization in admirable form, and is full of suggestions to any rural district employing or contemplating employing a public health nurse. Copies may be obtained by application to the Supervisor of Exhibits, State Department of Health, Albany, N. Y.

United Hospital Fund.—The United Hospital Fund has just distributed $200,000 to forty-four hospitals of New York City. This is $50,000 more than was distributed last year, and the fund at that time was $35,000 in excess of that of the previous year. The fund is apportioned in the basis of the number of days of free hospital treatment given by each institution during the last year. The quality of the individual hospital management is also taken into consideration.

Red Cross Relief Work in Siberia.—The American Red Cross appropriated $400,000 for relief work in Siberia on June 4, this being in addition to what has already been set aside for this purpose. Most of this fund will go for the purchase of drugs and surgical instruments, the need for which has been emphasized in cable messages received from the Red Cross Commission in Siberia. A large consignment of surgical dressings has been shipped from Seattle, including fifteen ambulances, two field kitchens, and six kitchen trailers.

Child Welfare in Westchester County.—Women in Westchester County (N. Y.) who are prominent in philanthropy and have large country homes and estates announce a new movement which has as its aim the care and protection of every child in Westchester County. The plan provides for combining public and private charities in the care of dependent, neglected, delinquent, and defective children, with the object of preventing duplication of work.

Physician Wins Lawsuit.—The Queens County Supreme Court has rendered a decision in favor of Dr. Max Ghertler, a member of the New York City Board of Health, in an action for $50,000 damages, alleging that he was responsible for the death of a man whom he treated in his official capacity. According to the testimony given, a pet dachshund in February, 1917, bit both Mr. and Mrs. Riggs. They notified the Board of Health and were directed to report at the clinic in Manhattan for treatment. After having received fourteen injections of the serum provided by the Health Department, Washington's Birthday intervened and the city clinic was closed. Mr. Riggs, according to testimony, did not want to interrupt the treatment and so he persuaded Dr. Ghertler to treat him at his home. Six days later Mr. Riggs died of blood poisoning. The allegation is that his death was due to improper treatment at this time. The court has cleared Dr. Ghertler of all charges made against him.

Women Physicians Make Appeal for Serbia.—The American Women's Hospitals, which is affiliated with the Red Cross, began on June 1 a campaign to raise $250,000 to pay the expenses of equipping and transporting to various points in Serbia the hospitals, doctors, and nurses which the Government of that country has officially requested the organization to furnish for the purpose of fighting the epidemic of typhus fever which is now raging there. It is stated that only 140 physicians are left in Serbia, and that large areas of country are without medical service of any kind. While in this country there is one doctor to every 1,000 people, in Serbia there is one to every 21,000. The personnel of the unit which is to be sent has been selected and is headed by Dr. Mary M. Crawford of New York.

Obituary Notes.—Dr. EDWARD LINDEMAN of this city was drowned at Atlantic City on Thursday of last week. He was attending the meeting of the American Medical Association, and is believed to have died of heart failure while swimming at some distance outside the breakers. Dr. Lindeman was born in 1879 and was graduated from the Johns Hopkins Medical School in 1908. He had done a good deal of special work in blood transfusion, and had presented a paper in the Section on Pharmacology and Therapeutics of the American Medical Association on "The Critical Period in Various Diseases Treated by Blood Transfusion."

Dr. JOHN H. THOMPSON of this city died on June 7 at the age of 84 years. He was a graduate of the New York Medical College in 1863. He was at one time visiting surgeon at the Homeopathic hospital in Ward's Island.

Dr. MGURDITCH SIMBAD GABRIEL died at his home in this city on June 3 at the age of 63 years. He was born in Elghin, Armenia, and was graduated in 1881 from the Central Turkey College, Aintab. He came to this country in 1886, having been banished by the Turkish Government because he wrote a work on "The Regeneration of the Armenians." He was a member of the Medical Association of the Greater City of New York, of the Medical Societies of the County and State of New York, and of the American Medical Association.

Dr. JOHN T. NAGLE, for many years connected with the Health Department of New York City, and an authority on vital statistics, died at his home in this city on June 14, at the age of 78 years. He was born in Vermont and was graduated from the New York Medical College in 1864. He served with distinction in the medical department of the U. S. Army during the Civil War. He was a member of the Medical Societies of the County and State of New York, of the American Medical Association, of the American Public Health Association, and of the New York Academy of Medicine.

Correspondence.

GERMAN PHYSICIANS AND AMERICAN MEDICINE.

To the Editor of the Medical Record:

Sir:—In the Medical Record of June 14 I note, under the heading, "A Plethora of German Doctors," that there is a possibility of German practitioners coming to this country after the signing of the Peace Treaty, unless measures are taken by the authorities to refuse them a license to practise.

The patriotic American physicians of this country gave up their practices to serve in the army and navy, and many will return to find these practices entirely lost. We cannot afford to have German physicians come here and compete with us. Not only should they be denied a license to practise in this country, but they should be denied admission to the country. The records of their inhumanity in the treatment of wounded soldiers is sufficient in itself to prevent them from associating with members of the medical profession. There was a time, perhaps, before the war, when physicians of the world might have been considered as constituting a brotherhood. The German doctor has placed himself without the pale, and it is not likely that in this generation he will be readmitted to medical fraternity.

I wish to register my objection to any German physician coming to this country, and will endeavor to do all in my power to prevent it, and I think other physicians will be of the same spirit. Personally, I can neither forget nor forgive, nor is there any likelihood that time will cause me to relent.

E. P. Robinson, M.D.

New York.

OUR LONDON LETTER.

(From Our Own Correspondent.)

London, May 22, 1919.

Women in Industry.—The report of the War Cabinet Committee on Women in Industry which was presented to Parliament in the last week in May is a valuable document containing an enormous amount of information upon industrial circumstances before and during the war, as well as many wise suggestions for future reform. The committee making the report is a strong one, consisting of Mr. Justice Atkin, a distinguished Judge of the High Court; two learned lawyers, Sir L. L. Macessey and Sir W. W. Mackenzie, both of whom have specialized in industrial affairs; Dr. Janet Campbell, one of the medical officers to the Board of Education; Mrs. Sidney Webb, a well known writer on industrial subjects; and Sir Matthew Nathan, who is acting as secretary, and who after having been soldier, consul, and administrator, is now secretary to the Pensions Board. The committee was appointed by Mr. Lloyd George in his character of chairman of the War Cabinet Committee, with instructions to investigate the relation which should be maintained between the wages of women and men, having regard to the interests of both and the respective value of their work. It came into being in September, 1918, and it was an instruction to the committee that their recommendations should have in view the necessity of output during the war and the progress of industry in the future. At the time of appointment the war was at the height of its intensity, but two months later came the German collapse, clearly making the prognosis of events to come more important than the maintenance of an intensive output of munitions or material or foodstuff for military use. The recommendations of the committee receive the endorsement of all save Mrs. Sidney Webb, though Sir William Mackenzie made certain reservations. The gist of the recommendations directly concerning the future relation between men's and women's wages is that women doing similar work or the same work as men should receive equal pay for equal work, the pay being proportionate to efficient outcome; and the Government is urged to support the application to industry of the principle of equal pay for equal work, applying it with the least possible delay to their own establishments. Mrs. Webb's objection to the principle of equal pay for equal work is that the exclusion of women by law or custom from the better paid posts means that the equality promised will only be equality in bad circumstances, equality in good circumstances never being offered. But the most noticeable part of the report is a memorandum by Dr. Janet Campbell on the Health of Women in Industry. She discusses physiological differentiations of the sexes as they have an influence on fatigue and on nutrition, and on the functions of maternity and lactation. She sets out the effects of the employment of women on their general health under the heading of anemia, overstrain, general sickness incidence, and tuberculosis, and gives her reasons for thinking that the sickness incidence among women is greater than it is among men, and that industrial occupation gives rise to anemia, to overstrain from fatigue, and tuberculosis. The precise effect of employment on motherhood she does not find easy to estimate. The most striking part of Dr. Janet Campbell's Memorandum is a list of appended recommendations directed to the Government. These recommendations point out the necessity of reasonable wages, of further investigation by scientific methods of the physical effect of employment upon women, and of substantial reform and extension in scope of the Factory and Workshop Acts. They are a model of clear thinking and direct speaking.

A National Conference on Infant Welfare.—Under the ægis of the National Association for the Prevention of Infant Mortality and for the Welfare of Infancy a National Conference on Infant Welfare will be held as part of the Baby Week celebrations at the Kingsway Hall, Kingsway, London, W. C. 1, on July 1, 2 and 3, from 2.30 to 4.30 each day. Under the presidency of Dr. Christopher Addison, M.P., president of the Local Government Board, the following subjects will be discussed; Antenatal and neonatal mortality; the prevention of, and the work of the midwife in, antenatal and neonatal mortality; the industrial employment of mothers in relation to infant mortality; and the illegitimate child. The conference follows aptly upon the report of the War Cabinet

Committee on Women in Industry which I make a note of elsewhere. Sir Francis Champneys, the well known obstetrican who presides over the Midwife's Board; Sir Arthur Newsholme, until lately the principal medical officer of the Local Government Board, and many publicists and philanthropic workers will take part in the conference, whose proceedings gave a dismal interest from the low birth rate and high rate of infantile mortality revealed by the last vital statistics of the country.

The Prescribing of Cocaine.—An Edinburgh doctor was recently fined £1 at the Edinburgh Sheriff Court for giving a patient a prescription for cocaine, on which the words "not to be repeated" did not appear. The chemist who made up the prescription was likewise fined. There was no suggestion of any other offence except forgetfulness, and as the prescription was one for a throat gargle, in which carbolic acid also appeared, and which was therefore quite impossible for any other purpose, the imposition of this fine would seem to be at first sight an excessive punishment, but such are the dangers of cocaine indulgence that most medical men, though ready to sympathize with their colleague, will endorse the rightness of the sentence. The particular act of carelessness may have had no great danger attached to it, but it is necessary that every available precaution, either laid down by the war or suggested by prudence, should be taken against any laxity in the dispensing of cocaine.

The Pathology of London Transport.—The conditions of transport in London are so actively bad now that they are absolutely producing a pathology of their own. London stands on an area of 800 square miles—that is London proper—and is ringed about, in a radius of more than 30 miles with cities and villages which shelter workers whose daily employment brings them into the heart. For this vast concourse of people thus implied, across these great stretches of country, no proper railway, tramway, or bus accommodation exists. More people stand than sit in some of the railways, and they stand in cruel jams exchanging emanations. To get on to a bus, especially at busy hours in early morning or late afternoon infinite patience is required to await a bus where there may be room, and pronounced athleticism may be required from him or her who would board the vehicle. There is no steamboat traffic, and the trains are hopelessly overcrowded. Thousands of persons who have to work hard all day are thinking throughout the day of the mad struggle in which they will be engaged later if they wish to be conveyed to their homes, thus avoiding what may be a walk of many hours. There is no doubt that the strain thus added to the day's labor is telling on the London industrial and commercial population severely—actually as many as 30 or 40 people have been known to faint in the South London trains in one day! Many medical men, individually, are urging upon Parliament the need for immediate reform of the London transport. It is to be hoped that some collective medical movement will be taken.

The Growth of Cremation.—Cremation grows but slowly in this country, where custom, ecclesiastical prejudice, and economy alike lead the public to prefer the old-fashioned form of burial. The annual report of the Cremation Society of England for 1918 shows that the number of cremations at Woking was 142, as compared with 129 in the preceding year, whilst the corresponding figures for Golders Green were 820 and 719. The total number of cremations for Great Britain during 1918 was 1795, against 1515 for 1917, every crematorium having returned an increase in cremations. Through the courtesy of the author of a well-known book of reference I learn that in 1918 the United States of America had 70 crematoria and that upwards of 14,000 cremations were carried out in the course of the previous twelve months. It would be interesting to British medical men to know if the medical profession in America supported the cremation movement by precept, example, or purse. In our country, though the initiating steps were largely taken by a deceased and famous ovariotomist, Sir Spencer Wells, the medical profession has taken no interest in reforming the old-time usage. Medical jurisprudents have actively opposed cremation on the ground that all evidences of medical poisoning would thus be destroyed immediately after death, which disinterment has before now led to the conviction of murderers, whose connection with the death, not suspected in the first instance to be a crime, had gone unnoticed. Is that an American view, also?

LETTER FROM CANADA.

(From an Occasional Correspondent.)

TORONTO, May 31, 1919.

Venereal Diseases in Ontario.—According to Capt. Gordon Bates writing in the *Canadian Public Health Journal* for May, 1919, it is estimated that of the population at large about 8 per cent. are syphilitic, and easily available statistics for Canada would appear to bear out this statement. Eight per cent. of the total population of Canada infected with syphilis means conservatively 500,000 cases. When it is further borne in mind that in military hospitals the number of gonorrheal patients under treatment greatly exceeds the syphilitics, and that doubtless conditions in civilian life are similar, the gravity of the situation can be well realized. Capt. Bates points out that a great deal remains to be done in Canada in the direction of controlling venereal diseases. The fringe of the problem has only been touched notwithstanding the existence of legislation, while no organized attempt whatever has been made to deal with the question of prostitution. It is a matter of common knowledge that clandestine prostitution exists on a large scale in Toronto and in other Canadian cities. Montreal possesses a "red-light" district which is probably not surpassed by any American city and some of the Western Canadian cities bear an unenviable reputation for prostitution. A Federal Department of Health should serve to coordinate and help forward the work.

A Canadian Department of Health.—It is announced that the Hon. N. W. Rowell has prepared the first draft of the proposed bill to be intro-

duced in the Canadian Parliament, to establish a Federal Department of Health. This bill will be largely framed on the lines sketched in our Canadian letter which appeared on April 26. The Department will be in charge of a Minister of the Crown, with a Deputy Minister of Health, who shall be the deputy head of the Department and who shall hold office during pleasure. Such other officers, clerks and employees as are necessary may be appointed in accordance with the provision of the Civil Service Act, all of whom shall hold office during pleasure. The duties and powers of the Minister in charge shall include all matters relating to the promotion and preservation of the health and social welfare of the people of Canada. The following names have been associated with the post of the Deputy Minister of Health: Lieut. Col. John A. Amyot, C. M. G., Professor of Hygiene, University of Toronto; Lieut. Col. T. A. Starkey, Professor of Hygiene, McGill University; Dr. Peter H. Bryce, Chief Medical Officer, Department of the Interior, Ottawa, and Dr. Hibbert W. Hill of the Minnesota Public Health Association, and formerly director of the Institute of Public Health, London, Ontario.

Regulation and Care of the Feebleminded.—The feebleminded, unrestrained and unrestricted, are a menace to a country from many points of view. Perhaps, especially is their presence in large numbers a source of danger because feebleminded girls are the most potent means of spreading venereal disease. In the large majority of cases prostitutes and women who give themselves up to promiscuous intercourse are either feebleminded or on the borderland of that condition. For a long time the immigration into Canada of feebleminded individuals has been deprecated by those who have the true welfare of the Dominion at heart, and now steps are to be taken to regulate the admission of immigrants. The control of immigration by selection, the establishment of institutions for the feebleminded, and all problems affecting the social welfare of the country will be the subjects calling for new legislation.

It is probable that plans will be made whereby prospective immigrants to Canada will be examined in Europe by Canadian medical men. Dr. Clarke and Dr. Hincks of Toronto are likely to go to Europe late in the summer to make arrangements to carry out this scheme. Mr. Hearst, the premier of Ontario has announced recently that the Ontario Government will issue a grant of $119,650 for the erection of buildings for the Orillia Hospital for the feebleminded. It will thus be seen that in Canada the problem of the feebleminded is to be grappled with vigorously. It is assuredly one of the most serious problems of the day, and it should be everywhere faced boldly and not evaded as has been hitherto the case.

A plea for the better and more careful treatment of the insane and those suffering from mental diseases marked the address of Dr. C. K. Clarke at the first annual meeting of the Canadian National Committee for Mental Hygiene, which took place in the general hospital, Toronto, on May 30 last. Dr. Clarke urged that preventive methods were necessary and also careful supervision of individual patients at the asylums by a force of field workers in psychiatry. Through the cooperation of the University of Toronto the Department of Public Health, the Asylums of Mimico and Toronto and the Social Service Department of the Toronto general hospital, this course had been made possible, and a trained force of workers in this branch would soon be available for the various asylums. Col. Thomas Salmon, U. S. Army, who had charge of this branch in the U. S. Army in France gave the committee an outline of the work done in the United States as regards mental hygiene. It may be said that the Canadian National Committee for Mental Hygiene has done already valuable service. It has made a thorough survey of the Province of Manitoba to discover the number of mental abnormals and their method of treatment and its recommendations have been embodied in legislation.

Decrease of Communicable Diseases in Ontario.—There has been a gratifying decrease in the number of cases of communicable diseases in the Province of Ontario for May, although there is an increase in the number of deaths. The latter feature of the monthly report of the Provincial Board of Health is due to the fact that influenza and influenzal pneumonia and primary pneumonia are included in the statistical table this year, whereas last year no such returns were made. There is a continued decrease in the number of cases of influenza and pneumonia. Influenza and acute influenzal pneumonia caused about the same number of deaths each while acute primary pneumonia caused three times more deaths than the two other forms combined.

The Manufacture of Salvarsan.—A good deal of discontent has been expressed in Canada recently with regard to the regulations regarding the manufacture and importation into Canada of Salvarsan and allied products and other arsenical preparations employed for the treatment of syphilis. It is generally thought by members of the Canadian medical profession that permission should be at once granted for the manufacture of Salvarsan or similar preparations. All German patents should be regarded as forfeited by the war, and articles made under patents granted by the Canadian Government to citizens of Germany should now be thrown open to Canadian enterprise and capital. This should include all drugs, chemicals and dyes. The medical profession of Canada and Canadians generally are of the opinion that the Germans should not be let off lightly. They forced the war upon the world and caused an awful cost of life and treasure and should not be allowed to resume pre-war conditions. There seems to be a tendency now to let down Germany easily. This view, however, does not hold in Canada.

Illness of Lieut. Col. Nasmith.—Lieut. Col. George G. Nasmith, C. M. G., Director of Laboratories, Department of Health, Toronto, has been seriously ill for the past three months. Col. Nasmith has done splendid work in France and in Canada, and all who know him are sincerely glad that he is now regaining his health.

Medical and Health Meetings in Toronto.—During the week beginning May 26, there took

place in Toronto the annual meeting of the Ontario Medical Association, the Canadian Public Health Association and the Ontario Health Officers' Association. These meetings will be dealt with in subsequent letters.

Progress of Medical Science.

New York Medical Journal.

June 7, 1919.

1. Acute Diverticulitis of the Colon. John F. Erdmann.
2. N. C. A.—Neurocirculatory Asthenia. Joseph H. Barach.
3. Malingering. Curran Pope.
4. The Rôle of the Wandering Cells in Health and Disease. Albert C. Geyser.
5. A Study of Chronic Appendicitis with Special Reference to an Obscure but Constant Syndrome. P. G. Skillern.
6. Control of Syphilis. R. C. Jamieson.
7. Hookworm. William A. Woyschin.
8. New Hypodermic Syringe and Needles. Alfred Kahn.

2. N. C. A. Neurocirculatory Asthenia.—Joseph H. Barach points out that N. C. A. is a syndrome found in certain individuals in whom the nervous or the circulatory symptoms may predominate. Under this heading are found cases of "Irritable heart of the soldier" and the group designated by the English as D.A.H. Strictly speaking, it is primarily not an affection of the soldier, but of the civilian of whom it has been attempted to make a soldier. Nor is the condition primarily the affection of a disordered heart, and therefore the term neurocirculatory asthenia, or N.C.A., seems the most applicable. The predisposing factors appear to be hereditary and acquired: a bad family history, a bad environment, previous disease, physical and psychic injury. Most of the patients, according to Lewis, are in the twenties, and 23 per cent. give a history of rheumatic fever. The exciting factors which convert a potential case into one of N.C.A. may be any physical shock, and certainly the conditions that exist in modern warfare, such as prolonged marching, intense fighting, terrific bombardment, shell shock, gassing, burial, trench fever, dysentery and infected wounds. The subjective symptoms are, feeling of shakiness after exertion, breathlessness, fatigue chest pains, palpitation, giddiness and faintness, after physical strain. The chest pain of true angina is substernal, whereas in N.C.A. it is precordial. Extrasystole is very common. Other complaints are, tinnitus, backache, muscle pains, stiffness, nausea and vomiting, night sweats, enuresis, unpleasant dreams, disturbances of speech and voice, irritability, and lack of power of concentration. The objective symptoms are, fine and coarse tremor of extremities and muscles of the trunk. The posture is faulty at times. Pseudoanemic pallor; at times flushing and dermographia. Hands and feet are cold, clammy and cyanotic; there is axillary sweating, hyperalgesia of the chest wall, exaggerated reflexes, diffused apex impulse and pulsating abdominal aorta. The pulse rate is accelerated, there is irregular heart action, respiratory arrhythmia, extrasystole, occasionally bradycardia, poor response to exercise phosphaturi and oxaluria.

Journal of the American Medical Association.

June 7, 1919.

1. The Etiology and Treatment of Diarrheal Diseases of Infancy. Lewis Webb Hill.
2. Postinfluenzal Psychoses. Egbert W. Fell.
3. Blood Transfusions Without a Chill by the Syringe-Cannula System: Two Hundred and Fourteen Consecutive Cases. Edward Lindeman.
4. Pregnancy Complicated by Epidemic Influenza. Paul Titus and J. M. Jamison.
5. Abdominal Pregnancy Continuing Four Months After Uterine Perforation: Operation and Recovery. I. Edward Bishkow.
6. An Extracardial Murmur of Unusual Origin. Harold Feil.
7. The Advantages of the Vaginal Route in Resection of the Rectum for Cancer. William Edgar Darnall.

2. Postinfluenzal Psychoses.—Egbert W. Fell reports that in an epidemic of influenza of average severity occurring in soldiers who were for the most part between the ages of 20 and 30, only four of 2,500 cases treated at the Walter Reed General Hospital, Washington, developed psychoses of a severe type which outlasted the acute disease. Twenty cases of postinfluenzal psychoses were treated in the psychiatric wards of that hospital. These cases fell into three fairly distinct groups: Manic-depressive group, 8 cases; infective-psychosis group, 7 cases; dementia precox group, 5 cases. Predisposition as shown by the family or personal history was only marked in the manic-depressive group. There was a sufficient overlapping of the groups to give, when considered as a series, a gradation from a simple depression to hebephrenic precox of the depressed type. The characteristic of the series is: a foundation of depression on which develops sense falsification, confusions, and schizophrenic symptoms. The author points out that the occurrence of precox symptoms is not a sure indication of permanency, but such cases run a longer course and recovery is less likely. The most common symptom was depression. Hallucinations seemed to be entirely absent in seven cases.

The Lancet.

May 17, 1919.

1. The Croonian Lectures on the Rôle of the Sympathetic Nervous System in Disease. Delivered Before the Royal College of Physicians of London in June, 1918 W. Langdon Brown. Lecture 1.
2. War Neurosis: A Comparison of Early Cases Seen in the Field with Those Seen at the Base. William Brown.
3. Temperature Environment and Thermal Debility. A Study of the Beneficial and Injurious Effects of Heat. Charles F. Sonntag.
4. A Report on the Action of Flavine and Its Derivatives. A. H. Tubby, C.B., C.M.G.; A. R. Ferguson, T. J. Mackie, and L. F. Hirst.
5. Infective Scar Tissue and Its Relation to Pains, Particularly Painful Amputation Stumps. Edred M. Corner.
6. Quinine as an Abortifacient. W. C. Swayne and Edward Russell.
7. A Case of Acute Ascending Paralysis. Halliday Sutherland.

1. The Croonian Lectures on the Rôle of the Sympathetic Nervous System in Disease.—W. Langdon Brown pays a warm tribute to the memory of Gaskell, who first showed that the nerve fibers which flowed from the spinal cord into the sympathetic chain were of a smaller caliber than the nerves to the skeletal muscles, and that there are fibres with visceral functions in the cranial and the sacral nerves which subserve the functions of organic life and are not under the control of the will. Such visceral fibers are now usually included under the term autonomic nervous system, introduced by Langley. The visceral or involuntary nervous system may be classified as, (1) the sympathetic (thoracico-lumbar outflow); (2) the para-sympathetic: (a) cranial outflow; (b) sacral outflow. The essential parts concerned in a reflex action are the receptor and excitor elements. The former in most cases does not connect directly with the excitor, but there is an intermediate neuron, bringing the two into relationship, for which Gaskell suggested the name "connector element." The connectors need not simply associate receptors and excitors of the somatic nerves in the same level of the cord; they may run up and down in longitudinal tracts, bringing neurons of different levels into relationship. In the autonomic system there is a connector preganglionic medullated fiber and an excitor postganglionic nonmedullated fiber, and just as the connector element of somatic nerves may run longitudinally in the spinal cord, so the connector element of visceral nerves may run longitudinally in the sympathetic chain; and as in the process of evolution the receptor cells have been withdrawn from the periphery into close proximity to the spinal cord, so the excitor cells of visceral elements have migrated out from the cord into outlying ganglia. The purpose of this different arrangement in the two systems is found in the different functions performed: the somatic nerves are for localized accurate reflexes, the visceral nerves are for widespread diffuse effects. The results of sympathetic stimulation serve to activate the body for a struggle and to increase its powers of defense; and since the mechanisms for self-defense which we now possess were developed in the course of vast periods of time, it is to be supposed that some are not suited to our present needs. The pilo-motor fibers are an example of this. Some emotional responses, like some of our bodily structures, are vestigial remains. There are

certain features of general resemblance between the sympathetic and parasympathetic. They both control functions of organic life and act apart from the will. They are both composed of small medullated connector fibers and conform to the rule that efferent autonomic impulse runs from the central nervous system to muscle or gland without having a nerve cell on its course. In the sympathetic, the fine medullated preganglionic connector fiber springs from a cell in the lateral horn; it passes out in the anterior root, which it leaves by a white ramus communicans, to enter the sympathetic chain. It ends by forming synapses round cells in the lateral or in the more outlying sympathetic ganglia, such as the superior cervical and mesenteric ganglia. Thus a single connector fiber may stimulate a number of cells. From these cells start the nonmedullated postganglionic excitor fibers, which pass to their destination, mainly along blood vessels to the deeper parts and along spinal nerves to the more superficial parts, being distributed to the latter by the grey rami communicantes. In the parasympathetic the postganglionic fibers are distributed direct to the peripheral tissues, branching as they go. They have their cell station close to their destination and their effects are more localized. The function of the cranial portion of the parasympathetic may be regarded as anabolic, while the sacral division, which consists of the pelvic visceral nerve, is mainly a mechanism for emptying. It was Gaskell who pointed out that when the sympathetic and parasympathetic are distributed to the same structure, the effects are antagonistic. In pain, fear, rage, and any intense excitement the sympathetic neurons are brought rapidly into play, and the action of the cranial division of the parasympathetic is inhibited; the anabolic activities of the body are in abeyance and the katabolic activities go on unchecked. The one exception to the rule that connector fibers are not distributed direct to muscle or gland is the adrenal nerves, which are preganglionic. Phylogenetically, embryologically, and functionally the adrenals and the sympathetic are in the closest association. The chromaffin cells appear to originate in the central nervous system, and when in evolution the sympathetic cells emigrate into outlying ganglia they are accompanied by the chromaffin cells. This explains why in the adrenals alone the connector fibers end and why, as Langley pointed out the effect of adrenalin on any part is the same as stimulation of its sympathetic nerve, for the chromaffin cell represents the excitor element. In the adrenals we have a most interesting example of the correlation of nervous and chemical stimuli. The sympathetic excites a secretion of adrenalin, and adrenalin increases the sensitiveness of the response to the sympathetic. Emptying of the adrenal reservoirs occurs not only in direct stimulation of the splanchnics and in strong emotions, but also in trauma and acute infections. This mobilization of adrenalin lowers the threshold to sympathetic stimuli, increases the blood sugar, hastens the clotting of blood by increasing the amount of prothrombin and diminishes muscular fatigue. The thyroid is another endocrine gland which has close relations with the sympathetic nervous system, and like the adrenal, it can be thrown into increased activity by the sympathetic, and in turn increases the response to the sympathetic. The main thesis of this lecture is that the stimulation of the sympathetic and its coadjutors, the adrenals and the thyroid, means the spending of reserves in the supreme struggle for survival. The quickening of all the vital processes may produce, for a time, a feeling of exaltation and well-being. This may be regarded as a physiological justification for Nietsche's injunction to live dangerously. But exhaustion lies in wait if the struggle is unduly prolonged. A viscious circle is the pathological equivalent of a prolonged struggle. Next, under physiological conditions the sympathetic acts as a whole, while one of the phenomena of disease is dissociation. Sensory dissociation is seen, for example, in tabes and syringomyelia. Sympathetic dissociation may play a part in diabetes and in disorders of digestion and circulation. Evolved in subconscious plane, the sympathetic remains forever beyond the control of the will. The higher centers of the brain show their influence on the lower chiefly in the direction of inhibition. The highest organism is the most self-controlled, but the sympathetic cannot be thus controlled. Though we may deaden the emotion, we cannot prevent the response to an emotion once evoked. To regulate this we must trust to reserves, inherited and maintained through generations of stable and equable ancestors. The lecturer concludes with the remark that we might modify the dictum that the war would be won by the nation with the strongest nerves and say that it would be won by the nation with the strongest adrenals, for just as character is revealed in the instinctive response which occurs quicker than thought, so the great powers of tenacity and endurance may be clearly foreshadowed in the original emotional response.

British Medical Journal.

May 17, 1919.

1. The Medical Tradition. Sir John Tweedy.
2. A Communication on a "Filter-passing" Virus in Certain Diseases, with Especial Reference to Polyneuritis, Encephalitis, Trench Fever, Influenza, and Nephritis. Major General Sir John Rose Bradford, K.C.M.G., C.B.
3. The Experimental Reproduction of Influenza, Nephritis, and Encephalitis by Inoculating Subcultures of the Isolated Virus. E. F. Bashford.
4. The Bacteriology of Certain Filterpassing Organisms. J. A. Wilson.
5. Ulcero-membranous Laryngitis of Streptococcio Origin. J. A. M. Hemmeon.
6. Shell Wound of Left Side of Neck: Injury of Great Vessels and Division of Vagus Nerve; Recovery and Return to Firing Line. G. Bell.
7. Lettsomian Lectures on Jaundice: With Special Reference to Types Occurring During the War. William Henry Willcox, C.B., C.M.G.

1. The Medical Tradition.—Sir John Tweedy comments on the changes now taking place in the profession of medicine; the air, he says, is thick with projects of reconstruction and change—the regimentation of medicine, a Ministry of Health, and trade unionism with its bargaining, strikes, and picketings. Although changes may remove existing defects and herald improvements, experience teaches that reforms are often followed by unexpected evils and reformers are too apt to think that change necessarily implies betterment. He contends that any change, whether effected from within or imposed from without, that restrains the liberty or lessens the responsibility of the medical man, or hampers the free play of his intellectual activities, will be detrimental to the authority and usefulness of medicine and prejudicial to the interests of public health and national welfare. The part played by medicine in the national welfare has been strikingly shown in the recent war, and though the brilliant triumphs of medicine have been partly the results of the labors of our predecessors and partly the outcome of the researches and investigations of contemporary workers not only in medicine but also in the allied sciences of chemistry, physics and biology, the victory was eventually assured by the thousands of trained workers who knew how to make full use of the resources which science had placed at their disposal. Medical men of different nationalities and race, reared under different educational and social systems, were able to cooperate because they had inherited the same traditions of rational medicine. But medicine is probably destined to play an even greater part in peace, for it holds the promise, if not the actual potency, of preventing all preventable diseases and curing all curable ones. Its influence will be determined by the intellectual ability, the personal character, and the moral endowments of the individual practitioner. To go back to first principles, all that is necessary may be found in the writings of the ancient Greek physicians, and especially in those of Hippocrates, using this name in the generic sense. Although it is impossible to determine with precision the philosophical and medical ideas of Hippocrates in an historic sense, it is easy to determine them in a traditional sense. Nature does not change and though we have other names and other forms of disease, other means of healing, and other ideas, to become a great physician the same qualities are necessary today as formerly, and the underlying principles of medicine are the same. In "The Ancient Medicine" Hippocrates observes that medicine has for a long time been in possession of a principle and a method. Guided by these, many useful discoveries have been made and further discoveries will inevitably be made if capable men, instructed by former discoveries, take them as a starting point for their own researches—or, seek from

the known to discover the unknown. The principle and method of medicine are observation and reasoning. Pre-Hippocratic medicine was mostly observational and experimental, but with Hippocrates it became ratiocinative.

As Hippocrates remarks in commenting on the Onidian sentences, any one, without being a physician, can describe the symptoms and termination of each particular malady simply by asking the patient what he suffers, but the physician, unable to discover hidden disease by direct vision or by what is told him by the patient, searches for it by reasoning. As at the present time, there were critics of medicine in the days of Hippocrates, who, in replying to them, says that there are bad physicians but also good ones; that medicine is not infallible and not omnipotent; it cannot go beyond nature, repair the irreparable, or perform miracles. It therefore rightly refuses to undertake the treatment of incurable cases. This advice was not absolute, however, for he remarks over and over again that it is the duty of the physician to do good to the sick, and at least not to do harm; and the practitioner is advised that if he does undertake the treatment of a desperate case, he should always take care to commit no fault. Four hundred years later Celsus wrote that it was the duty of a prudent man not to undertake a case which he could not cure, nor to subject himself to the imputation of having destroyed a patient destined to die of his disease. Galen gave similar counsel, but Avicenna, the famous Mohammedan physician of the eleventh century, struck a note more in harmony with modern sentiment when he wrote that we should never seem to abandon a patient and up to the last moment should endeavor to soothe, but we must not gamble with a life by powerful remedies and big operations where there is no well grounded hope, otherwise we render ourselves voluntary homicides.

Today the teaching of Hippocrates still holds good: the natural powers are the healers of disease and the physician is the servant or minister of Nature. The physician should observe closely the operations of Nature and follow their indications, fortifying and controlling when necessary. As in the arts of agriculture and politics, the military art and the art of navigation, there can be no absolute certitude in medicine. The most skillful physician can never be sure of curing his patient, but he can be sure of employing all his knowledge and skill according to the established rules of his art. Hippocrates names six conditions necessary to become a skilled physician: natural talent, instruction by a competent master, a place favorable to study, education begun in youth, love of work, and long application; and the first of these is the most important. Theory should be combined with practice, and practice must be supplemented by literary study. The personal character and habits of the physician are only second to intellectual ability and professional training, and friendly and confidential relations should be cultivated among members of the profession. Medical ethics, as embodied in the well known Oath, were settled once for all by Hippocrates. In the Hippocratic writings two kinds of secrets are referred to: trade secrets, which were considered sacred and were only revealed to the initiated but which have practically ceased to exist in modern medicine, and secrets of trust which are referred to in the Oath and today are inviolable except under compulsion of a court of law. Of late, however, there has been a tendency on the part of legislative and administrative authorities to encroach on the principle of professional secrecy. In regard to abortion, Hippocrates was ethically far in advance of the prevailing opinion of his day. Under certain circumstances, the practice was sanctioned by Plato and Aristotle, who were both influenced by social, political and economic considerations, for in the Greek commonwealth, over-population and pauperism was a terror looming closer every year. Hippocrates' view was based on an ethic of universal validity, and it should never be forgotten that medical philosophy is essentially an ethical study and that he who in the right spirit devotes himself faithfully to the practice of medicine engages to an equal degree in the service of humanity.

British Journal of Children's Diseases.

January-March, 1919.

1. A Case of Apiastic Anemia. L. Porter Parkinson.
2. Polyneuritis Following Treatment by Arsenobenzol. G. Variot and M. Bouquier.
3. Note on Recurrent Functional Micropsia. John Thomson.
4. Autoserum Treatment of Chorea. Alan Brown, George E. Smith, and John Gordon Phillips.
5. The Treatment of Pulmonary Tuberculosis in Children by Artificial Pneumothorax. E. Stolkind.

4. Autoserum Treatment of Chorea.—Alan Brown, George E. Smith, and John Gordon Phillips refer to the bacteriology of chorea and point out that there are a large number of observers who believe that Sydenham's chorea is essentially a manifestation of rheumatic fever and that it represents an organic disease of the brain which attacks all parts of the cortex equally and impartially. Other observers, while admitting the association of chorea and rheumatism, believe that chorea represents a functional disturbance due to a variety of causes, and among these causes infection is one, and of the infections rheumatism is the most common. Attention is drawn to the fact that A. L. Goodman of New York in 1918 was attracted to the subject of chorea therapy when two of his cases developed classical symptoms of miliary tuberculosis and died. At autopsy it was found that the tubercles were restricted mostly to the central nervous system. It occurred to the observer that the inability to bring about a complete cure was due to the fact that all previous methods employed were ineffective in that they did not reach the seat of the trouble, which exists in the central nervous system. In view of the fact that chorea is generally recognized as a bacterial disease due to a streptococcus of the viridans group, certain antibodies must perforce be in the circulating blood plasma, which antibodies do not enter the cerebrospinal fluid on account of the choroid plexus, which does not permit of the transmission of these antibodies into the spinal canal. When the serum is injected into the canal a certain chemotaxic action takes place, and the walls of the choroid plexus again become permeable. With regard to the technique, it is most essential that both tuberculosis and syphilis be excluded, and that all drug therapy be suspended for at least five days previous to the injection. The first step consists in withdrawing about 50 c.c. of blood from the median basilic nerve. In some instances an anesthetic is necessary, as the patient is often too nervous to keep still sufficiently long to obtain the amount of blood required. Ethyl chloride is the anesthetic employed. It is important to have the tourniquet applied just tight enough to impede the arterial flow; of course one soon empties the arm of the venous blood, and no more can be obtained until the tourniquet is released. A good plan in this connection is to use a blood pressure band on the arm and have it inflated to about two-thirds of the blood pressure. The blood is received into three sterile test tubes, the rubber tubing and needle having been previously sterilized and held, so that the opening in the test tube is protected from contamination by a piece of sterile gauze wrapped about the rubber tubing down to its point of entrance into the test tube, the gauze from there on being held about the test tube. The tubes are stoppered with sterile plugs and set aside for a few minutes to allow the blood to clot. Before putting in the centrifuge a sterile platinum loop is run down inside each tube to separate the clot from the test tube in order to obtain the greatest amount of serum possible. The test tubes are then put in the centrifuge for thirty to forty minutes. At the end of that time the serum is drawn up in a sterile pipette, emptied into a sterile test tube and put in the incubator to keep at the proper temperature for injection. In the first few cases of these writers, the serum was inactivated before injection. At present they are omitting this, trusting to their technique to keep the serum sterile. From 50 c.c. of blood they obtain 20 to 25 c.c. of serum. The preparation of the serum takes about one to one and a half hours. The patient is prepared as for lumbar puncture. As they always give an anesthetic, no breakfast is taken. The serum is drawn into a 20-c.c. Record syringe, which fits the ordinary lumbar puncture needle. The patient is then anesthetized with ethyl chloride, the needle inserted, and about 20 to 25 c.c. of spinal fluid withdrawn. The Record syringe is then attached and the serum slowly

injected. This is the crucial step in the operation, as it is essential to give as much serum as possible without causing pressure symptoms as one slowly injects the serum; when sufficient has been injected one feels definite obstruction to the entrance of the serum. Further injection, after this resistance has been encountered, invariably results in marked pressure symptoms, such as vomiting, severe headache, elevation of the temperature, etc. An anesthetic is necessary to enable one to detect this sense of resistance. In the writers' series of cases they used on an average 17 c.c. of serum. Results as follows: 1. Autoserum therapy in the authors' hands has been productive of infinitely more satisfactory results than any other form of therapy, a cure of 77 per cent. of the cases being effected within three weeks time. 2. The technique is so simple that it may be employed in any home or outpatient department under mild anesthesia. 3. With the observance of proper precautions the reactions are negligible. 4. There have been so far no recurrences in over a period of a year and a half, but more time is necessary in order to give a more certain decision on this point.

Archives of Pediatrics.

February, 1919.

1. On the Present Frequency of Acute Otitis Media and of Subsequent Mastoid Operation in Some Measure a Reproach to Pediatrics? Thomas S. Southworth.
2. Intravenous Injections in Infancy. Advantages of the Superior Longitudinal Sinus Route. Earl Mendum Tarr.
3. The Excretion of the Vitamines. A. M. Muckenfuss.
4. A Case of Influenzal Meningitis. Charles Kimball Johnson.
5. Masking an Entire School to Prevent the Spread of Influenza. Nathaniel Barnett.

1. Is the Present Frequency of Acute Otitis Media and of Subsequent Mastoid Operation in Some Measure a Reproach to Pediatrics?—Thomas S. Southworth says so far as he knows, no progress has been made during the past decade, or, one might safely say, for a much longer period, toward definitely aborting acute otitis media. We may probably grant that prompt paracentesis of the drum has largely decreased the number of persons suffering from chronic disturbances of the middle ear, since we believe that it relieves congestion and pressure and often prevents the development of a suppurative process. We may further admit that the mastoid operation has saved many lives that would otherwise have been sacrificed, but if we may judge from their common occurrence very little has been accomplished by way of prophylaxis for these two conditions. Paracentesis and mastoid operation appear to be placed in the same category as immediate operation for appendicitis, the view in each instance being that the earlier the operation the less the danger of serious later developments. There is, however, this difference, that removal of the appendix or mastoid cells eliminates future danger from that particular source, while paracentesis is only a temporary protective measure with no absolute guarantee for the future, and possibly occasionally furnishing an avenue for the entrance of further trouble. The author's chief desire in writing this article, however, is to arouse interest in the search for prophylactic and abortive measures, of which we stand in great need. Acute otitis media, although one of the commonest of afflictions arising in pediatric practice, has not, so far as the author knows, been made the subject of any investigation from a pediatric standpoint, our knowledge and procedure being dictated by otology. Formerly earache was treated by the instillation of various ear drops into the auditory canal. These have been largely swept into the discard by the aural surgeon as inefficient or as obscuring his field of vision. Aside from the antiquated use of laudanum and hot oil, so strenuously objected to by the otologists, there have been more recent combinations of cocaine, adrenalin, carbolic acid, alcohol, glycerin, etc., designed not only to relieve pain but to reduce engorgement and act antiseptically by absorption or osmosis. Should we not again ask ourselves whether they had absolutely no efficacy; whether they could not be made to have abortive power in a certain percentage of early cases, which might thus be spared paracentesis with its very real discomforts, if not real danger of transforming a simple effusion into a purulent one by contamination from the external auditory canal. Having been taught to fear the spray for cases in early life, Southworth has long substituted dropping into the nose oil, albolene, plus such antiseptics as eucalyptol, as being less liable to penetrate the tubes, or, in the event of so doing, carrying with them bactericidal properties. While distinctly helpful in combating coryza and nasopharyngeal infections, this procedure does not always prevent the development of an otitis. The principle, however, of the instillation of oily solutions of antiseptics, possibly with oil of greater specific gravity than albolene, would appear to be capable of further development for purposes of prophylaxis. Southworth concludes by asking these questions: (1) Are there any therapeutic measures which tend definitely to prevent middle ear infections in acute nasopharyngeal conditions? (2) Are there any abortive measures which are reasonably efficient in beginning otitis media? (3) Could not some such measures be devised by well directed research? (4) Are we correct in assuming that immediate early paracentesis is always indicated in all cases of effusion into the middle ear? (5) To what degree and under what circumstances, after paracentesis, is the pediatrician justified in counseling delay in the presence of the classical indications for mastoid operation? (6) Is the frequency of acute otitis and of mastoidectomy inevitable, or is it due to a complacent neglect of further research in this field? Those questions are well worthy of study.

El Siglo Medico.

March 1, 1919.

Unfavorable Vital Statistics of Spain.—Dr. Gomez Ocana shows that the outlook of Spain for inhabitants is grave. Thus, in regard to the death rate, this in 1912 was 21.6 per 1000 population. During the next four years the average was slightly in advance of that figure, while in 1917, before the advent of the pandemic, it shot up to 26.16. The natality for the same period has on the whole shown a decrease, although in 1916 for some unknown reason it reached a maximum of 33.8. With this exception there was a steady decline from 31.60 to 29.2. Apparently the official figures for 1918 are not yet available; but some idea may be obtained from the Madrid figures for that year. As a result principally of the pandemic, the death rate of that city rose to 30.37 while the birth rate fell to 26.70. Not all parts of Spain have shown this destructive tendency, for in the Canary Islands the death rate showed improvement up to 1917, but this fall was associated with a parallel fall in natality.

Varicella and Benign Variola.—Dr. Hernandez Briz in charge of the San José Asylum recently saw a double outbreak of these affections in the latter institution. He recalls that even the great Virchow made a diagnosis of smallpox in a severe case of chicken pox which in some manner terminated in death. Diagnosis was made after histological study, apparently of a biopsy specimen. There is no reason, if a varicella lesion becomes infected with ordinary pyogenics, why it should not suppurate and leave an indelible scar. Until the day arrives when a bacteriological test is available we shall have no sure criterion of diagnosis between these affections—meaning, of course, severe varicella and benign variola. We can never foretell when a supposed varicella will communicate to an unvaccinated subject the most virulent smallpox. In the asylum 15 to 20 children from 1 to 2 years of age had recently had chicken pox. All were robust and while some had been vaccinated others had not. Then as a result of the appearance of a case of variola everyone in the asylum was vaccinated or revaccinated. Failure to take was followed up by further attempts. The vaccination was in every way a success and those who had just had chicken pox were all included in the positives, with one exception. A girl of 6 months, unvaccinated, had apparently recovered from her varicella which was mild and simple in type. To the surprise of all she developed apparently a relapse of confluent varicella (?) with possibility of benign variola. She was isolated and eventually recovered but a positive diagnosis was impossible.

Society Reports.

AMERICAN MEDICAL ASSOCIATION.

Seventieth Annual Session Held at Atlantic City, N. J., June 9, 10, 11, 12, and 13, 1919.

(Special Report to the MEDICAL RECORD.)

(*Continued from page* 1031.)

GENERAL MEETING ON MEDICINE.

DR. WALTER L. BIERRING, CHAIRMAN OF THE SECTION ON PRACTICE OF MEDICINE, IN THE CHAIR.

Proteose Therapy by the Intravenous Method.—Dr. P. NOLF, Lt. Col. of the Belgian Army, Professor of Physiology of the University of Liége, Belgium, presented this topic. He said that active measures directed against infectious diseases before the war could be divided into three groups: (1) vaccines, (2) sera, (3) specific chemical substances. According as one used one or the other, these were classified as vaccinotherapy, serotherapy, chemotherapy. In the last few years a new therapy had been developed, called proteose therapy, consisting of protein administration, such as casein of milk for instance. The administration could be made by means which avoided the action of digestive juice, as by the subcutaneous, intramuscular, or intravenous method. Proteose therapy was first used in cases of hemorrhagic diathesis in which there was increased coagulability of the blood. In paroxysmal hemoglobinuria the paroxysm was temporarily inhibited. During the war proteose therapy was introduced in the treatment of infectious diseases by making use of peptone, which, when given intravenously, was capable of producing intense intoxication, characterized by incoagulability of the blood, fall of blood pressure, a certain marked excitability of the autonomous nervous system, spasm of the bronchi leading to emphysema, nausea, vomiting, etc. This condition had been called protein shock, being specific for proteins and being produced by animal or vegetable toxins of characteristic protein nature, foreign to the human being. Such proteins had been called antigens. Shock could be produced in the dog by injecting a little defibrinated blood taken from the dog itself. The same result could be obtained in human beings. Serum freed from corpuscles gave the same result upon injection. Simple coagulation of the plasma transformed it into toxin for the species from which it was taken, that is, turned it into an antigen. In place of serum, red corpuscles could be used, by placing them in distilled water, and, after hemolysis, adding sodium chloride. Such a solution acted like peptone, if introduced into the vein. If an antigen were given over a sufficiently long period of time, the animal became more and more sensitive, and more nearly approached the anaphylactic state. Anaphylaxis was merely an exaggeration of protein shock. This shock could be regarded as an effort of the organism to fix and assimilate the antigen introduced into the veins. No matter what the antigen, the shock was found to be identical in character. Provided the passage into the blood stream took place slowly, no shock would be produced. In the treatment of infectious disease, one should avoid shock, but a mild reaction, or peptone effect, seemed advantageous. It was better to inject small doses into the vein rather than under the skin. This procedure should be performed only by a physician acquainted with the dangers of the technique. It was necessary to inject the peptone slowly, watching the pulse carefully. Slight tachycardia, headache, and febrile reaction might take place, passing off within a short time. Defervescence was accompanied by profuse sweating. Signs of diminution of the infection followed, and improvement was noted after one or two injections. This treatment had been applied by the author with good results in typhoid fever, in streptococcus and staphylococcus septicemia, in which case the germs disappeared from the circulating blood, and it had exerted favorable action in erysipelas and in nonrheumatoid arthritis. As the process was essentially nonspecific, it could be given in conjunction with specific measures to bring about a cure. It had been used in conjunction with hexamethylenamine and with sodium salicylate, in streptococcic and staphylococcic septicemias and in acute arthritides.

New Plan of Improvement of National Health in Japan.—Dr. SENICHI UCHINO, Chief Medical Officer of the Expert Sanitary Control Board of the Home Department, Tokyo, Japan, read this paper. The speaker said that the National Health Bureau had taken up plans for the preservation of national health, under the control of the Minister of the Home Office. Plans for Infant Welfare, Health of School Children, Control of Venereal Disease, Improvement of Food and Housing, Hygiene of the Farm, and Organization of Vital Statistics were formulated. The Health of the nation was to be studied and causes detrimental to its progress were to be eradicated. Means of improvement were sought and all these factors were to be dealt with statistically so that causes and remedies were accurately stated. It was found necessary that personal investigations should be made in pioneer Western countries and consultations should be held with those versed in the special subjects indicated. New plans were organized during the present war and as these were to be continued for several consecutive years, no report was as yet ready.

Some Differences Between Influenza Pneumonia and Pest Pneumonia.—Major S. T. LEE, Surgeon Major, Chinese Army and Chinese Delegate to the Interallied Sanitary Conference, Paris, presented this topic. Major Lee said that he had only a few minutes warning to prepare a speech at this meeting, therefore, his contribution would be in the form of extemporary notes. He said that last fall, when passing through this country to return to China, he heard much discussion as to whether the "flu" epidemic originated in China, the home of many curious and undesirable things. He would take this opportunity to present some differences between the pest pneumonia epidemic in China and the postinfluenzal pneumonia. In 1910-11 there was an epidemic of pest pneumonia in China, with a death total of 50,000 and no recoveries. This occurred in Manchuria and Northern Mongolia, spreading along the Chinese Eastern railways and lines of travel. In 1917-18 another epidemic with a death total of 12,000 took place in Southern Mongolia through the highways passing through the great wall. A third epidemic, localized in the central province of Sujan, took place this year, with 83 deaths. These epidemics had been proved to be due to plague and plague only. They took place in the winter months among the poorer classes. A Plague Bureau was instituted at Harbin, which had been able to keep the northern part of Manchuria free from plague. The influenza epidemic of 1918 broke out in unconnected villages, often separated from each other by uninfected areas. In some places the nervous types predominated, in others the gastrointestinal types of the disease; there were few pneumonic types. Reports of plague, typhoid, and dysentery came from these places, but investigation showed that the disease was influenza. In regard to clinical differences, in influenzal pneumonia the lung symptoms persisted longer, there was more marked nervousness, and the pneumonia was a secondary complication superimposed on the primary disease. In plague pneumonia 48 hours was the average course of the malady; in influenza three to four days. In regard to epidemiology, plague pneumonia occurred during the winter, whereas the grippe pneumonia was at its height in autumn. Plague pneumonia occurred among the poorer class, but the influenza pneumonia occurred among all classes indiscriminately. In plague pneumonia direct contact was necessary to contract the disease, but infection was often hard to trace in influenza. Nurses and doctors taking proper precautions did not contract plague pneumonia, but they frequently contracted influenzal penumonia.

Pre- and Post-war Impressions in the Balkans.—Dr. JOHN CONSTAS, Delegate of the Greek Army, gave an informal talk on this topic. He said that Greece, and also the unfortunate nations of Serbia and Montenegro had been at war since 1912, so that the peoples had suffered more in proportion, with the duration of the war. Commercial and medical supplies had been more interrupted. The treacherous and brutal Bulgars

had proved the axiom that "birds of a feather flock together" by finally joining the Teutonic forces in spite of the persuasions of the Allies. At the beginning of the world war, the Greeks, under the rule of Constantine, the tool of the Kaiser, were kept from joining the side of nations fighting for humanity. However, it was psychologically impossible that a nation, whose ancestors first gave the world democracy, should be kept back from their right to fight for freedom. The Greek nation passed through a very trying period, and during the days when the Mediterranean swarmed with submarines the true state of affairs of the Greek and Serbian armies and medical service was never known, although later when channels of news were cleared the facts began to sift through. The frightful scourages of typhus and influenza as they affected the Serbian people were then appreciated. One-fifth of the Serbians perished due to disease conditions. If it had not been for the angels of mercy from America, with nurses and ambulances, these terrible diseases would never have been checked. The whole sentiment of Serbia, Albania, and Montenegro was one of heartfelt gratitude and more than gratitude for the American aid. None of these nations would ever forget what this country had done for them, so long as the earth should circle in its course.

SECTION ON PRACTICE OF MEDICINE.

First Day—Wednesday, June 11.

DR. WALTER L. BIERRING, DES MOINES, IOWA, IN THE CHAIR.

Chairman's Address: Relations of Internists to Military Medicine.—Dr. WALTER L. BIERRING of Des Moines, Iowa, presented this address. Medical army officers, he said, had, in the first place, been simply known as army surgeons, although allied branches, such as sanitation, bacteriology, and internal medicine had contributed to military medicine. Twenty-nine base hospitals had been first established, but this number was rapidly increased. The importance of tuberculosis having early been recognized, well-known internists had been employed in organizing this branch, as also that of cardiovascular disease. The officers of the Medical Reserve Corps had been trained to learn army organization, and men accustomed to a hospital service of 40 to 50 beds became used to the handling of 1,400 to 1,600 beds, the number running as high as 4,700 in the influenza epidemic. Although the environment of the sick soldier was different to that of the patient in civil life, medical knowledge had been much increased by military conditions. Such problems as the control of respiratory infections, meningitis infection, nephritis in the young, trench fever, effort syndrome, diabetes, had received much light. Medical men had lived in ideal conditions for study, with active cooperation of all branches and the freedom from professional competition. This was bound to lead to the establishment of groups of specialists with coordinated professional activities, which would add greatly to the welfare of the civilian population. It would be found when the history of the war was written that the services of internal medicine had played an important part.

The Basal Metabolism and Alimentary Hyperglycemia Tests of Thyrotoxicosis.—Dr. GEORGE W. MCCASKEY of Fort Wayne, Ind., presented this topic. The present status of the study of thyroid disease, he said, was what the study of diabetes would be without laboratory data. Often in thyrotoxicosis the thyroid gland was not even palpable. One had therefore to look beyond the goiter. The differentiation of borderline cases and the determination of toxicity were two important points. The tachycardia, nervousness, hyperhidrosis, and later digestive disturbances were simply the expression of the toxemia. The clinician was constantly confronted by doubtful cases and there must be some measure of the rise and fall of the thyrotoxic symptoms. Basal metabolism bore relation to the neuromuscular and secretory phenomena, such as respiration, circulation, secretion, a hyper-state corresponding to increased metabolism and a hypo- to decrease rate. Metabolism corresponded to heat consumption or oxygen consumption and the apparatus of Benedict had been designed to measure this production, as estimated by the number of calories per square meter of body surface per hour. A 10 to 20 per cent. increase in consumption was coincident with the mild cases, up to 50 per cent. moderate, 60 to 70 severe; 70 to 100 very severe. The metabolism tests were subject to marked variations and the reading was good only for the time of the experiment. It was, however, of undoubted value in studying the course of the disease. In regard to the hyperglycemia tests—100 gms. of glucose fed to normal persons did not produce hyperglycemia in one hour; in hyperthyroidism there was an increase of 100 to 200 per cent. in one hour. Every reading of over one-tenth of one per cent. represented hyperglycemia when tested with fasting stomach. Even in border line cases a marked hyperglycemia was noted. An increase in basal metabolism and a hyperglycemia, while not actually pathognomonic, formed most valuable corroborative evidence of thyrotoxicosis.

Dr. JOHN C. HEMMETER of Baltimore said that it gave him pleasure to listen to a paper that had a physiological basis. Dr. McCaskey had made use of a practical method to test disease of the thyroid. He, however, took certain things for granted by assuming that the process of oxidation in the thyroid was increased, and that there was hyperglycemia when a certain amount of glucose was in the circulation. Dr. Hemmeter had seen the apparatus spoken of, and had noticed no provision for observing the humidity of the patient given off as expired air. An 80 per cent. humidity would make a great difference, by increasing the percentage of sugar by 13 per cent. There should be a correction of the figures. He did not wish to go through all the agonies of sugar metabolism, but a hyperglycemia in the blood after 100 grams of glucose was really physiological. The method would seem therefore to require further revision. Sugar might not exist in the blood as sugar, but combined with something else, as a chloride. One had to be careful not to push conclusions that were physiologically not proven. In sugar metabolism one was confronted with a physiological paradox. In the hyperthyroid cases one saw a furnace that refused to burn paper, while it would handle anthracite coal. The organism could break up the protein molecule, and even the carbohydrate moiety of the protein molecule, but it could not break up the carbohydrate molecule, the easiest of all. It was the case of "Water, water everywhere," or rather "sugar, sugar everywhere, but not a drop to use."

DR. LEWELLYS F. BARKER of Baltimore said that these two tests should be of value in clinical medicine. In the determination of thyroid disease there was a question as to whether or not one was dealing with over activity of the thyroid gland. The methods seemed to be complex but were in reality tolerably easy. Metabolism was certainly increased in this condition—Graves' syndrome—and this was an easy way to measure. it. Hyperglycemia did seem to be increased, but this was not that the body did not split the carbohydrate molecule, it meant that sugar was mobilized more quickly at that time, because if it could burn the carbohydrate moiety of the protein molecule, of course it must be able to break down sugar. Whether this was direct result of thyroid activity remained to be seen. The relation of the thyroid product to cell metabolism all over the body was to be considered, as also that to other endocrine glands, such as the suprarenal. Many of the thyroid phenomena could be traced to hypersuprarenalism. These tests were no doubt valuable, but difficulties existed which had to be overcome.

Dr. N. W. JANNEY of New York City said he had been interested for a long time in the aspect of carbohydrate metabolism. He thought more accurate work was needed on the technique of the tests. With the careful addition of liquid per kilo, he had got more accurate carbohydrate curves, that is, using 1.75 grams sugar per kilo with 2.5 c.c. water to dissolve the glucose. Hyperglycemia seemed to be indicative of the hyperthyroid condition, but glycosuria seemed to have no special relation. These tests should be studied so as to apply to the borderline conditions, where they were most needed. Precisely these same curves had been found in pituitary conditions and in a few cases of

Addison's disease. The apparatus of Benedict was by no means so simple as it appeared to be. Much further investigation was needed along these lines.

Dr. G. W. McCaskey said that all one ever found was one-tenth of 1 per cent. sugar in the blood. It could be followed fairly closely. In regard to humidity, the error would be as great fasting, as after the dose. What they had was the test for comparison. That was the practical point. These tests were not entirely pathognomonic of thyroidism, but to a disturbance of the endocrine system in which the gland was overstimulated at one time or another. The pancreas probably did not respond to the overstimulation and therefore was not interfered with. It was not entirely a question of oxidation, but of metabolism. It might be impairment of liver storage or failure to store glycogen in the muscles. Certain measurements per kilo of weight should certainly be estimated. One did not as a rule get hyperglycemia in normal cases.

Classification of Goiters.—This paper was read by Dr. H. S. Plummer, Rochester, Minn. He said that the normal thyroid developed from prenatal acini with epithelium, and a certain percentage contained fetal rests or cells capable under certain conditions of producing acini. The thyroid elaborated two products: thyroxin and colloid. Colloid was associated with the formation of the hormone, but played no part outside of the thyroid gland. Exophthalmic goiter was a distinct clinical entity sharply differentiated from other conditions of hyperthyroidism. The profession had been slow to accept this theory. The thyroxin was present in all the cells of the organism in quantum of potential energy on the oxidation of the cells, and the amount of energy transformation varied with the amount of thyroxin in the cells, being increased in hyper- and decreased with hypo-thyroidism. Five thousand cases had been studied at the Mayo Clinic with regard to metabolism rates. An average of 39 calories per hour per square meter of body surface was normal. In hypothyroidism, 35 per cent. below normal, 7-10 mg. thyroxin was required to maintain normal balance. Exhaustion of the hormone in normal individuals varied with total energy transformation, and could shift 100 per cent. in normal persons, the basal rate remaining constant. With a dose of thyroxin the basal rate rose, then later dropped back. Under ordinary conditions the thyroid need not eliminate its product. The increase of energy could be met in other ways, by increasing stimulation of the cells, or chemical changes as in the adrenals. In regard to structure, nearly normal glands were removed in mild cases. In the hypertrophic gland there was increase in colloid and number of acini, formation of new tissue with adenomatosis. All this might be found in the same gland. Stimulus of fetal rests resulted in colloid goiter. In adolescence there was often diffuse deposit of colloid and adenomata were often deeply embedded. Two forms were seen: nodular colloid goiter and colloid adenomata. These were clinically indistinguishable from adenomata and had the same clinical indications. Hypothyroidism was associated with low metabolic rates, sometimes it was seen with adenomatous goiter, in a milky form with constitutional states, and not often clinically recognized. Many cases diagnosed as hypo- were really hyper. Myxedematous individuals never gave history of goiter. In the hyper- cases, the extirpation of the adenoma brought the basal metabolism to normal in three weeks. In exophthalmic types there was probably some variation of the thyroid hormone from the normal. These cases were distinct from hyperthyroidism.

Dr. Emil Goetsch of Baltimore said that he had been working on these problems for 5 years. The symptoms of hyperthyroidism were due to toxin elaborated by the thyroid gland, and one could assume that there was thyroxin in all the cells of the body, and that the symptoms were an overaction of the nervous system, probably the sympathetic, which would give hyperaction of the body cells, just as, for instance, the cells of the gastric mucosa were stimulated to hyperacidity in this condition. Dr. Plummer's theory that the hormone is altered in exophthalmic types was interesting. No doubt exophthalmic goiter was a clinical entity. The thyroid was stimulated to overactivity by a method not understood. The disease was not primarily in the thyroid gland. Exophthalmos was never produced by thyroid medication, nor could it be obtained experimentally by the hormone. The exophthalmos was probably the result of irritation of the sympathetic system, the patient becoming poisoned and at operation the removal of the poison empirically relieved the patient, but left the exophthalmos still present, though not as the result of thyroid secretion. At Brigham Hospital they had found the metabolism strikingly parallel with the symptomatology of the disease, and the oxygen consumption and incidentally the adrenal in hypersensitiveness ran parallel with the course of the metabolic activity. In cases which improved this rapidly fell. As regards groups, there were the colloid, the hyper, or adenomatous types, and thirdly exophthalmic types. It was hard to tell whether adenomatous types were active or not. These being new tissue, did not follow the laws of tissue growth. The metachondria was not a functional activity of all cells and usually disappeared. Adenomata, becoming cystic, often became inactive through degeneration and a spontaneous cure resulted. Symptoms depended upon the balance between amount of secretion and the tolerance of the individual; when this was exceeded, intoxication resulted.

Dr. L. F. Barker of Baltimore said that one should understand clearly what a man means. Much confusion could be avoided if one recognized that Dr. Plummer did sharply distinguish between exophthalmic goiter and hyperthyroidism. In the literature this division had not been made. Usually Basedow's disease had been regarded as hyperthyroidism. Probably one would come, in time, to speak of "Plummer's Syndrome," meaning classical exophthalmic goiter, as distinct from hyperthyroidism. While both conditions were due to over thyroid activity, the symptoms, prognosis, and treatment of exophthalmic types were different. In regard to classification on the pathological and histological side, one point should be made which affected treatment. Adenomata of the thyroid or nodular struma produced symptoms best treated by surgery, and operation gave quicker results. In the exophthalmic goiter operation also gave better results, but it was difficult to be sure what form one was dealing with clinically. Protrusion of the eyeballs was sometimes present in adenomato, sometimes not so in typical exophthalmic goiter. Sometimes one saw marked tachycardia, nervousness, and sweating, with obesity and some of the obese patients were improved with thyroidectomy. A study of a large number of cases, such as at the Mayo clinic, was of great value to science.

Dr. Henry A. Christian of Boston said that there were three tests of value: determination of basal metabolism; relation of blood sugar to ingested sugar; determination of blood pressure to injection of adrenalin. These were not pathognomonic of changes in the thyroid, but depended upon disturbances in the body, commonly associated with thyroid disturbance. They were more valuable as measures of function than of diagnosis. The basal metabolism tests were of more value than the others as the changes occurred more regularly. It was, however, necessary to sound a warning against measuring the patient in figures of basal metabolism, as the figures only expressed the metabolism at the time of the test. Some such changes were temporary, but some were permanent, resulting from prolonged disturbance, and these would not be modified by removal of the gland. Thus one might see patients with thyroid activity measured by increased basal metabolism of 60 to 70 per cent., showing relatively few of the cardinal symptoms of exophthalmic goiter in marked degree, and operation on these cases would cause a serious disturbance, because without the basal metabolism one would not have recognized the severity of the disease. In another type the basal metabolism is little increased, but the patient showed cardinal symptoms of exophthalmos together with permanent cardiac disturbance—in such a case basal metabolism was less than the clinical picture; operation would not produce any great change because the permanent cardiac damage had been done, as the result of thyroid activity. In considering these points, mistakes could be avoided in the disproportion between the clinical picture and the tests, otherwise many errors would be committed.

Dr. G. W. McCaskey of Fort Wayne, Ind., said he was always glad to hear Dr. Plummer's views, but he had injected a difficulty into clinical work, that was in the question of slow introduction of thyroxin into the circulation. This fact was difficult to correlate with that we could have changes in basal metabolism of 100 per cent. in the course of a few days. This he had seen happen. The most interesting group of cases were the borderline cases. Hyperthyroidism was not suspected until one found metabolism 45-60 per cent. increased. Was this a separate group and something akin to the hyperchlorhydria which appeared in these cases? Could the thyroid react without definite clinical disease, as did the glands of the stomach?

Dr. Charles H. Mayo of Rochester, Minn., said that Dr. Christian had covered the surgical indications. No one had yet found a sensible answer to the question as to why the thyroxin reacted on the eye and produced the protursion of the eye ball. There was a typical exophthalmic goiter without the exophthalmos. Under the microscope the tissues were seen alike and producing excessive secretion. The discussion here would do more to make a new classification of thyroid disease than ever before. There had been a jumble from the surgical standpoint, but now one went so far as to remove a part of normal thyroid, to reduce excess of secretion, if there was no reason for medical treatment.

Dr. H. S. Plummer of Rochester, Minn., said that the details of the subject were tremendous, but there was a fundamental fact, and that was that the thyroid hormone did control the rate of splitting of the carbon molecule, that is what one called life, that made a phenomena as complex as physiology plus medicine, plus sociology. It was, therefore, better to stick to basic facts. The presence of adenomata raise the physiological rate. To say that hyperthyroidism is an incident in exophthalmic goiter might be correct, but it was misleading. All the symptoms were due to the thyroid hormone, but it was likely that the hormone underwent some modification in the relation of the iodine content, but this did not invalidate the theory that other physiological changes first occurred in the body. If one removed enough tissue from the patient with Basedow's disease, that patient was no longer hyperthyric. One did not have hyperthyroidism with a normal basal rate, but there were cases in which hyperthyroidism passed off leaving the exophthalmos. Physiological hyperthyroidism could not be recognized unless the rate was above 20. Of the cases so diagnosed, not one-fourth were really hyperthyroidism. The condition known as irritable heart in the army had nothing to do with the thyroid gland.

Clinical, Functional and Pathological Observations on Some Cases of Chronic Nephritis.—Dr. James P. O'Hare of Boston made this presentation. The reader said that one did not expect patients to linger long with this disease, nor to be observed for 3 or 4 years with zero renal function. He would present two cases. The first was a girl who at 9 years suffered scarlet fever. At 19 she had severe anemia, probably having had marked nephritis without recognition. At twenty-three she came to the hospital complaining of blurring of sight, headaches, drowsy spells. The eye grounds were negative, there was no retinal sclerosis. The urine showed no albumin or casts. Phthalein output was 12 instead of 60. Blood urea was 4 times the normal. The kidneys could not handle salts, water and nitrogen. The girl improved in hospital, but later returned, this time with definite cardiac hypertrophy, retinal sclerosis and hypertention. There was no evidence of active renal degeneration, although function was nearly minimum. A year later she caught cold, and came to the hospital with blurring of eyes, edema of face and sternum, considerable vascular changes, blood pressure 190 systolic, 120 diastolic. Phthalein output was zero. She again improved, but 8 months later came back. She went into coma with marked uraemia and acidosis. Injection of sodium bicarb. improved the acidosis. She was fairly well for five months. When she returned there was marked dyspnea, retinal hemorrhages with tortuous vessels. She developed nausea and vomiting, and died of pleurisy superimposed on pneumonia. The blood nitrogen rose to 120 mg before death. At autopsy the kidneys were the smallest ever seeen, and under the microscope there was no kidney substance left. She had probably had nephritis from 9 years of age to 27, when she died. However, for the last 10 years, the disease was vascular, outside of the kidneys. She lived a limited life, which allowed the small renal function to operate as long as possible. The other case was similar, though in an old man, a tramp who (contrary to the last patient) did everything that was bad for him and drank heavily. He was 62 years of age when first seen, and lasted, coming to hospital at intervals, for five years, with practically zero kidney function. At autopsy the kidneys were found to be very small, the rare glomeruli were infarcted. The blood nitrogen at death was 200 mg.

Dr. H. O. Mosenthal of Baytimore said that these cases were of extreme interest. One would not expect these cases to live as long as they did, and one should determine what factors had weight in the prognosis, so that the therapeutic side might be determined. Aside from heart complications it was hard to say how long the patient would last. The low renal function meant retention of renal excretory products. Renal insufficiency *per se* would not prevent the patient living for long periods. The inability to excrete solids was often compensated by polyuria. Nephritis was not only an excretory problem, one was dealing with some form of intoxication affecting the body as a whole, ending in protein destruction. This killed the nephritics before they died of retention and it was what produced the acidosis. The big problem was to treat the intoxication and take care of the kidney so that it would not be overcome.

Dr. Edward F. Wells of Chicago said that in the management of these cases it was well to be frank with the patient. The patient usually wanted to know what was the matter with him and what he could do to be saved. The patient was informed that many parts of the body were involved, and that the condition was accompanied by great risk, but that nevertheless it was possible to live with comparative physical comfort for some time. It would take a wise man to say how long these patients were to live. One saw very small outputs of urea for months at a time, and then on some sudden strain (as influenza) almost unbelievable amounts were passed. When the circulatory system was impaired the patient was told (in writing) to avoid exercise that produced shortness of breath. Whenever he found he had to sleep with extra pillows the physician should be notified. Very elementary physiology was used to explain his condition. It was explained that he had about 15 pounds of blood and 25 pounds of solid material, and that the balance was water. Nutrition entered the system in watery solution. For the heart to pump up the blood it had to pull a distance of four feet, but in lying down it got assistance of two or three inches. This made the patient willing to lie down for some weeks with great benefit. In edema the flow outward could be started by stimulating the lymphatics. A patient might live for 10-40 years and then die of some other cause than nephritis.

Dr. L. A. Conner of New York said that the aged did not have the same metabolic rate as the young and that the standards of blood urea and nitrogen were different in the young and the old.

Dr. F. Billings of Chicago said that in the older days before they had these finer tests, they used to base the prognosis upon the uremia. Some years ago there was an irregular practitioner in Washington, who became very rich and was called in consultation to legislators and politicians. He moved to Milwaukee and treated extremely severe cases, often successfully. His method was to starve the patient, merely feeding him on nuts.

Dr. L. D. Bulkley of New York said he had known a patient with albuminuria for forty-nine years. Personally he had suffered severe attacks of albuminuria as long ago as 1870. He could also show any number and kind of casts the meeting would want to see.

Dr. O'Hare in closing said it was surprising to see how patients could live many months with low renal function. Often, as Dr. Mosenthal said, death was due to other things, not essentially nephritic; that is, cardiac failure, vascular crises and infections. Often the cardiac complication caused death that one would expect from pure nephritis. One was unable to prognosticate the reserve force of the body in some people.

A Note on Tropical Sprue.—Dr. Edward J. Wood of

Wilmington, N. C., made this presentation, which was given with the intention of arousing interest in sprue in the United States. One case was seen in New Hampshire (a North Carolina man), one in Syracuse (a Porto Rican), one in an eastern hospital (a North Carolina man). The symptoms in sprue were typical in the mouth, the intestines, and the blood. The tongue was inflamed and pink, differing from the pellagra tongue. The sprue tongue was paler with cobblestone appearance. The disease could be differentiated by the tongue alone. The diarrhea was from midnight until 10 A. M. The stool, very large, was called by English workers "cow-pad stool." It was light, fatty and suggested pancreatic insufficiency. The blood picture showed an index above 1. Anemia was secondary and appeared like pernicious anemia. Many cases were, no doubt, called pernicious anemia. The cells showed marked variation in size, with poikilocytosis. No nucleated cells. The relation between these two diseases would have to be studied.

Dr. Douglas Vanderhoof of Richmond, Va., said that great credit was due to Dr. Wood for calling attention to tropical sprue in the United States. The diarrhea was characterized by absence of pain and tenesmus and blood. There were four diarrheas thus characterized: 1. Diarrhea of achylia gastrica, gastrogenous diarrhea. These were 90 per cent. of matutinal diarrheas. 2. Pancreatic diarrheas, due to pancreatic insufficiency. 3. Diarrheas of pellagra. 4. Sprue. The loss of weight, weakness, stomatitis and anemia in the latter made it difficult to distinguish it from pernicious anemia. However, in pernicious anemia the individual was sometimes well nourished. There was much confusion between pellagra and sprue. In pellagra there were often definite mental symptoms. In sprue one noted the saccharolytic stools. Sprue could occur in individuals who had never been to tropical countries.

Dr. J. H. Pratt of Boston said that the feces of these cases observed under the microscope appeared to be composed of almost entirely fat. Many of these cases were passing unrecognized, because little had been written on the subject.

Dr. Alvarez of San Francisco said that there was a great deal of sprue in San Francisco in people returning from the Orient. The stools differed from those of pancreatic lesions. The flora was different. Many patients improved and got well on meat diet, as this altered the bacteria of the stools. Feeding the patient on starch brought about return of the symptoms. Vaccine made from streptococci at the back of the tongue had cured some cases. The strawberry cure was a puzzle. Why should a man with diarrhea improve on being fed two or three boxes of strawberries? No reasonable explanation had been found.

Dr. E. Libman of New York said that he had seen a case of sprue five years ago in a patient who had never left New York. There was complete achylia, and reflex disturbance of the lower extremities. Ashford had read a paper on sprue in which he stated there might be lack of gastric secretion. Then Dr. Wood reported achylia gastrica or hypochylia in sprue. This showed the resemblance of sprue to pernicious anemia, but up to the present no case had been described of sprue with a color index above 1. Dr. Wood's findings were of importance, as there was great difficulty in distinguishing sprue from pernicious anemia. The symptomatology would appear to show close relationship. It was a mistaken idea to think that the symptoms in pernicious anemia were due to anemia. If one did a transfusion one could remove the symptoms due to anemia, sleeplessness, restlessness, nervousness, but one did not remove the tongue lesions, or the achylia gastrica, or spinal cord symptoms. Some toxin affected the tongue, gastrict tract, and spinal cord, which was untouched. Sprue attacked the gastrointestinal tract and tongue and changed the blood, but the index was not above 1. Spinal cord changes had not been described. If a toxin for sprue were found it would give a lead in the explanation of pernicious anemia. In the few cases seen one was struck by resemblance to pancreatic achylia. It would be interesting by means of the duodenal tube to find out the condition of the pancreatic ferments.

Dr. Graves of Galveston, Tex., said that he desired to emphasize that sprue was becoming endemic in this country. It was imported from South America and Africa. A few months ago he saw a child three years old, in Louisiana, who with sprue had epileptoid symptoms. Whether there was a connection he did not know.

Dr. Livingston of Jamestown, N. Y., said that in traveling to Porto Rico he met two travelers suffering from sprue. One was a government official, the other a lady, the wife of a friend of his. He became interested in the cases and prescribed the use of concentrated hydronaphthol taken internally as an antiseptic, to counteract the offensive stench of the feces. The government official refused to use this, as he said it burned his mouth. The lady used it with great advantage and finally recovered and was the picture of health. This antiseptic had no toxic properties whatever.

Dr. E. J. Wood in conclusion said that sprue often was superimposed on pellagra. He had not seen any remedy that was of any particular use. Sprue, like pernicious anemia, seemed to help itself. It would be interesting to know the result of studies on feces in pernicious anemia. In regard to the high color index mentioned by Dr. Libman, this was apt to be before death, and not early. The scraped beef diet, with hot water, and nothing else had been found helpful and had doubled the hemoglobin. It was unfortunate that cases of sprue occurred in remote places where laboratory investigations were impossible. Thus it was often difficult to differentiate them from pernicious anemia.

Unusual Tolerance, Especially in Women, to High Arterial Pressure.—Dr. David Riesman of Philadelphia read this paper. These cases, he said, presented a regular type of patient, usually an obese woman of middle age, the mother of many children, in whom the multiple gestations and the care of raising the family seemed to be a factor. The menopause was no doubt a factor. There were often no symptoms except slight ringing in the ears. Blood pressure was high but the arteries soft. Another type had accompanying nephritis, and had a bad prognosis. One type resembled the hyperthyroid syndrome, with nervousness, but the patients were not benefited with iodides. Often there were no alarming symptoms, but the patient should be watched. Three classes of symptoms should be watched for: (1) Angina pectoris; (2) apoplexy with hemiplegia; decompensation from myocardial strain. Much could be done by stopping heavy eating and ordering lacto-vegetarian diet; care of the bowels, for these patients were usually constipated; and freedom from worry.

Dr. Joseph Pratt of Boston said that these cases could be divided into three groups: (1) Vasomotor neuroses with no arteriosclerosis; (2) a moderate group with essential hypertension with localized arteriosclerosis; (3) arteriosclerosis general. It would be interesting to find out whether the moderate neuroses pass on to persistent high pressure. If McKenzie's advice were followed, the general practitioner would become a research worker in these cases.

Dr. H. S. Plummer of Rochester, Minn., said that he believed the syndrome was common among men of the same age. The fundamental thing in treatment was cutting down stress, nervous stimulation, muscular exercise, meat in food, as regards quantity not quality. The total food came very nearly equal to the amount of stress, no matter whether carbohydrates or proteins. In stress of the thyroid the gland was asked to furnish more than normal amount each day.

Dr. L. F. Bishop of New York said that he saw many of these obese patients. They had to be so treated that they could live longer with a fair degree of comfort. One great remedy was outdoor exercise. It was difficult to get these stout patients to do this. They preferred to stay in the house or the stores. Outdoor exercise was the best stimulant for heart, lungs, and kidneys, and tended to eliminate worry. In regard to diet, one good plan was to forbid eggs. This cut out most rich dishes and cut out a protein of doubtful freshness, as most eggs consumed had been in cold storage. A third point was attention to the gastrointestinal tract. Most of these people were laxative fiends and had intestinal irritation from abuse of laxatives.

Dr. Anders of Philadelphia said there was a form of myocardial insufficiency where the blood pressure was abnormally high. If the myocardium was

strengthened, the hypertension would fall. Many cases of hypertension were due to overeating with insufficient muscular exercise. The two great factors were proper restriction of fat-forming elements and systematic physical exercise, provided that the aorta be not involved, in which case one should advise exercise with caution.

Dr. RIESMAN said that he thought that McKenzie's plan of keeping complete records of every patient was a good one, so that if the man returned years after one could tell whether he originally had any indication of some condition which may have developed later. In regard to Dr. Plummer, he believed that his work on the thyroid stands alone. In regard to Dr. Bishop's views, he felt that one could accept any statement he made as to regulating hypertension. Also he thought that one was right in refusing city eggs to patients with either high or low pressure. In regard to exercise, there were periods in which rest was as beneficial as exercise. This had to be carefully worked out.

SECTION ON OBSTETRICS, GYNECOLOGY, AND ABDOMINAL SURGERY.

First Day—Wednesday, June 11.

DR. THOMAS J. WATKINS OF CHICAGO, CHAIRMAN.

Presidential Address.—Dr. THOMAS J. WATKINS of Chicago paid tribute to the hero members of the section who had made the supreme sacrifice over there. He spoke of the progress the specialty of gynecology had made in the past year, especially in the domain of plastic surgery, the treatment of cystocele, the repair of perineal lacerations, and of vesicovaginal fistula. He spoke of the importance of lacerations of the cervix in relation to gonorrhea. The work of such men as Hitschmann and Adler had been particularly notable. Displacements of the uterus were diminishing in importance, and we had learned that a crippled uterus should not be suspended. Our knowledge of the treatment of acute pelvic infections had been advanced, and now we dealt mostly with conditions left as surgical residuals. In short, the profession was proud of the accomplishments of abdominal surgery, and much of this was due to gynecology. Comparatively new subjects coming into the limelight were endrocrinology and radiology. It is true much poor pelvic and abdominal surgery was still being done, with disappointing results. Abdominal sections should have definte indications. Tinkering with the uterine adnexa was done much too loosely. Too often the pathology alone was the guide, rather than the individual problem presented by the patient, her age, social status, etc., which are more important indications. She should be kept under observation, moreover, until the cure was complete, especially if she were neurasthenic. Too little opportunity had been given to young surgeons, who should be provided with fellowship and assistantships in hospitals. As a rule hospital organization was deficient, some of the printed forms used for gynecological diagnosis being pernicious. A notable exception to this statement was the admirable system of Halsted at Johns Hopkins. He praised the group study of surgery which was carrying modern knowledge into the smaller communities. In contrast to this was the reprehensible practice of surgery by men insufficiently equipped; it was true that some of the responsibility for this rested elsewhere, part of it with the faculties of certain medical colleges.

Analysis of Fifty Cases of Uterine Bleeding from Causes Other Than Malignancy or Myoma Treated by Radium.—Dr. SAMUEL M. D. CLARK of New Orleans read this paper. He had found that an abdominal operation could be avoided in selected cases. This paper was made possible by the kindness of the Radium Institute of New Orleans. Group I consisted of five cases, which were not reported at this time. Group II were those cases of violent dysmenorrhea which had resisted all treatment. Typically they were the spinster type, with the menopause in sight, and still virgins, most of them neurotic. Often they had only about ten comfortable days a month, the rest of the time being taken up with the pre and post-menstrual storm. Everything had been tried in these cases, the endocrines, curettage, etc. Finally it became imperative to stop menstruation. He reported twelve such cases in the paper. Relief was obtained by stopping the flow, in one case without permanent suppression of the menses, but usually this was inevitable. The essayist believed that every known method should be tried before radium was used. Group III consisted of cases of so-called chronic metritis, the age limit running from 36 to 56. Often these women had had many children, the uterus was frequently in malposition, and bleeding was rebellious. Curettage was without avail; packing was sometimes necessary. In these cases the possibility of malignancy was first eliminated, and then radium was tried. He found that this was less of a trial on the nervous system than surgery, and wished strongly to emphasize this point, also that it was less dangerous. He reported 33 cases with one unsatisfactory result only, where the uterus had later to be removed. There was some discomfort for from 24 to 36 hours after the process, such as malaise, nausea, etc., but this was practically negligible. If radium had no other field in medicine than this its employment would still be warranted.

Treatment of Myoma Uteri with Radium.—Dr. JOHN G. CLARK of Philadelphia read this paper. He alluded to the paper just read, which coincided closely with his views. He deplored a blanket policy in using radium as, for example, when it was employed even on cases at the menopause, although this policy was lately abandoned. The first essential in using radium was a proper diagnosis, otherwise serious mistakes would occur. The selection of cases depended on whether they were causing hemorrhage or not, and the size. Difference of opinion existed about this latter point, but he took cases under the size of a three to four months' pregnancy. There were many objections to radiating a large tumor, as Dr. Noble had pointed out several years ago. Cases with complications, as pain, were not suitable, or when the fibroid was associated with inflammatory or other lesions. Three or four such cases had been tried with bad results, flare-ups had occurred, and in two cases operations had been necessary. The tumor then must be causing hemorrhage, and not merely pressure symptoms, for then reduction was slow. He thought that the alleged dangers of sarcoma following myectomy were largely mythical, although cancerous degeneration might occur. The disadvantages of the radium method were, first, nausea, which was not serious, and might be due to the morphinization preparatory to gas; and, second, pain, which should not occur. If it did, especially if it were associated with fever, it suggested that the wrong sort of case had been selected. If pain existed beforehand it negatived radiation. The third alleged disadvantage was the untoward effect of making the menopause come on a little more sharply and be a little more prolonged, but this was not serious. As to failures, he had had only eight in 137 cases. The effect on the ovaries was much less than on the uterus. In a well-chosen case of fibroid, radiation was the method of choice, because it was simple, almost free from danger, and was most effective in relieving permanently the symptoms and ultimately diminishing the size of the fibroid. It was the most valuable addition of the last two decades in the treatment of elective cases of myoma uteri. The treatment was standing the test of time so far as permanence of cure and freedom from sequelae, and marked a decided progress in the treatment of myoma uteri if conservatively applied.

Dr. H. C. BAILEY of New York said that in the application of radium to a malignant neoplasm of the uterus there were two distinct problems presented: (1) The application of the radium to the cancer in a sufficient quantity to cause a retrogression of the growth; (2) The application to the rest of the uterus in a correct amount. The first problem was rather easy on account of the usual location of the tumor; the result resembled myectomy somewhat, and the return of the tumor was just as certain; therefore, reapplications of the capsule were necessary. His experience was that it was seldom effective, and caused serious lesions. As to the second problem, very large amounts were required, even as large as one gram. While this would and did kill all cancer cells in its vicinity, it also affected the pelvic organs, and such things as endarteritis,

sclerosis, etc., occurred later. He thought that an operation might be preceded and possibly followed by the application of radium. He agreed that small fibroids might disappear, but not often a good-sized stump was left, which was unfortunate. Again, if the abdomen were not opened serious conditions which often complicated myoma might be overlooked. Deaver of Philadelphia said that these were present in 28½ per cent. of cases. He said that all large, pedunculated, or submucous fibroids, should certainly be operated on and this left only a small, free group in which radium might be tried, but only as a tentative measure. The mortality was practically negligible in these operations, being about 1½ per cent. In cases where bleeding was the only indication, radium had its best field. A thorough curettage should be done first, however, and all the scrapings examined; evidences of malignancy might be found in one small place only. Partially ripe ova in young girls might be so injured by radiation that later on abnormal birth occurred.

Dr. Ernest C. Samuels of New Orleans stated that he had treated the cases Dr. Samuel Clark had reported. No attempts were made to radiate large or rapidly growing tumors, or those not causing hemorrhage, these latter having been left to the surgeon. As to nausea and pain, the cessation of the use of morphine had eliminated 75 per cent. of these cases; gas also had been abandoned. The cases treated numbered 125, in one of these there was no effect and three came to operation. He thought that the menopause was no sharper than normal, slower if anything. He did not use the large doses that Dr. Bailey mentioned; after three ordinary doses the patient was told that radium was ineffective in her case, and treatment was discontinued.

Dr. Arthur H. Curtis of Chicago said that he had treated 229 cases; 46 of these had uterine cancer, and got palliative relief which in 14 instances was very marked; no malignant case had been cured. The hemorrhage and the discharge ceased, the cervix healed over, and the pain disappeared in several cases, but of course there was always a fatal result finally. In protecting the bladder and the rectum he inserted rubber dams, instead of gauze packing; this forced the parts farther away from the cancerous tissue, and prevented adhesive vaginitis. Operation should be done either in the first 24 hours after radiation, or else an interval of two or three weeks should elapse. In noncancerous cases he thought that radium had a great therapeutic value, indeed, in indicated cases we should always get cure. In medium-sized or small fibroids, or in hemorrhage of the menopause usually a satisfactory result was obtained with 1200 milligram hours, but on account of the frequency of "hot flushes" he used only 1000, or even smaller doses in idiopathic cases. Some of these latter came back. For about two months after radiation there was some bleeding, and sometimes there was a profuse watery discharge for three or even four months, but these symptoms always ceased. In intractable leucorrhea of cervical origin splendid results were obtained with radium.

Dr. Richardson of Baltimore said that he was rather pessimistic about the value of radium in these cases.

Dr. Leroy Broun of New York said that he had treated 1760 cases in the Woman's Hospital in New York in recent years; of these 90 showed necrotic changes, 25 calcareous degeneration, and 25 were associated with malignant disease of the fundus. In other words, 8 per cent. of all fibroid tumors had complications that would contraindicate radium. Also in 3 per cent. more there were complications in the ovaries, and in 7 per cent. more infective salpingitis was present. Hence the danger of radium—the difficulty in making clear-cut diagnoses.

Dr. John O. Polak of Brooklyn wished to know how clear-cut diagnoses could be made in these conditions if they had dispensed with morphine and gas. He said that he had treated 76 cases for hemorrhage with invariable success, and in only three cases was protracted treatment necessary.

Dr. Henry Schmitz of Chicago spoke of leucorrhea persisting for six, eight, or even twelve months after operation, and thought that big doses of radium were responsible. Radium, he said, labored under the disadvantage that it was asked to undertake cases abandoned by surgery as hopeless, so that in these cases even a palliation of the symptoms was a triumph.

Dr. Samuel M. D. Clark said in closing that they did not use morphine or gas any more for the application of the radium, but they did use it to facilitate diagnosis. In regard to the alleged frequency of complications of uterine myomata he said that perhaps his figures differed on account of the source of his material. In the far South uterine myoma seemed abundant, and were five times as common in negro women as in white. Eighty-five per cent. of these cases had adnexal complications, leaving thus only 15 per cent. suitable for radium. He would like to hear suggestions for controlling menstruation in young girls without suppression.

Dr. John G. Clark said that radium was not the ideal nor the invariable treatment, but that for a small number of cases we had in it an invaluable remedy. The radiologist had to guard against faulty diagnosis; he should not treat any and every case sent him, or radium would fall into ill repute. The patient should be told to expect nothing for six or possibly ten weeks; if the radiation were done immediately following her period it might be that she would have no more of them, although there might be a yellow, sticky discharge lasting from four to ten weeks. The use of radium was not a competitor to surgery, but took those cases on which the surgeon disliked to operate.

Dr. Goffe spoke of the distinguished men from all parts of the world present at the meeting and moved that they be received as guests of this section, and admitted to honorary fellowship in the American Medical Association. This was passed.

The Results in Over One Hundred Operations for Uterine Myoma (Operative Versus Roentgen-Ray Treatment).—Dr. Arthur Stein of New York read this paper. He said that surgery was still the most effective weapon at our disposal in treating uterine myomata. He quoted a case of a 20-year-old patient operated on and the cervix removed; later on two masses formed back of the stump. Another operation was done and they were found to be retroperitoneal; when removed they were found to be myomatous and undergoing sarcomatous degeneration; this showed that these myomata might have metastases, contrary to general belief. He cited instances of mistaken diagnoses and said that the aid of curettage was sometimes impossible for diagnosis. He did not believe that either radiation or *x*-ray treatment ever made tumors disappear. In his cases with various forms of myectomy he found single or double pyosalpinx in 26 cases, an adherent appendix in 18 cases, cystitis in 17 cases, ectopic gestation in one case, hydrosalpinx in 12 cases, adhesions in 8 cases, and gall stones in two cases. In other words, 50.8 per cent. of his cases had complications, which was a high incidence probably due to the class of cases he got at Harlem Hospital to which also he attributed his rather high mortality, 3.3 per cent. He came to the conclusion that treatment by the *x*-ray was not the method of choice for four reasons: (1) It was difficult to determine whether tumor was benign or malignant; (2) Complications occurred in half the cases; (3) The *x*-ray destroyed the function; (4) The *x*-ray had a deleterious effect on the intestinal mucosa.

Dr. G. E. Pfahler of Philadelphia said that he approved of a conservative attitude rather than the radical one expressed by Dr. Stein. He always accepted the diagnosis made by the gynecologist, and if a patient came to him without a diagnosis having been made he told her to have an examination. Referring to the pretended dangers of malignancy, he said that 7 to 10 per cent. of all these cases were supposed to be malignant, so that in the 150 cases he had treated he should have had from ten to fifteen malignancies, but he had had none. What had become of them, and also what had become of the malignancies in the 2000 or so cases reported in the literature?

Dr. Goffe of New York thought that operations were not getting their due, possibly because of the fearful mortality which formerly existed—that is, about 50 per cent. The same complications caused death in the operative cases as in the radium ones. He believed that an operation meant less difficulty, danger, and discomfort for the patient who went out of the hospital in from ten to fifteen days greatly relieved.

Dr. Joseph B. DeLee of Chicago raised the question of pregnancy after the use of radium. He was not sure that a woman could become pregnant after radiation.

Dr. Cullen of Baltimore said that malignancy in his experience was not nearly as high as 10 or 15 per cent. He thought that both radium and roentgen rays were useful aids to the surgeon, but that surgery was the thing.

Dr. Henry Schmitz of Chicago said he could answer Dr. DeLee's question, for he had a patient who was delivered nine months after radiation, and whose child was now five years old and healthy.

Dr. Peter B. Salatich of New Orleans said that one lost sight of the surgical cases, but not of the radium ones. He had a case where during operation an extraordinary friability was found, probably due to a previous radiation, and later a fistula formed. Radium should be restricted to nonoperative cases, as *e.g.* patients with bad hearts, or to tide a patient over until operation. He spoke of the mysterious etiology of myoma, and suggested syphilis.

Dr. Broun of New York spoke of sarcomatous changes in fibroids; at the Woman's Hospital in New York, in 1,760 cases, there were only seven of these, or less than three-tenths of a per cent.

Dr. Cowdin of Nashville, Tenn., contrasted operation with radiation.

Dr. Arthur Stein, in closing, said that sometimes the radiologist will pronounce a case cured, but the surgeon gets it later. We must improve our methods of diagnosis before we can be sure we have pure myomata.

Dr. Porter of Ft. Wayne, Ind., said that on the surgical side we had definite facts, and on the other we had only a vague and nebulous adumbra. Other things being equal, we should take out the fibroid and end the matter.

The following appointments were announced to the executive committee: Drs. C. J. Miller, J. O. Polak of Brooklyn, and H. P. Newman of San Diego, Cal.

Dr. Goffe alluded to the International Congress of Gynecologists and Obstetricians, the meetings of which had been interrupted by the war. Now that normal scientific relations with Europe were being resumed he suggested that an effort be made to reorganize that society and to that end proposed the following resolutions: (1) That the Section on Obstetrics, Gynecology, and Abdominal Surgery of the American Medical Association approve of the formation of such a congress. (2) That a committee be appointed by the chairman of the Section on Obstetrics, Gynecology, and Abdominal Surgery to affiliate with other committees in perfecting such an organization. (3) That the Congress of Gynecology and Obstetrics be extended a hearty invitation to hold their first meeting in the United States of America. (4) That the house of delegates be requested to approve these resolutions. The resolutions were unanimously passed.

The Teaching Function of the Hospital; With Especial Reference to Gynecology.—Dr. George Gray Ward, Jr., of New York, read this paper. He stated that hospitals were on the increase and that next in importance to their obvious functions were their possibilities as means of medical education. Every hospital was a mine of material—too often unquarried. It could be made of untold benefit to the community as a teaching center, and we should educate hospitals as to their duties and privileges in this regard. It had been the all too prevalent custom to drop a graduate into a hospital and let him sink or swim. We should carefully supervise his progress, see that he reads the literature, learns to take a proper history and encourage him to undertake some research problem. There should be a resident gynecologist immediately in charge of the training of these interns. The teaching of nurses was too perfunctory, standing orders multiplied, conflicted, and were too often merely ignored because no one had made it his business to harmonize them. Interns should be encouraged to progress into residents, attendings and members of the board; they should be given research work to do and offered every possible facility. Staff conferences were of the greatest importance, and should consist of pathological demonstrations, and of frank discussions of therapeutic failures and casualties. In short, it should be the duty of every attendant to a hospital to bring out to their utmost the potentialities latent in the young men under him, and to develop successors to himself and his colleagues.

Dr. R. M. Harbin of Georgia said that he had been visiting many hospitals lately, and had been particularly impressed by the difficulty in finding in any hospital a definite system of post-operative treatment. The minor points in hospitals were extremely important.

Dr. J. S. Stone of Washington, D. C., said that our aim should be to train and encourage the intern. We wanted members of our hospital staffs who should be qualified and our gauge was roughly such things as these: They should be members of the American College of Surgeons and producers of solid contributions to the literature of their specialties. He thought that the merging of the control of a hospital into the hands of one capable member of the staff would promote standardization.

Dr. John O. Polak of Brooklyn contrasted morbidity with mortality. The good we did depended on accurate diagnoses, and these were not possible when patients were brought into the hospital the night before a proposed operation. Follow-up systems should be established, as at the Long Island College Hospital, where the discharged patients returned at monthly intervals for a time and the results were studied.

Dr. J. L. Bubis of Cleveland, Ohio, said that the usual dispensary methods were wrong. Instead of so much care being taken to find out the service to which to send a patient she should go to all of them and have a complete diagnosis.

Dr. J. Henry Carstens of Detroit said that there were all kinds of hospitals and all kinds of standards. Often favoritism would enter into appointments. Private hospitals presented peculiar problems. Too much follow-up might make hypochondriacs and permanent invalids.

Dr. Ward, in closing, said that he thought that the crux of the whole thing was educating the trustees.

Alternating, Periodical Swellings of the Ovary.—Dr. Emil Ries of Chicago read this paper. He spoke of the puzzling tumors which appeared on one side of the uterus and suddenly vanished, only to reappear later, perhaps on the other side. Sometimes menstruation would be delayed two weeks, then appear and become profuse, and then the appearance of such a tumor would not unnaturally give rise to the diagnosis of ectopic pregnancy and sometimes an operation would be done. The diagnosis of scolecoiditis had even been made. These tumors were due to corpus luteum cysts. He described three cases he had observed for a period of years each. There was something about the corpus luteum not yet understood which caused such an anomalous condition and also perhaps the strange sclerocystic degeneration of the ovary.

SECTION ON NERVOUS AND MENTAL DISEASES.

First Day—Wednesday, June 11.

Dr. Archibald Church of Chicago, Chairman.

The Pathology of Cervical Ribs.—Dr. Archibald Church of Chicago, in this, the chairman's address, alluded to the very meager literature of this subject which was only adequately mentioned in the text-books by Oppenheim, yet their frequency exceeds all conception. They were found in about 4 per cent. of all skeletons. In regard to the disturbances caused by them, Dr. W. W. Keen published an article on this subject some years ago and Dr. L. L. Barker had made many interesting notes on his own person. They were surprisingly neglected by orthopedists. In Europe they knew the condition chiefly through the work of Gruber and it was called there by his name. He divided them into three classes: (1) Those which did not extend to the tip of the transverse process. (2) Those extending to the tip or slightly beyond. (3) Those more extensive. Other skeletal anomalies were usually present with these ribs, especially about the sternum; they were frequently associated with torticollis. They were often mistaken for aneurysm. These ribs might give rise to pressure symptoms in the arm and hand, especially if heavy weights were lifted often. Apical tuberculosis

was not uncommon as a concomitant. A sclerosis of the subclavian artery might give rise to symptoms by pressure on such a rib. They could not be identified by palpation alone; the *x*-ray was a very definite method of making the diagnosis, but even with this they could very easily escape notice if they were either very small or very large; in the former case they were overlooked, in the latter case mistaken for first ribs. Vascular changes were not so common as nervous ones. The pulse on the side of the extra rib was affected, especially if any weight were carried on that side; there were several instances of it in the army where the carrying a gun brought these symptoms which in time led to the discovery of the unsuspected rib. Vasomotor changes were found on one or both sides. The sensory defect was sometimes confined to one nerve. Radiating pains were observed, worse in ulnar fingers. Other symptoms which had been described by various observers were dissociation of sensation, all forms of "claw" hand, paralysis, rarely complete, trophic disorders, ptosis, pupillary changes, hoarseness, etc. Cervical ribs were so often associated with scoliosis of that part of the spine that they should always be suspected when the latter symptom is present. The operation was very difficult and no periosteum must be left. In every case of inexplicable pain about the shoulder or hand we should suspect the existence of these ribs. By elevating the elbow and putting the arm at rest we might get recovery.

The Mechanism of Referred Pain, Hyperalgesia, and Alcoholic Injections for the Relief of Neuralgia, with Suggestions for the Surgical Treatment of Injured Nerves.—Dr. Joseph Byrne of New York read this paper. He said that referred pain was a misnomer and really meant pain anywhere in a somatic path while pain occurring from visceral disease was reflected pain. He spoke of the theory of pain, of the two sets of fibers, the affective and the critical. The factors responsible for pain resided in the dorsal ganglia, hence severing a nerve far away from one of these did not relieve the pain. He said that 80 per cent. alcohol was too strong for injection into a nerve; that it should be 60 per cent. and then be injected into the sheath. He studied the changes in the proximal part of a severed nerve and found that it sent out many little axonites with bulb ends which later functioned and overfunctioned. Hence it was very important to sew up a nerve at once. There was no pain for 14 days, while the nerve was trying to unite, then hyperalgesia occurred.

A New Polyglandular Compensatory Syndrome.—Dr. Walter Timme of New York read this paper. He said that for several years a group of patients were noted in his clinic with similar symptoms which were finally formulated as follows: Intense intratemporal headache, easy fatigability, low blood pressure and blood-sugar as low as .060 of 1 per cent. Under the *x*-ray a closing-in of the sella turcica and a persistence of the thymus were found. Their histories were also similar: Before puberty, eneuresis, fatigability, dullness and spasmophilic and hemophilic tendencies. He quoted several illustrative cases, some having come from the Draft Board or the army where their great height had brought discredit on their history of fatigability. The etiology and pathology worked out by Dr. Timme were these: Adrenal trouble originally, compensatory activity of the pituitary, hollowing out of the sella turcia to accommodate it which, if successful, leads to a more or less complete self-cure, if not successful, must be helped by pituitary feeding.

Dr. Tom A. Williams of Washington called attention to some of these cases lacking one or more symptoms, but said that the severe bitemporal headache was the symptom *par excellence*. He suggested that when there was no response to organotherapy we might try to reduce the hypophysis cerebri by the roentgen rays.

Dr. Charles E. Sterne of Indianapolis spoke of the antagonism of the anterior and posterior lobes of the pituitary and thought these cases should be divided for treatment into pre- and post-adolescent states. He got better results by hypodermic administration and found the anterior extract harmless.

Dr. Timme said he thought that anterior extract was very harmful, causing nevi, enlarged cervical glands, etc., if not carefully controlled. He saw no advantage in the hypodermic method of administration.

Dr. Hugh T. Patrick of Chicago spoke for the editorial board of the Archives of Neurology and Psychiatry, stating that they would like good, constructive criticism.

Dr. Tom A. Williams of Washington moved that a short time after opening on the following day be devoted to discussing the magazine; this was amended by adding an expression of confidence in the present editors, and carried.

Dr. Theodore H. Weisenburg of Philadelphia thanked the society and stated that the editors welcomed criticism and help at all times.

Treatment of War Neurosis.—Dr. Theodore H. Weisenburg of Philadelphia read this paper. He stated that Dr. Schwab in a recent paper had described the neuroses seen in France so fully that he would only discuss those he had seen in Plattsburg. One peculiar symptom seen in one case was a tremor of the eyeball, psychic in origin. Many difficulties in diagnosis were encountered, especially in the epilepsies. He thinks there is practically no difference between the neuroses of war and peace, differing from Schwab. The armistice made this difference, that following it symptoms could hardly be suggested, but patients took kindly to ideas of recovery. There were no "miraculous cures," however. Treatment was not difficult and often surprisingly rapid and successful.

The Management of War Hysteria.—Dr. Tom A. Williams of Washington read this paper, which was based on a very intensive 18 months' study in France. Simple persuasion was used by the French while he used a subtler psychotherapy. He believes that neuroses of peace are the same as those of war and have as good a prognosis, provided we can get some sort of control over them. He suggested that litigants be compelled to take expert treatment under penalty of forfeiting all claims. Torpiage was only used in France by one man on account of public sentiment against it, but he had had great success with it. Reeducation was the only method offering intelligent, permanent results. Pains were very difficult to cure.

Dr. Robert MacGregor of Saginaw, Mich., alluded to cases seen in England and France and said that the victim of shell-shock was always a potential epileptic.

Dr. C. A. Rosewater of Newark, N. J., quoted a paralysis of ten years' standing cured at Plattsburg by intelligent, individual psychotherapy.

Dr. Hicks of New Jersey wanted to know how the real psychoneurotic could be distinguished from a clever and persistent malingerer.

Dr. Pollock of Chicago saw many cases in France and very few had neuropathic taint in heredity. He saw very few reflex neuroses in wounds of the extremities but thinks that these may be found in the future.

Dr. Weisenburg in closing said the differentiation of malingering and psychoneuroses was often difficult, sometimes, perhaps, impossible.

Dr. Williams in closing said the diagnosis of malingering depended upon contingent symptoms, not upon clinical tests. Fear is not always the mechanism in war neuroses. Anxiety cases must be carefully sorted out and never treated as the others.

The Psychopathology of Amnesia.—Dr. Edward E. Mayer of Pittsburgh read this paper by title only on account of limited time, but quoted briefly three cases of amnesia, in each of which the patient had thereby gotten out of an extremely difficult situation. In these cases it was impossible to tell genuineness of the symptoms shown.

Dr. Joseph Byrne of New York said the trouble with psychotherapy was that we could not state its principles and hence stood on the same level—in the public's eye—with the chiropractor and the naturopath.

Dr. H. Douglas Singer said that too much stress was laid on the question of responsibility, which was beside the point from a medical standpoint.

Dr. Jones of Minneapolis spoke of the physical side of amnesia and said that all amnesics who had no physical lesion were malingerers.

Dr. Tom A. Williams of Washington pointed out a connection between the war and occupation neuroses and said that many originate in a lowered physical potentiality; this persists and becomes hysteric.

Dr. Mayer in closing said that while we might dismiss the question of responsibility in a medical meeting, in the law courts we had to answer.

(To be continued.)

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 95, No. 26.
Whole No. 2538.

New York, June 28, 1919.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

RADIUM, ITS PRESENT STATUS AS SURGERY'S ADJUNCT.*

By C. EVERETT FIELD, M.D.,

NEW YORK.

DIRECTOR, RADIUM INSTITUTE.

THE title of the paper covers the ground of the relationship of radium activities in surgical methods. This is a very broad and extensive proposition, because it takes in morbid conditions of the human body wherever surgical interference of any kind may be indicated, as, for example, in diseases of the bone, of the blood, and in any chronic or acute inflammatory condition in which curative effects of radium have been recorded.

An interesting but an infrequently discussed subject, which offers a large opportunity for instructive work, is the action of radium applications in diseased sinuses of bone and in the soft tissues of the body, such as follow infection from deep and extensive injuries; as for instance, in the fistulæ and sinuses remaining from gunshot or shrapnel wounds.

We will confine this paper to the treatment of malignant tumors. In the light of experience, from both a clinical and a practical viewpoint, the action of radium as an aid to surgery may be classified for purposes of discussion into four divisions, as follows: First, as a substitute for surgery; second, before surgical proceedings as a preparatory method; third, combined with surgical procedures; and fourth, postoperative or prophylactic use. In the first group are all lesions which are inoperable or ineradicable by any surgical implement or method, whether the knife, scissors, cautery, caustics, or other well known surgical means of enucleation. In all inoperable malignant conditions or when the growth is ineradicable radium is indicated. Radium is indicated when surgery is impracticable or impossible, because of inaccessibility of the growth, its extent, its special nature, the malcondition of the patient from a prolonged duration of the disease, or in cases where excessive mutilation or impairment of normal functions would follow a proper removal. Example: A tumor located in the liver could hardly be removed with any hope of safety to the patient or promise of a cure for the disease.

Malignancy involving not only the uterus and adnexa, but the adjoining lymphatics and neighboring structures, offers no hope of cure by any ordinary surgical method of removal. Epitheliomata of the ear or the eyelid, of the entire lip, or the nose are presumably inoperable for cosmetic as well as physiological reasons. Cancers of the tongue are now regarded by most surgeons as inoperable, at least the promise of cure is almost worthless. Their rapid return after complete excision is so certain as to discourage all but the very young and very bold operator. So much is this true, according to modern surgical experience, that radium becomes the remedy of election.

There is a class of cases where surgical interference seems to hasten the death of the victim, even when the disease to all appearances has been radically and widely removed. Apparently the operation stimulates the growth and recurrence of the neoplasm. Melanosarcoma is such an example. In these patients excision, no matter how extensive, how wide of the tumor, and how well carried out, appears to stimulate the growth and insure its rapid return. The only hope of a cure in these patients lies in the use of radium and not in the knife.

There are three specific diseases where the reports of relief by the use of radium are so definite and certain and are confirmed by so many cases, as well as by the experiences of such a number of observers of unquestioned veracity and skill, that radium is, from the first, the method of choice.

The diseases referred to are lymphosarcoma, tuberculous glands, and fibroids of the uterus. Lymphosarcoma usually occurs in the neck, the mediastinum, and the retroperitoneal regions. The lymphosarcomata are not very amenable to local attack, that is, removal by any surgical proceeding is difficult and doubtful because of their diffuse occurrence and their inaccessible location. As a rule, before these tumors present at the surface of the body they are already infiltrating widely from the situation where they originally appeared. This particular variety of sarcoma arises in the connective tissue wherever lymphoid tissue abounds, particularly in the mediastinum and in the retroperitoneal tissue. The distinguishing features of this tumor are its infiltrating propensity, its lack of a limiting capsule, its non-limitation to any single organ or structure, and its inherent tendency to invade other organs. The very first principle of proper surgical treatment of neoplasms is a complete and wide excision of the growth. In this class of growths proper operative treatment is impossible. Fortunately, these frequently occurring and rapidly fatal tumors of young adults are often quickly responsive to radium. While the disease can be said to be almost immune to treatment by the knife, reports of the brilliant results from ra-

*Read by invitation before the Ex-Internes Society of the Methodist Hospital, Brooklyn, N. Y., February, 1919.

dium treatment on these neoplastic growths come from Kelly and Burnham, Tally, Linther, Dawson Turner, Holding, H. Smith, Janeway, Burrows and Cullen, and others.

Fibroids of the uterus are tumors clinically approaching malignancy in many ways. Removal of these growths is an operation of ordinary simplicity to the skilful surgeon and quite attractive in its immediate results. A satisfactory result does not always follow even the best surgical efforts. Surgery, however carefully and completely performed, may incapacitate the uterus. Operation does not always remove all the growths and the uterus itself may have to be extirpated, the patient being thereby made sterile. Not infrequently operative sequence, even in successful cases, leaves a useless organ, while a fatal issue is the occasional result after this major operation. On the other hand, remarkable results have been recorded in operable and in inoperable uterine myomata through the use of radium. At the Radium Institute, in three years, we have treated sixty-two cases of uterine fibroid with over ninety per cent. favorable results. Kelly and Burnham, Abbe, Clark, Wickham and Degrais, Cheron, and many other well-known gynecologists and radium therapists have reported several hundred cases where radium applications have produced certain and uniform reduction in size of the fibroid until it disappears completely or is diminished to a very small and negligible growth. It seems that this brilliant cure of a pathological condition, previously amenable only to the knife and not always then with satisfactory results, justifies all the time, study, expense and any sacrifice of human effort spent to bring radium into the surgical armamentarium and qualifies it as a definite therapeutic agent.

The atrocious destruction of youthful male life that has resulted in the great war of the old continent creates a demand for an increased birth rate. The restoration of this important child-bearing organ to its normal reproductive state without mutilation or impairment of function must have a very important bearing upon the political economy of the world. The ability thus to restore to society a large number of child-bearing units, of which otherwise the State would be forever deprived, might be considered an accomplishment of great scientific and economic value.

The position of radium therapy as relating to tuberculous glands is certainly unique. The uniformly good results that have followed the use of radium, especially on glands of the neck, lead us to class it practically as a specific. If such a statement is to be accepted we can scarcely justify surgical measures.

In the second class, radium is advised as a preparatory treatment; here opinions are divided. Many operators advocate strongly the avoidance of any interference with the affected tissue by radium application before operation, contending that such treatment destroys much of the recuperative quality of the neighboring structures and lessens the local vitality, and also that it interferes with the absorbing power of the tissues and affects adversely the general condition of the patient. On the other hand, many observers assert that inoperable cancers may become operable by proper radiumization. Nogier, of Lyons, advises repeated radiation of the lymphatics of the growth at the circumference of the tumor. He proposes destroying the malignant cells and blocking off the communicating and distributing vessels. This prevents the carrying of those cells away to form metastases. Such radiation is to be begun at the peripheral end of the lympatics. The results of our experiments with the microscopic examination of radiumized tissue strongly support this premise. I heartily sanction preoperative radiation when instituted and terminated at least ten days prior to surgical treatment.

Souligoux of Paris asserts that preoperative radiation kills the outlying cancer cells and thus helps the surgeon in his efforts at the total extirpation of the disease. Other operators believe that this form of treatment reduces the size, extent, and fixation of the growth and renders total extirpation easier and more certain. Opposite opinions are that radiumization congests the tissues and by causing the formation of excessive fibrous tissue in the broken-down structures produces adhesions and makes the operation more difficult and less promising. In one case of cancer of the cervix, reported by Burrows of Manchester, the fibrosis was so great that the operation undertaken after preliminary radiumization had to be given up, although in five similar cases radiation had been administered and extirpation was satisfactorily performed. Personally the author has witnessed no bad results in 132 preoperative cases, yet has refrained from generally advising preoperative radiation owing to the lack of more extensive trustworthy data. At times the surgeon is confronted with pathological conditions involving the uterus complicated by severe and prolonged hemorrhage. Indeed, we frequently see cases where the condition is so serious as to prevent all thought of performing the operation that seems surely indicated. In such a situation we urge the intrauterine and suprapubic application of heavy radiation. The happy results that usually follow this procedure win many lasting friends for radium therapy. In the large majority of such cases hemorrhage is promptly checked and the patient is soon prepared for the necessary operation.

In the third group are the cases in which radium application and surgery are combined. This divides itself naturally into two classes. First, those cases in which it is impossible to remove all the cancer tissue and it is desirous to employ radium in combination with surgery to obtain the effect during operation and after the time of the operation. To do this, immediately on finishing the excision an adequate amount of radium is packed into the wound cavity before closing. This is allowed to remain the required period of time, after which the sutures are drawn in to bring the wound together. Second, where a large cancer mass is to be removed in order to shorten the time of treatment with radiumization, and cases where the operation is simply to avoid the necessity of absorbing a large amount of broken down cancer cells and toxins which otherwise must necessarily be carried off by the physiological processes of the body. In this subdivision the operation is performed in order to facilitate the use and effect of

the radium. Surgery is employed here to assist the action of radium. No operation for a neoplasm is satisfactory which does not remove the most widely spread cancer tissue. In sarcomata, especially, is a wide sweep of the excision line indicated, and the operator is never quite sure that it is wide enough. Radium, at the time of excision, would add to the probability of a more thorough and extensive destruction of the suspected tissue without dangerous mutilation. Theoretically this is an argument for the use of radium in all operations, for in no case can it be certain that the knife has extirpated the furthest cancer nests. In the removal of a cervical carcinoma, for instance, infiltration into the broad ligaments and vagina seems to call for radium at the time of the operation and several hours thereafter.

In the fourth group we have postoperative prophylaxis. Of the necessity and the values of this method there can be no doubt and yet many well known gynecologists, as well as skilful and experienced general surgeons, still maintain a lukewarm attitude toward radium. There have been so many sensational claims made for radium in its earlier day that we may excuse their skepticism. During the past two years, however, many of the foremost surgeons have accepted postoperative radiation without criticism. In fact, it is becoming a routine measure with some gynecologists.

Repeatedly, in the experience of the writer, under carefully carried out radiations, malignant recurrences have disappeared. Nodules have been destroyed and ulcerations checked. Hemorrhages have ceased and, perhaps because of the mental benefits produced, the general condition has greatly improved and the patient has been clinically restored to health. If this is true why not systematically make one or more prophylactic applications of radium in every case to the involved area at the location from which the cancer mass was totally removed as well as to the surrounding tissues where recurrences might be assumed to present?

There is always something to be said about those cases where operation is impossible or where recurrence is rapid and overwhelming in its return. Such victims of malignant disease are not infrequent, and for them there is no other chance, no other resource, except that which may be granted by vigorous, massive, and long-continued doses of radium. It holds out for them at least some relief of pain, hemorrhage, odor, discharge, and other inconveniences or distress, and if applied with confidence and belief in its efficiency, in adequate amounts, by an expert of acknowledged skill, it may help them both physically and mentally and restore, if only temporarily, the joy of life and hope. We have not done all for such a patient unless this final means of healing is tried.

205 West Seventieth Street.

Liability for Ship Surgeon's Negligence.—A ship is liable for the incompetency and unskilfulness of its physician and surgeon in the treatment of an injured passenger only when it has failed to exercise reasonable care in employing him. The Circuit Court of Appeals, Ninth Circuit, holds that the failure of a ship's surgeon to treat an injured passenger and the treatment of another for a contused wound, when there was a compound fracture of a bone of her leg, was negligence for which the ship was liable.—The Korea Maru, 254 Fed. 397.

FIBROMYOSITIS OR "RHEUMATIC CONDITIONS."

By J. Madison Taylor, A.B., M.D.,

Philadelphia, Pa.

Professor of Applied Therapeutics, Temple University, Medical Department.

Long observation convinces me that one of the largest contributions any one is capable of making to medical potential, is by reducing to simple factors, common denominators, and methods of relief, that constant thorn in the side of the profession, muscle pains, fibromyositis, or so called rheumatic states. Probably there is nothing in the clinical category so fertile of blunders to the medical man, nor so fruitful of resources and income to the extra mural healers.

Whatever simplifies our clinical concepts aids to amplify relief measures, provided pathological consistency be not sacrificed. A working basis or common denominator is needed, capable of explaining the phenomena of those variegated and constantly recurring sensory derangements characterized by local sensitiveness, rigidity, tonic protective spasm, muscular hypertonus, and the manifold associated distresses or puzzling transferred pains. Let us visualize this group of sensory disorders under one graphic term—fibromyositis—which well describes those miseries called by the misleading term "rheumatic," myalgic, oxypathic, arthritic, lithemic, and the like.

Along with these closely associated or concurrent muscle sicknesses (myopathic or myogenic phenomena) there occur disturbances of the gross reflexes, among which are spasm, contracture, tenderness, dermal and subdermal "soreness," flatulence, sometimes tremor, and multitudinous vasomotor imbalances.

Many other system disturbances are likewise encountered as correlates or resultants of these sensoripathies, such as those of innervation, of respiration, of circulation, of digestion, or genitourination, also morphologic deformations, lamenesses, and also a diversified group of psychoneuroses or disorders of personality. These psychophysical bewilderments deserve attention from a common etiological source, or point of departure, as well as from shocks produced upon or within their special mechanisms and regulative agencies.

The uniform point of departure is presumably one of disordered biochemistry, of metabolism (or impaired catabolism) usually of the governing or regulative mechanisms, hypo- or hyper-function of the ductless glands.

The question naturally arises here: Why are some individuals readily subject to fibromyositis and others not? This has not been answered satisfactorily as yet, so far as my survey of the evidence tells me. I offer a fair ground for surmise, however, to the effect that these variants in myopathic (or fibromyopathic) susceptibility are to be found in those, as yet obscure, conjectural realms of divergences in "types of tissue soils" which are now receiving attention. Among the more recent and graphic types brought to notice by the war is neurocirculatory asthenia, lowered shock values, or "delicately poised organizations," so called "nervousness." Here we are

on the verge of a new incarnation of an old acquaintance "diathesis" or "dyscrasia," and there we may safely leave it and proceed to the practical subject engaging attention.

One of the most common, disabling, and often distressing of chronic or protracted disorders is the so-called "rheumatic state," myopathy, or myositis, better named fibromyositis. This clinical entity often forms the basis, or clinical background, for an enormous variety of morbid phenomena, physical and mental. The condition is not always painful, nor even tender, but is capable on aggravation of exploding into torture and mental confusion. It obscures the clinical issue so often as to act as a serious peril.

Among the distresses or disabilities referable to fibromyositis are: Headaches, backaches, lamenesses, diverse intraarticular stresses, restrictions of movement (often not recognized as pain states), contractures, deformations, faulty attitudes, and psychogenic as well as morphogenic confusions, along with intestinal inflammations, even appendicitis. Any one of these may follow, seeming to be the effects of acute disorders of varied origins. Referred pains, while due to particular causes, are many times aggravated by fibromyositis. Sometimes there are osteophytic proliferations with decalcification of vertebræ, but even then biokinetic treatment can effect cure.

The means of restitution lie in two chief directions: dietetic or metabolic regulation, and the resources of reconstructive (biokinetic) measures. Of these, the latter are most prolific of relief and the former for removing the underlying causes and staying progress. Indeed, if the condition has progressed far enough there is only one means of radical emancipation, viz., by revision of conduct through reconstructive personal hygiene, including education of the skin and muscles. My experience leads me to believe that without a thorough marshalling of reconstructive, especially manipulative, measures, rheumatic states will persist or recur. Sometimes counter irritation is necessary—local freezing is best, strong iodine or cantharides covered by zinc oxide plaster. The colon should be irrigated with water, better four or six gallons by a two way tube, in and out and in and out again, till the whole gut is clean; this should be repeated every other day for two weeks. Salt (NaCl) and sodium carbonate, purified, may be added with advantage.

So prevalent a condition deserves attention for the reason that in spite of its universality it too often escapes recognition; many contradictory conceptions obtain as to its nature; many errors as to its phenomena, progress, significance; also as to the most economic means for relief and cure.

Let me here urge attention to the need for determining whether any obscure tenderness or pain on movement or recurrent or shifting pain be fibromyositic in character, no matter what other recognizable or reasonably inferential cause coexists.

Diagnosis, obscure in many definite clinical entities, frequently reveals the coexistence of a fibromyositis. Whether the derangements exhibited be sensory, static, or inflammatory, no treatment for the overshadowing disorder will be successful until the accompanying fibromyositic process is dealt with *as a common factor proceeding from similar sources of origin and contributing to the distress or disability.* Tuberculous lesions often exhibit reflex or spastic muscle densities, as pointed out by Pottenger. These are, in my opinion, fibromyositic in character. So of all sorts of lamenesses, whatsoever other conditions also be present.

A fibromyositis is often the essential process when symptoms point reasonably toward more serious diseases or disorders.

A fibromyositis may be acute, and when prolonged may be accompanied by moderate febrile reaction, so large and complex are the sources or origins. It is then obvious enough, as in a sharp attack of myalgia of the lumbar muscles, the scapulars, the pectorals, muscles of the scalp, neck, and the like. The frequently recurring tenderness of the erector spinæ muscles, indicating irritation in the rami, are, in my opinion, of the nature of fibromyositis. To be sure, they point to irritations in the spinal subcenters and these must be relieved in order to cure associated miseries or diseases. Also there are often intraarticular irritations involving the arthrodial or amphiarthrodial structures, costocentric, between the discs or at rib junctures.

Fortunately manipulative treatments work both ways; not only by dissipating the local tenderness but also by reflexly stimulating vasomotor activities in the subcenters and thereby contributing to the nutrition in the disordered peripheral locality. Likewise mobilizations of the vertebræ, the intervertebræ, costocentral, vertebrocostal, and vertebrosternal junctures often contribute to restoration of function.

We should differentiate between neuralgia and myalgia. In neuralgia painful points are found in the nerve, at the outlet or in continuity—where nerves emerge from bone especially. After being relieved there is no further immediate tenderness in myalgia; in neuritis there usually is.

In myalgia pain is located in the body of the muscle, especially at its thinnest part, where most expanded, and is always distributed over a larger area than is that of neuralgia; tenderness persists over inflamed nerves between attacks. A zone of hyperesthesia or hyperalgesia exists which does not parallel the nerves. Myalgic points or areas correspond to where muscle blends into fibrous structure or tendon. Myalgia often simulates angina pectoris (Peritz), acute gastritis, especially when the belly is distended with gas. Also it simulates cholecystitis, appendicitis, sacroiliac disorder. A "sciatica" is often triumphantly detected, which in reality consists of fibromyositis in the muscles of the gluteal region, especially of the brim of the pelvis; also of the small lumbar attachments. Many lamenesses arise in muscle tenderness in the gluteal muscles and fibrous attachments to be detected only by expert finger explorations; they are curable readily enough by persistent manipulation.

Indurations, infiltrations, thickenings are exhibited, giving evidence of chronic myositis at points of lodgment. Certain stages are shown: (1) swelling, elasticity, sometimes glossiness of skin. (2)

bogginess, edema, a doughy feeling; (3) densities, rigidities, spasm, passing with age into ligament-like cords, which are tender to touch. These cord-like, stringy structures are characteristic of fibromyositis. They also are evidences of disturbed states (reflex spasm from a peripheral lesion) in paravertebral structures.

In late maturity certain muscle fibers are replaced by connective tissue and in these tendernesses are common, due to compressions of sensory nerve terminals when movements, active or passive, are made. The two earlier stages are most sensitive. They likewise come and go; *i. e.*, are less or more severe, but rarely absent at some time so long as the condition persists.

In older forms of fibromyositis with passive tenderness as well as active sensitiveness, the organism becomes so adjusted that the sensory responsiveness sinks below the threshold of consciousness; hence is operative in causing vague, unidentified distress, weariness, sleeplessness, aching, infirmity, atrophy, decrepitude, and mental depression or confusion. The origin of a deep seated psychopathy may often be found by tactile exploration as a muscle tenderness.

There may be no active sensory response; the awareness may be subordinated and brought out only by carefully directed tactile explorations, or by movements active or passive, and especially when fatigue or exhaustion coexists.

Favorite seats of myositic thickenings are the head (scalp), neck, in and about the knee, hip (sciatic area), shoulder and ankles, wherever muscles overlap; inside the elbow; insertion of the pectoralis major, of the latissimus dorsi into the humerus, the intercostals, of the abdominal wall, the crest of the ilia, the glutei or the gemelli. Indeed, the buttocks are a fertile ground for fibromyositic complexities variously named, generally hindering locomotion.

The diagnosis of latent forms of fibromyositis is largely by expert tactile apperception (an educated finger tip). The relief and cure, as said, lie in two directions, digestive (metabolic) regulation and the varied resources of reconstructive measures. Especially useful are heat, pressure, manipulation, separation of fibers by hand, or counterirritation by blistering or cautery.

Indeed if the condition has lasted long, and complications have progressed far enough, there is only one reliable means of emancipation, viz., through the resources of revised conduct, personal hygiene, improving habits, notably by attention to skin, and muscle training, passive and active. Never omit thorough bowel washings.

The point I wish to emphasize here is that whatever be the pathological process underlying most protracted or subacute maladies there frequently coexist forms and degrees of a complicating fibromyositis producing distress or disablement or both, and this demands relief *per se* When once the fact becomes realized and the main diagnosis is correct, but there is superadded another cause for the pain or disability and the clinician devotes his attention equally to both, then his duty to the patient is by way of fulfillment.

As a graphic example a vigorous young man consulted me for what he said his physician, an admirable exponent of the best ability, told him was a pleurisy which at any moment might grow worse and that it was dangerous for him to work. The man, feeling absolutely well except for a pain on taking a long breath, and sadly needing to earn money to live, determined to seek other advice. There certainly was no pleurisy, and there certainly was a point of fibromyositis along a rib, and a local tenderness. This I promptly dissipated. He could then breathe with no pain and returned to work immediately. Had this been neglected for some months the condition would have proved recalcitrant and obstinate.

Another was a master-mason whom the foreman on some repairs on my house wished to work on the job. This man rested under the medical ban of a subacute appendicitis for ten months. This proved to be merely fibromyositis of the rectus abdominalis and disappeared over night under counterirritation and strapping. He did his full work from that moment.

The most puzzling problems are those in which an obvious fibromyositis refuses to be cured, although much relieved, and other obscure phenomena persist. In most such instances there may be assumed a chronic irritation in the cell bodies of the cord from which the vasomotor nerves arise which supply the distressed part. The form is often a protective tonic spasm, usually detectable as a cord-like mass. When it is duly located, and after due attention is directed to the subcenter, one may effect a permanent cure, *e. g.*, by freezing the area two or three times, or by exerting some powerful mechanical stimulus to the part whereby adhesions are freed and the nerve outlets (gray rami) resume their functions unhindered.

Of the many forms of reliable treatment some are described later. In any event some expert (really expert) manipulation serves as an efficacious, almost necessary, adjunct. The main object is to relax the tension (protective spasm) in the affected structure, to diffuse the local stagnation, and stretch the muscle fibers from center to affected locality.

In most instances manipulation should be applied as nearly as possible to the origin of the muscle, where the main nerve enters the mass, not neglecting the belly or mid-portion nor the insertion.

Hand treatment should aim to empty the spastic muscle of vitiated lymph and blood; should be applied not too long at a time—two or three minutes with intervals to let the patient rest from the pain induced, and then repeat two or three times; total five or eight minutes. They should be again done on the same day or on successive days, being guided by the degree of "soreness" produced.

In the case of tonic muscle spasm often large sudden movements forcing the part first in one direction, then quickly back again, will throw a long disused part first out of its false position, then back into a normal one. This often overcomes the chronic spasm. It is by such means that the miracles of "replacement" of the bone setters are produced.

In the chronic and obdurate forms treatment should be repeated at least twice a week, gradually increasing the force and depth of pressure,

and length of séance. Manipulation should always be followed by active movements made by the patient, and by carefully directed functional training to secure accuracy in action and to equalize the coordination. Movements should be made in accord with laws of "protective reactions" and "distributing the direction of the load"; with due consideration to states of contracture or relaxation—tonus or hypertonus, also intraarticular pressure or irritation which I have described elsewhere.

A particularly important accessory measure is expert muscle training in exact directions and degrees of force. By this means confidence is restored as well as adhesions and contractures overcome. It is common to meet sufferers who have been admonished to make no movement which causes pain. The truth is *when a movement causes pain that movement should be made repeatedly with increasing force.*

The skin should be educated to protect itself and the hypersensitive muscles from chilling by friction with a dry towel on rising and on going to bed; also by gradations of exposure to air and by alternations of heat and cold, as by hot and cold douches. Dry skin friction is vastly superior as a tonic to the peripheral circulation than is bathing in any form. The late Weir Mitchell frequently used a "salt towel," *i. e.*, a coarse "kitchen towel" dipped in salt water and dried, for friction.

Summary.—1. Keep in mind that any obscure muscle pain, brief or protracted, or lameness, or morbid alteration of posture, or gait, or restriction of posture or movement, or tenderness, may be due to fibromyositis; hence determine by critical palpation what the afflicted or suspicious areas may reveal.

2. Relief of these local disordered conditions, whether painful, tender, or structurally significant, may clear up the matter; or in any event simplify the problem.

3. Cure of a fibromyositis may contribute materially to the limitation of any existing collateral disorder or "transferred pain" by the removal of sources of reflex irritation or "protective spasm," or by reducing the sum total of morbid factors present.

4. Local hypersensitiveness in muscle masses, due to any one of a large variety of primary or secondary causes, frequently is exhibited in the form of a fibromyositis, revealing other coexisting factors, such as a focal sepsis, a central irritation, or a peripheral diseased state.

5. Cure of the local manifestation may be achieved by revising and regulating conduct through personal hygiene, by modifications of diet, regulating exertion, reducing fatigue, especially exhaustion from excessive repetitions of monotonous motions as caused by restricted acts in labor; by accustoming the patient to abrupt exposures to temperature changes and by generally equalizing expenditures of force through salutary modifications in habits in accord with rational demands for activities.

6. In treatment, whatever other curative agencies are employed, don't omit to consider thorough colon irrigations, nor deep manipulations, after careful determination of conditions in the affected area.

7. While constitutional derangements demand attention and regulation, the local anomaly should receive adequate care. Sometimes powerful revulsives are needed, by blister, cautery, freezing, iodine, etc., always followed by strapping with zinc oxide plaster. The main cure, however, is always by manual treatment directed to the neuromuscular mechanisms followed by faithful and varied exercises *especially those which cause pain on movement.*

8. After due attention has been afforded by suitable measures applied to the constitution, to special organs, and to the affected area, there remains a need for functional education, in the form of (*a*) mental readjustment to the complex problems of chronicity, protracted disability, and previous disappointments, loss of confidence in performing movements, etc., and (*b*) reeducating the bewildered muscles to do their appointed work with precision and confidence.

9. Finally, the individual who suffers at any time from fibromyositis needs to learn and to practise thorough hygienic habits essential for his or her "diathesis" or "type of tissue cells" or "dyscrasia" or peculiarities of neuromuscular adjustments, or capabilities of elimination.

Among the first of these good habits (euthenics) is to live as much as possible out of doors, in all weathers, maintaining reasonable activities and, while not over-fatiguing, yet to beware of the one unpardonable sin of physical and mental stagnation, deterioration from disuse. Every day such sufferers should exert themselves so that they sweat fairly or freely.

1504 Pine Street.

THE TREATMENT OF INFECTIONS OF THE UTERUS AND CERVIX.*

PRELIMINARY REPORT OF 75 CASES.

By FRANCIS WARD LANGSTROTH, M.D.,

NEW YORK,

FORMERLY INSTRUCTOR IN GYNECOLOGY, NEW YORK POLYCLINIC HOSPITAL.

Fifty per cent. of all parous and twenty-five per cent. of all nulliparous women have infections of the genital tract. These infections are almost invariably located in the cervical endometrium. The cervical mucosa is of an entirely different type from that found in any other part of the female genital tract, and from the nature of its structure and the arrangement of its glands it is well suited to become a focus of chronic, bacterial growth. Sturmdorf has called it the tonsil of the uterus. The endometrium of the body of the uterus is practically immune to infection. Curtis[1] reports the examination of about 117 uteri; in only a very small percentage of these did the endometrium of the fundus show bacterial growth on culture, and the histological examinations failed to disclose the presence of inflammatory tissue. His findings agree with the work of Hitchman and Adler,[2] and Kundrat.[3]

Tears of the cervix can be entirely disregarded

*Read before the Mercer County, N. J., Medical Society, at Hightstown, June 3, 1919.

as a cause of uterine or pelvic symptoms. It is the presence of infection and not the tear that causes the disease. I wish to state boldly, as a result of my clinical and operative work, that in the future we will come to recognize that infections of the cervix are the fundamental cause of almost all the diseased conditions of the female reproductive organs, as well as the underlying factor in many of the conditions of general ill-health in the female.

There is no such disease as endometritis of the uterine body except when resulting from traumatism due to the introduction of foreign substances into the uterine cavity, and there is no excuse for the use of the uterine curette except for diagnostic purposes or for the removal of pedunculated fibroids or polipi. All the symptoms formally ascribed to corporeal endometritis are the direct result of infection of the cervical mucosa.

The bacteria that may cause chronic endocervitis are numerous. Among the more frequent are the gonococcus, the streptococcus, the staphlococcus, and the colon bacillus.

While the percentage of infection of the cervix in nulliparous women is high, it is not at all confined to those who have had sexual intercourse. These infections are not by any means always due to the gonococcus, but any of the above mentioned bacteria may be the causative factor.

Some of the results, symptoms and diseases, that follow from these all too frequent focal infections of the cervix are: (1) Transmission of infections both of the gonococcus and of other bacteria to the male. (2) Mental distress and physical discomfort in women so infected, on account of the leucorrhea which results from endocervitis. This leucorrhea is often most profuse and of a very offensive odor. This is of course a great trial to these women and a condition of which they are often too ashamed to consult even their family physician. (3) Disease of the uterus and pelvic organs. (4) Menstrual disturbances. (5) Tubal pregnancy. (6) Sterility. (7) Appendicitis and sigmoiditis. (8) Cancer of the cervix. (9) Constitutional symptoms and disease.

Let us next consider how chronic bacterial invasion of the cervical mucosa can act as a cause of the more serious sequences attributed to it above. And when I have done this, I bring before you a new gynecology, a gynecology based upon the incident of infection, and freed from all the myths and dogmas of the past. And should this not be so? Do the throat men any longer remove tonsils, or leave them alone, judging solely from their size? Is it not with them a question of infection? Do not the gastroenterologists consider that most of the diseases of the appendix, gall-bladder, etc., are the results of infection? The psychiatrists of today trace many forms of insanity to various focal infections.[7]

Gynecology was one of the first fields entered by the surgeon. We are told that ovariotomy was performed upon the Vestal Virgins by the surgeon-priests of Pompeii, and duplicates of their instruments can be seen in the Smithsonian Institute in Washington. Yet gynecology is the last special branch of surgery to shake itself free from the shackles of tradition, and to recognize the causes of these conditions as they truly exist.

Some day we may learn how inherited tendencies, or alterations in the secretions of the endocrine glands act to make one person susceptible, and another resistant, to infection, but until that time arrives we must credit to bacteria the rôle of causative factor in the production of disease.

In explaining how infective endocervitis causes the various pathological conditions mentioned above, the anatomy, histology, and physiological functions of the female generative organs must be studied minutely, but this would prolong this paper far beyond the limits of the reader's patience. However, I will endeavor briefly to indicate some of the pathology of endocervitis. The lymphatics of the uterus, for all that they are generally so little mentioned, have been carefully studied out.[8] They start in the cervix as minute open spaces in close contact with the racemose glands of the mucosa. These spaces converge, forming thin-walled lymph channels which ascend between the muscle fibers composing the myometrium. These in turn anastomose to form the lymphatic vessels which lie just under the peritoneal covering of the broad ligament, draining outward—those from the cervix and lower part of the uterus into the pelvic glands, and those from the body of the uterus into the lumbar glands. It is through these lymph channels that the infective bacteria and their products spread, and not up through the cavity of the uterus and out through the tubes into the peritoneal cavity, before reaching the ovary. This dissemination of infections by way of the lymphatics is what we find in other parts of the body; then why should it be overlooked or denied in the uterus and its appendages? Of course hemotogenous transmission of infections must not be ignored. Have not Draper,[4] Stewart and Barber,[5] as well as others, shown conclusively that ascending infections from the bladder through the ureter to the kidney are practically impossible except in the presence of severe damage to the ureter and its sphincter?

Thus we have from an infective endocervitis an ascending intramyometrial lymphangitis, with its accompanying round cell infiltration, serous exudation and plasma cell formation, with its resulting fibrous tissue proliferation, and the implantation of the infectious organism upon new areas, frequently the tube, and less frequently the ovaries. These processes continuing for perhaps years cause chronic destructive changes in the uterus, broad liguments, tubes, and ovaries.

We now know that the uterine muscle possesses inherent rhythmical contractions,[9] and that these contractions occur just as regularly, but with less frequency, in the non-gravid as in the gravid uterus, and it is largely by means of these contractions that the venous circulation in the uterus is accelerated, as the veins of the uterus have no valves. These contractions also tend to promote uterine drainage. In the uterus that has been for a long time subject to this chronic lymphangitis with its accompanying formation of fibrous tissue, these contractions, which are increased during menstruation, naturally become painful, just as the movement of any inflamed muscle bundle is painful. Thus do we explain those symptoms generally spoken of as dysmenorrhea. This same chronic inflammatory process, spreading upward by means of the lym-

phatics, in time causes a thickening of the ovarian tunic, which thickening delays the rupture of the Graafian follicle, so that the period is delayed, causing amenorrhea. Or, perhaps two follicles will rupture within a short time of each other, thus forming a double period, or one form of metrorrhagia. At other times, the Graafian follicle, having ruptured, remains, on account of the thickening of the tunic, unabsorbed, thus causing the prolongation of the period, or another form of metrorrhagia or metrostaxis. In the more virulent infections of the cervix the disease spreads more rapidly, causing acute or chronic pyosalpingitis. In those infections of a less virulent or chronic nature the serous and muscular coats of the tubes become gradually thickened, the tunic of the ovary, as has been mentioned, also becomes thickened, resulting in unruptured follicular cysts, while the plastic exudate forms bands of adhesions which kink the tubes and eventually drag them and the ovaries into the cul-de-sac. In some cases the tubes become partially or totally occluded, thus causing sterility, even if the spermatozoa escape the destructive action of the pus cells in the cervical canal. I believe that this thickening, kinking, and loss of peristaltic motion of the tube are frequently the cause of tubal pregnancy. I was able to demonstrate this very plainly at one of my operations. These infectious processes may further spread to the appendix and sigmoid.

I have stated that chronic, cervical infections can be the cause of serious, general ill-health. I want to give a very brief history of one case operated upon.

This case is No. 56 in the series. Patient is twenty-nine years old, married. Was perfectly well and healthy until her first baby was born three years ago. High forceps delivery; the baby died. The patient became infected, "flowed" for about a month; the following summer she spent three weeks in hospital, taking a sort of rest cure for nervous prostration. She later ran a temperature of 104° and was sent to the hospital and treated for infected kidney. She has had headaches ever since the first child was born, and always felt tired and lost weight; also has had a great deal of backache. She became pregnant again in August, 1917; the baby is now seven months old. Felt very well while carrying child. No instruments were used in the delivery. Wore a pessary for about three months after second delivery for displacement of the uterus, but it did not do any good. Had headaches regularly every two weeks. No stomach trouble; no bilious attacks. Had jaundice when about eight years old; tonsils have been removed. No other illness.

Physical examination showed the perineum badly lacerated; cervix also badly lacerated and infected; moderate enlargement of the left tube and ovary; uterus retrodisplaced down in the hollow of the secrum; is hard to replace. No cystocele; triangular ligament is intact. There is a very profuse discharge. The patient has a very small umbilical hernia.

Operation: Upon inspection the cervix is seen to be lacerated bilaterally; the mucosa covering its vaginal surface is bright red in color, with several bluish, almost gangrenous areas where Nabothian cysts are evidently pointing to its vaginal surface. The condition of the vaginal mucosa of the cervix is such that it seems doubtful if a proper flap can be obtained. There is a profuse discharge from the cervix. The enucleation was successfully carried out. At the request of the attending physician the perineum was not repaired. The recovery was uneventful. A culture was taken and proved to be a *Staphlococcus hæmolyticus*. A vaccine was ordered made from this culture and numerous doses were given by the attending physician; a slight reaction followed even small doses. The gynecological recovery was rapid and satisfactory; all leucorrhea disappeared. The latest report, received within a few days of the time of writing, states that this patient has made a complete recovery as to her general health. Her headache and backache have left her, and she feels strong and in good health.

This case is of especial interest for several reasons: (1) Her ill-health dated entirely from her first labor. (2) Her symptoms pointed to some general, rather than to a gynecological, condition; in fact, one specialist considered that she had symptoms of hyperthyroidism; and she had previously been carefully examined for all focal infections excepting of the cervix. The gynecologist to whom she had been referred took into account only her retroversion, which condition, as the ultimate results in this case show, was not the cause of her symptoms. (3) Nothing whatever was done for this patient excepting the "plastic conical enucleation of the cervix"; and no medicine whatever was given, excepting the autogenous vaccine mentioned. (4) Her recovery seems to be complete.

I have outlined briefly the method by which I believe chronic infections of the cervical mucosa cause the more important symptoms and diseases that I attributed to it in the early part of my paper, excepting, perhaps, the most important one of all, namely, cancer of the cervix. However, to consider the subject of cancer of the cervix now will prolong this paper unduly, and I will leave its consideration to another time.

I suppose this article might not be considered complete without some brief reference to the diagnosis of cervical endometritis; although the diagnosis is so simple that little time need be devoted to its consideration. Leucorrhea is present in all cases, varying from the profuse discharge of creamy pus seen in acute Neisserian infections to the yellowish or greenish tenacious secretion of the chronic endocervitis due to infections by other organisms. In the gonorrheal infections, the mucosa at the mouths of Skene's glands will be found reddened, swollen, and everted, and for years two minute red points will remain visible at the orifice of these glands, as a constant sign of a gonorrheal infection. Upon digital examination the cervix will feel harder than normal, and will be found to be studded with nodules varying in size from a pin point to a pea. These are formed by the infection occluding the ducts of the racemose glands, causing retention cysts. These are usually called Nabothian follicles, and I believe are always pathological. There is generally to be noted a periadnexitis, which seems to be more frequent on the left side. If the cervix is inspected there will be seen a discharge varying in character with the kind of infection and the length of time it has existed. The lips or edges of the external os are red, sometimes almost purple, more or less swollen and everted. There is a proliferation of the cuboidal epithelium of the canal, which overrides the squamous epithelium of the vaginal surface; this gives the appearance generally spoken of as an erosion of the cervix. In some infections the vaginal mucosa of the cervix and the adjacent part of the vagina will present a petechial rash, which closely resembles the so-called raspberry or strawberry tongue seen in scarlet fever and some other acute infectious diseases. I believe this occurs when the infection is due to some form of streptococcus. Again there will be areas that will appear

almost gangrenous; or the infected cysts can be seen pointing as minute abscesses upon the vaginal surface of the cervix.

What has been done for these cases in the past? Applications of iodine in the form of Churchill's or the ordinary tincture, silver nitrate, in almost all known strengths, copper sulphate, etc., followed by tampons of gauze, cotton, and wool, medicated with ichthyol, glycerin, boroglyceride, iodine and glycerin, etc., to say nothing of the various forms of electrical treatments, violet ray, radium emanation, etc. To be brief the usual round of gynecological treatments, all the benefits of which accrue to the physician rather than to the patient. When these treatments failed, as fail they must, the surgeon was called upon to ply the curette after first carefully dilating the cervical canal. At times this last procedure was followed by a more or less temporary benefit, due largely to the improved drainage (which drainage, however, was not permanent), rest in bed, a change of surroundings, and freedom from household cares. Frequently the use of the curette only carried the infection into the uterine cavity and inoculated a previously sterile corporeal endometrium, leaving these cases worse than they were before, many of them even having died from a resulting septicemia; and this would have happened more often no doubt, if these patients had not already developed an immunity to their special infection.

In the course of six months or a year, these cases generally returned to the surgeon complaining of pelvic symptoms and were operated upon for some tuboovarian conditions, and likely curetted again. In many of these cases, the other tube and ovary would have to be removed in a year or two, or more likely a hysterectomy would be necessary.

Many times, even when a supravaginal hysterectomy was done, the unfortunate patients were not cured, since the infection that still existed in the cervical stump would cause an inflammatory condition at the base of the bladder, sometimes involving the lower portion of one or both ureters, and so keep up the pelvic pain and irritation.

This picture is not exaggerated, but is based upon actual cases that have come under my observation.

What then, can be done for these women, who are so unfortunate as to have developed cervical infection? Properly directed surgical interference offers, at present, the only method of *cure* for these cases. The infected cervical mucosa must be entirely removed, for any portion remaining only acts as further foci of infection.

After completely enucleating the cervical mucosa, being careful not to cut away any of the muscle, so as to preserve the function of the cervical canal intact in case of future pregnancies, the cervical canal must be relined with a flap of mucosa dissected from the vaginal portion of the cervix. I have named this operation "Plastic Conical Enucleation of the Cervix." So far as I know, this is the first clinical report covering a series of cases operated upon by this method. To Dr. Arnold Sturmdorf[6] belongs the credit of first describing the operation and of working out the pathology of cervical infections, and I wish to express my appreciation of his highly valued help and suggestions, during the time that I had the pleasure of being associated with him at the Polyclinic Hospital. I now have under observation seventy-five cases that I have operated upon by this method. Some of these cases date back over three years. These cases I will report in detail in a later paper, but I will state here that practically every woman operated upon by this method, in which the pelvic condition had not progressed too far, was cured of her leucorrhea, menstrual disturbances, backache, etc. All of the cases were improved in general health, and I have a report from the State Hospital in Trenton, N. J., where I have performed a number of these operations, of nine cases cleared up mentally almost immediately after "plastic conical enucleation" was performed, although previously every other known source of infection had been removed.

REFERENCES.

1. Curtis: *Surg. Gyn. and Obst.*, February, 1918.
2. Hitchman and Adler: *Monatschr. für Geburtsh. ü. Gynäk.*, 1908, 27.
3. Kundrat and Engelman: Med. Jahrb., 1873, p. 135.
4. Barber and Draper: *Jour. A. M. A.*, Jan. 16, 1915.
5. Stewart and Barber: *Annals of Surg.*, Dec., 1914.
6. Sturmdorf: "Tracheloplastic Methods and Results," *Surg. Gyn. and Obst.*, January, 1916 pp. 93-104. "Chronic Endocervicitis," Trans. of the Sec. on Obst. Gyn. and Abd. Surg. of the A. M. A., 1917, pp. 42-53.
7. Cotton, Henry A.: "The Rôle of Focal Infections in the Psychosis," *N.Y. Med. Jour.*, March 8 and 15, 1919.
8. Leopold, G.: *Arch. f. Gynäk.*, 1874, 6.
9. Henricens: *Finska läkaresälskapets Handlingar*, 1889, 31, 340; *Zentralbl. f. Gynäk.*, 1889, 13, 376; Lieb: *Am. Jour. Obst.*, 61, No. 2.

17 East Thirty-eighth Street.

CONDITIONS WHICH AFFECT THE OCCURRENCE OF RECTAL DISEASES IN INFANCY AND CHILDHOOD.

By ARTHUR A. LANDSMAN, M.D.,

NEW YORK.

ASSOCIATE RECTAL SURGEON POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL; ATTENDING RECTAL SURGEON PHILANTHROPIN HOSPITAL; DEPUTY SURGEON DISEASES OF THE RECTUM, OUT-PATIENT DEPARTMENT NEW YORK HOSPITAL; PROCTOLOGIST HEBREW ORPHAN ASYLUM.

It is well known that diseased states are favored by special conditions, which either bring about their development, or prevent their occurrence. These are to be looked for in the agent which causes the disease, and the person affected by it; his physical, psychic, and social conditions, and the manner in which he reacts to his surroundings. Such factors as age, heredity, sex, habits, and environment have long been recognized as bearing definite relationship to the incidence of all disease, and hence they require our careful scrutiny. Of these none is more important than age, which, while possessing immunities of its own, also carries liabilities to many disorders from which maturity is free; the proctologist has frequent occasion to observe that though certain rectal diseases are comparatively unknown among children, there are others which prevail with relative frequency at this period of life.

It would be folly to assume that this is the result of accident or chance; the more we study the subject the clearer does it become that it is the logical outcome of conditions which are to be found in the anatomical state of the parts, their functional activity, and the habits and environment of the individual. In order to see whether it is possible to

find in these a rational explanation of the occurrence of rectal disease in children, we must examine on this basis the differences between the conditions existing in the child and the adult, and try to learn in what manner childhood would predispose to such deviations from the normal as are seen in certain rectal affections at this period of life.

To begin with, we must not lose sight of the fact that the rectum is in intimate contact with the bones which form the posterior wall of the pelvis, being closely adherent to them by means of the intervention of the endopelvic fascia, and following the curves on their anterior surfaces to the termination of the bones; hence any difference in their shapes must be marked by a corresponding difference in the curves of the rectum, and in the degree of mobility of the organ. An examination of the infantile sacrum shows it to be relatively flat, shallow, and less curved than that of the adult, while the coccyx is soft, yielding, and its joints more freely movable because there is no ossification between its segments until middle life; in agreement with this the rectum would acquire a tendency to become more straight in its course and direction, and to that extent to lose the essential support to which the shape of the bones contribute to such a marked degree. In accordance with principles of mechanics, force applied on an object through a vertical axis produces a greater effect than when exerted through one which is curved, as illustrated in the construction of the spinal cord whose strength is in no small measure due to its arrangement in curves. This offers a reasonable explanation of the frequency of prolapse of the bowel in children, in whom such exciting causes as diarrhea, whooping cough, and malnutrition from artificial feeding excite straining at stool, produce increased abdominal pressure, and bring about further loss of support from absorption of connective tissue—factors which need not be seriously considered in the adult. We see approximately five cases of prolapse in children to one in adults.

Procidentia recti is by no means the only rectal disease to which the structural conditions existing in the child predispose it, but as it presents a striking illustration of their effect, it has been selected as a good example in this discussion; but we cannot leave the subject before considering some of the congenital defects in children, which are responsible for disease of the terminal bowel.

These are mostly dependent upon the failure of the two parts which form the embryological rectum, the caudal extremity of the hind gut, derived from the endoderm, and the proctodeum, derived from the invaginated ectoderm, to unite properly. Other defects are due to failure of fusion or absorption connected with the cloaca, the primitive reservoir through which, in its final modifications, the urinary and intestinal excretions are expelled from the body. Here again we must limit ourselves to only the commoner examples. If something occurs which prevents the proper joining of the enteron and proctodeum as they grow towards each other, there remains a varying degree of developmental defect, which may run the gamut from a thin band which bisects the canal, to partial congenital stricture, and even complete atresia ani.

A case in point, is that of a child of 3½ months, on which I recently operated on the service of the Philanthropin Hospital, which presented an anteroposterior band continuous with the median raphé, obstructing the anal opening; when this was ligated and cut, the canal was found to be closed, with the exception of a minute opening at its center, for a distance of 2 cm., through which the soft feces were discharged on each side of the band. As the child grew older and the stools less soft, symptoms of chronic intestinal obstruction appeared, which disclosed the condition, and led to the operation.

Defects which originate in the cloaca, result in abnormal connection of the rectum with the urinary and genital apparatus, so-called congenital fistulæ, which, when extensive, are a menace to health, but in their minor grades sometimes persist unrecognized throughout life.

While these defects are rather uncommon, they are exceedingly important from the prognostic standpoint, and should be looked for by the obstetric attendant immediately after delivery, not by mere inspection of the anus, but by insertion of the little finger, and observation of the urinary function. In an experience of several years in a busy rectal clinic, as well as in private practice, only two cases of congenital anorectal defect were seen in over 8,000 patients; other authors report one in about 5,000 births.[2]

When next we turn our attention to the problem of the functional activity of the organs as they affect rectal disease in the infant and young child, we learn that here too there are conditions which produce varying results at different age periods. Defecation, so far as it applies to infancy and young childhood, is an involuntary act, the resultant of automatic function which proceeds in a normal and orderly manner as long as there is no interruption in the reflex arc which carries the impulses. While there is but a small quantity of stool within the intestine, insufficient to start a stimulus, the organism feels no concern to expel it, unless a desire is initiated voluntarily, or is forced upon it by the toxic character of the contents; but no sooner does the intestine distend to a certain degree than the mass becomes to all intents and purposes a foreign body, and a stimulus is at once started to the center in the lumbar cord, from which, without the intervention of the conscious mind, impulses are transmitted to the circular and longitudinal muscles of the gut, and to the structures in the pelvic floor concerned in the act of defecation. Such is not the case in the adult, however, in whom, as the requirements of civilization, the expulsion of the intestinal contents is generally postponed to a convenient time, and the process is performed as an act of volition. In other words, there is automatic regulation while wisdom and discretion are still undeveloped, succeeded by an adjustment under the control of the will, when they are ready to be exercised to the advantage of the individual. It is evident that a natural function, such as has been here described, carried on by means of a device shown to exist in the infant, will result in a prompt, regular, and complete evacuation of the intestinal contents; there will be no tendency for the accumulation of material from which absorption of noxious products may take place, which will irritate the nervous mechanism, obtund its sensibility, and

injure the muscular tone. These are the conditions in infancy and early childhood, as opposed to adult life, but there are still others which exert a favorable influence: children enjoy better digestion, live on a more suitable diet, and produce richer intestinal secretions; their reflexes are more acute, their vital processes more active, and their stools softer and expelled with less strain. They are not exposed to the ill effects of alcohol and tobacco, or to vicious habits which cause congestion of the pelvic organs; menstruation, pregnancy, and labor are absent from the normal cycle of their lives, and they are free from many other fruitful sources of disease of the rectum. Is it a wonder, then, that hemorrhoids, one of the commonest diseases which affect the adult of the human race, are rare among children, and practically non-existent among nursing infants? In an experience covering several years, the youngest patient whom we saw suffering from piles, was a bottle-fed child of 2 years, though others report cases earlier in life.[3] To be sure, a diagnosis of piles made by the mother, and sometimes by the physician, often enough turns out to be prolapse, or solitary polyp; and if we may be allowed to digress a moment, the latter is equally common in adults and children, but it is interesting that multiple polyposis is seen practically only in adults. The significance of this statement becomes apparent when we recollect, that 80 to 90 per cent. of these sooner or later terminate in death from malignancy.

"Man is a creature of heredity and environment," has been repeated again and again with a truth which becomes more evident to every generation of medical men. The former plays a numerically small, but inherently important role in the occurrence of rectal diseases among children, especially in the early manifestations of syphilis which are occasionally seen in rectal clinics, such as ulcerations, condylomata, and the cracked and fissured condition of the anal ring which is the outward symptom of luetic proctitis; environment contributes its full quota to the development of rectal disorders, notably such as are promoted by overcrowding and other unhygienic conditions, intestinal disturbances from unsuitable food, and the dirt and filth which seems to be inseparable from poverty in its worst forms. In this class we might include diseases due to parasites, such as thread, pin, and tape worm; these cases are usually referred for the treatment of the anal pruritus, often the most annoying symptom.

Finally, in conclusion, we should like to mention two conditions which have only negative significance in this discussion, the so-called dermoid cyst, which is very rare in childhood, and malignant tumors, of which a few examples are cited in literature.[4]

Summary.—Rectal diseases occur with varying frequency in childhood and adult life, some being more common in children, others in adults; their presence or absence is not due to chance, but depends upon well-defined variations in the anatomy of the parts, the functional activity of the organs, and the environment of the individual.

REFERENCES.

1. Cunningham: Text Book of Anatomy, p. 100.
2. Cook: Diseases of the Rectum, p. 544.
3. Tuttle: Diseases of the Rectum, p. 583.
4. ———: *Ibid.*, p. 764.

310 West Eighty-sixth Street.

Medical and Surgical Lessons of the War.

IRRITABLE HEART IN SOLDIERS AND RECRUITS.

By JONATHAN MEAKINS, M.D.,

MONTREAL, CANADA.

ATTENDING PHYSICIAN, ROYAL VICTORIA HOSPITAL; RECENTLY COLONEL, C. A. M. C.

During the last five years when many countries have had to take careful stock of their man-power, any physical condition which made conspicuous inroads on its efficiency had to be thoroughly investigated. Naturally these conditions were diverse but could be roughly divided into those which were of known cause, such as battle injuries and certain infectious diseases, and those in which the mechanism was still obscure. In the latter class must be included "Irritable Heart of Soldiers." That this is a condition especially confined to the military class there is now no reason to believe. When a country is at war and mobilizes its man-power, either by conscription or by voluntary enlistment, the general health and vigor of the country is of prime importance. A large proportion of the male population of the civilized countries of to-day lead a more or less sedentary life. Not that this necessarily predisposes the population to certain diseases, but it militates against determining by past experience what physical endurance any individual may be capable of performing under given circumstances. It is in relation to this important fact that the condition known as "Irritable Heart of Soldiers" assumes great importance. This symptom-complex is not one wholly confined to soldiers, but it is only of conspicuous importance when a large body of men have to do a given amount of physical exertion more or less uniformly. They are all under the same approximate physical and nervous strain, as it must be presumed that only men employed as first-line troops are to be considered soldiers. Those who do the less arduous tasks, many of grave importance to the army, are not called upon to endure as an individual part of a concrete fighting unit, the gruelling duties of forced marches, exhausting advances through heavy country, or prolonged resistance to an elated and temporarily victorious enemy.

Thus there are two main divisions of the physically unfit. The recruit who by trial cannot be made into a first-line soldier, and the soldier who through some accident of warfare has been rendered temporarily or permanently unfit for first-line duty. In so far as part of these cases are concerned where there is an apparent and obvious disability due to either previous disease or to a battle casualty, this paper is not concerned. These conditions will be dealt with elsewhere. But there is one broad class of cases which for army purposes has been called "Irritable Heart of Soldiers," which must be considered both from the standpoint of the recruit as well as from that of the invalided soldier. The principal symptoms of this condition or symptom-complex are dyspnea, palpitation, dizziness, exhaustion, and precordial pain, one or all of which may be present, and be greatly aggravated *by exertion*.

It must be conceded that, apart from any concrete physical disability, these symptoms form a group which would of necessity play a great rôle in rendering a man unfit for prolonged or sudden physical endurance. In dealing with this question it may be well, in order to clear the ground, to begin with the recruit.

Recruits.—In recruiting for an army during a time of war, the methods must depend upon the urgency of the occasion. In the majority of countries war means urgency of the highest degree. Under these circumstances whether the army be raised my conscription or by volunteers the number to be enlisted will be in proportion to the manpower resources of the country. Therefore it is impossible to sort out all the recruits in the most scientific and exact manner; except that all obvious disabilities are of necessity eliminated. But the final selection must take place when the men are in their depots under intensive training, and then the spirit of patriotism is ofttimes so great that the weaker members will go frequently to all lengths to disguise their physical inefficiency. On the other hand, if an army be raised under ideal conditions when each recruit may be thoroughly and systematically examined, a higher degree of eventual physical efficiency should be obtained. Comparative leisure and many expert examiners are necessary under these ideal conditions. Then a large number of men who give symptoms of "Irritable Heart" as an indication of some well-recognized disease may be eliminated. These diseases are chiefly tuberculosis and hyperthyroidism.[1]

After eliminating these cases from the class of recruits, there are left a certain number which for no obvious reason suffer from the symptoms of "Irritable Heart." In order to avoid repetition, these will be classed with the cases which are recognized in soldiers on active service, as many of the main principles are applicable to all.

A great deal of effort has been spent during the past four years in elucidating this problem: as yet no definite pathology has been discovered to account for this symptom complex. Until this has been placed on a firm and concrete basis all effort has been expended in attempting to account for the various symptoms, and, if possible, to correlate them into an intelligible whole. The most exhaustive work published on this subject was that undertaken by Lewis and his associates.[2] In so far as the symptoms were concerned, they undertook an analysis of them in all their diverse manifestations. Necessarily the history and etiology of this condition was likewise subject to minute scrutiny in order if possible to arrive at a common basis of cause.

Their analysis of the symptoms cover the subject very thoroughly. The preceding history of their cases throws strong light on possible etiological factors. The experience of others does not change the broad interpretation of the characteristics of the symptoms but there has been a certain divergence of opinion as to whether one etiological factor or another plays the predominating rôle.

In regard to treatment, little or nothing of a specific nature may be accomplished until the common etiological factor has been definitely determined or this large class of cases broken up into separate groups based upon definite pathological entities. In the meantime much has been done to determine the extent of the disability; to rescue those of the milder type and to prevent others from becoming chronically affected.

In order that a proper conception of this condition may be obtained, it would be better to consider the symptoms first, and later to deal with the probable causes and treatment.

SYMPTOMS.—(1) *Cardiovascular.*—As the name would imply, symptoms referable to the cardiovascular system play an important rôle in this condition. The patient not only complains of them very frequently, but they originally impressed themselves most prominently upon the physician.

(*a*) *Pulse-rate:* At rest the pulse-rate may be approximately normal but as a rule it averages about 90 per minute. There is great difference between individual cases. There may be a conspicuous bradycardia of 50 to 60 per minute. This, however, is very exceptional. On the contrary it is not unusual to meet cases with a pulse-rate between 110 to 130 per minute even after prolonged rest in the recumbent position.

On exercise the pulse almost uniformly increases in rate. This increase, as a rule, is in proportion to the amount of exercise accomplished. The greater the exercise, the greater the increase, which is quite in accord to what usually occurs in the normal individual. But in cases of "Irritable Heart" the increase is much greater and more disturbing to the patient. He has an acute feeling of distress and palpitation, which renders further exertion almost impossible.

The relationship between the normal and abnormal is one of degree. Under a given amount of exertion the normal pulse-rate may increase to 120 per minute, while in a case of "Irritable Heart" it may increase to 140 or even to 180 per minute on the same amount of exertion. But, on the other hand, if sufficient exercise be given to a healthy individual and to a patient in order that both may experience the same general symptoms, it is found that the pulse-rate at the end of the exercise will be approximately the same, although the patient may have done much less work than the normal.[3]

A very important point in regard to the pulse-rate is the time which elapses before the approximate normal is resumed after exercise. It will be found upon experiment that in comparatively healthy individuals the pulse-rate resumes the approximate normal within a fairly definite period of time after exercise is completed, depending upon the amount of work accomplished. In the severer cases of "Irritable Heart" there is a tendency for the pulse-rate to show a definite delay in the return to normal after exercise. In such cases there is a conspicuous inability to accomplish more than very moderate physical work.[4] [29] .

The effect of sensory stimulations on the pulse-rate is also conspicuous in these cases.[29] This is particularly of importance when it is appreciated that many of these cases may be in a highly emotional condition. It has been determined that there is a close relationship between the response of the pulse to emotional stimuli and the capacity of the patient to accomplish physical work. In those least capable of exertion there is the greatest abnormal

response of the pulse-rate to emotional stimulation.[4]

It might be considered probable that rest in bed would affect beneficially this tendency to tachycardia on physical and nervous stimulation. Meakins and Gunson[5] tested this in a practical manner. They made careful determinations of the pulse rate in a series of cases under varying conditions of exercise over a period of some days. They then placed these patients in bed absolutely at rest for a week, and then made similar observations on the pulse rate after exercise. It was found that there was a conspicuous increase in the symptoms, as well as a higher pulse rate immediately after exercise, and a greater time elapsed before the pulse rate returned to normal.

(*b*) *Size of the Heart.*—It has been considered by some observers that the heart, in this condition, is definitely enlarged. It is important to establish this point one way or the other. In order to do this an exact means of measurement would be necessary. This has been accomplished by means of the orthodiagraph. Meakins and Gunson[6] have shown that in comparison with normal individuals of the same weight there is a distinct diminution in the cardiac diameter when at rest. Further, they have shown that whereas the normal heart becomes distinctly smaller on exercise, it does not show this change in cases suffering from conspicuous symptoms of "Irritable Heart."

(*c*) *Blood Pressures.*—It has been determined that there is little or no difference at rest between the systolic blood pressure in cases of "Irritable Heart" and the normal.[3] If, however, the patient be up and about, a certain increase of the systolic pressure is found. This most probably is due to the effect of emotion or of exercise. On exercise undertaken at a given rate and of a given degree, there is a distinct increase of the systolic pressure in the patient over that found in the control under similar circumstances. Furthermore, the blood pressure remains elevated for a longer time than is the case in the control.

(*d*) *Precordial Pain.*—The complaint of pain over the left breast is a very common one. This is usually increased by exertion and emotion. There is also found frequently a direct connection between the onset of the symptoms and this complaint, in that the pain may at this time be very acute and leave a lasting impression on the patient's mind. It has been found in cases suffering from considerable precordial pain that a definite area of hyperalgesia may remain for a considerable period of time. The distribution of this hyperalgesia may vary from a single rib space to an area extending over the whole left anterior chest up the left side of the neck to the mastoid, and even down the inside of the left arm to the hand. In certain cases the distribution of the pain and the hyperalgesia bears a close relationship to the pain experienced in angina pectoris;[7] a further similarity may be noted in that exertion increases the hyperalgesia and pain in both these conditions. A further point of great interest is the conspicuous exacerbation of the pain and hyperalgesia during the course of an intercurrent infection.

(*e*) *Apex Beat.*—The extent and force of the apex beat has been considered as an indication of dilatation of the heart. But by orthodiagraphic measurement this was found not to be the case in patients suffering from "Irritable Heart." In fact, it was determined that those cases showing a diffuse or forcible apex beat had, on the average, a cardiac area smaller than normal, and no larger than other cases of "Irritable Heart" which had a normal apex beat.[6]

(*f*) *Cardiac Murmurs.*—Lewis[3] has made an exhaustive study of the importance of murmurs in the prognosis of these cardiac disabilities. His observations have been based on a rare and extensive experience in the examination of such patients, and he has had exceptional opportunities of determining the eventual capacity of such soldiers to accomplish work. After excluding all cases of well-marked organic disease of the heart he comes to the following conclusion: "The presence or absence of systolic murmurs is of no value in estimating the soldier's capacity for work; this practical conclusion holds irrespective of the character, conduction, or point of maximal audibility of the murmur in question."

Kylin[9, 10] examined 507 men for the presence of cardiac murmurs, and found them present in 97, or 19 per cent., exclusive of organic heart disease. By direct observation he was impressed by the fact that those with systolic murmurs were unable to stand physical effort as well as those without murmurs. Also that the men with murmurs were more nervous than the controls. Kylin concludes that a large number of men with accidentally detected murmurs have less physical resistance, and so are less fitted than those without murmurs to undergo the fatigue incidental to first class troops.[27]

Although these views seem to disagree, the fact remains that the presence or absence of an accidental systolic murmur is no direct criterion as to a man's power of physical exertion.

(2) *Respiration.*—Shortness of breath is one of the most common complaints of men suffering from "Irritable Heart." It is not only one of the commonest, but it is also one of the most disabling. The cause of this symptom appears in some ways to be almost the cornerstone of this symptom complex, and as yet has not received as great attention as it deserves.

(*a*) *Rate of Respirations.*—At rest. The respiratory rate may be raised but little above the normal while at rest. On the other hand, in severe cases it may be constantly between 40 and 50 per minute. Even in the least affected cases the respiratory rate is on the upper limits of normality. During sleep the respiratory rate of normal individuals is between 8 and 14. In these patients it is seldom lower than 20 per minute. At times definite periodic breathing has been observed in the severest cases while asleep.

On exertion.—The respiratory rate is almost invariably increased beyond normal on the slightest exertion. Under circumstances which would not disturb the rate in a normal person there may be an acceleration to 60 or 70 per minute in these patients. It is almost uniformly this abnormal hyperpnoea on mild or moderate exertion which is so incapacitating to the individual as a soldier. The soldier being a part of a uniform whole, cannot take his own time, but must keep up with his stronger comrades, and it is usually the intense

distress consequent upon this "shortness of breath" which necessitates his falling by the wayside.

(*b*) *Depth of Respirations.*—At rest. The depth of the respirations of a normal individual when at rest varies between 400 to 600 c.c. per respiration. In these patients it is seldom that each respiration exceeds 400 c.c., and according to the severity of the symptoms so will the volume of each respiration diminish, until in the most severe cases the average volume of each respiration may not be more than 200 c.c. It is quite apparent that the smaller the volume per respiration, the greater, of necessity, will be the respiratory rate. As a consequence, it has been found that the total ventilation is also increased. Whereas the normal pulmonary ventilation per minute is 8 to 9 liters, in these patients it is usually between 10 and 15 liters. It is only in the severe cases that respiratory distress is appreciable when at rest.

On exertion.—In the normal person, the need on exertion for increased respiratory exchange is accomplished by increasing the depth of the individual respirations, and it is only when the work becomes excessive that the respiratory rate appreciably increases. In these patients the depth increases but slightly, while the increase in the ventilation is accomplished by increasing the rate.[13] This is a very wasteful method. It is found that in order to maintain an efficient respiratory exchange the patient may have to increase the total ventilation to 35 or 40 liters per minute, while on the same amount of work a normal person's total ventilation would amount to little more than 20 liters per minute.

The reason for this abnormal increase of the respiratory rate is to be found apparently in an increased sensitivity of the Hering-Breuer reflex, whereby it is released between abnormally narrow limits. This reflex through the vagus controls the point at which inspiration shall be inhibited and expiration initiated. Haldane and Mavrogardato[11] have shown that this reflex is in return regulated by chemical stimuli. In these patients, therefore, it seems quite clear that there is a derangement of the normal equilibrium between the Hering-Breuer reflex and the hydrogen-ion concentration of the blood. As a result the reflex acts prematurely, restricting the expansion and contraction of the lungs. The result of this restricted type of breathing has been shown experimentally to produce definite signs and symptoms of anoxemia,[12] such as periodic breathing, palpitation, headache, tingling of the extremities, and dulled mental faculties, as well as the compensatory changes of polycythemia and reduction of the bicarbonate reserve.

This anoxemia, which may be constantly present in the severe cases, is produced by exercise in the more moderate cases, and will most probably account for many of their symptoms.

Certain of the cases are troubled with disturbed sleep. They complain of vivid unpleasant dreams, paroxysms of coughing, and of shortness of breath. In some of the severe cases definite periodic breathing has been observed during sleep. In normal people the respiratory rate usually declines to between 8 and 14 per minute, while in cases of "Irritable Heart" it seldom goes below 20 per minute. Here again we have an abnormally high respiratory rate as compared with the normal. It has been demonstrated that when in the recumbent posture anoxemia is more easily induced by restricting the depth of breathing than in the upright position. It therefore seems probable that these cases may all suffer from more or less anoxemia during sleep.

The effect of anoxemia on the nervous system and general well-being or "condition" of an individual is well recognized. The symptoms produced by this condition are very analogous to those of "Irritable Heart," as, for example, "mountain sickness." The relationship between the anoxemia and the symptoms of these patients will become more apparent when the other systems have been discussed.

3. *Nervous System.*—These patients show a considerable degree of nervous instability. They are irritable, lack mental concentration, and exhibit considerable physical and mental depression. This is not, as a rule, as pronounced as is found in severe cases of neurasthenia, but yet is much removed from the normal. Besides these mental symptoms there are others of a more or less objective nature. A large proportion of these patients exhibit a tremor of the hands. This may be so conspicuous as to strongly suggest the presence of hyperthyroidism. It is of a fine character, and is exaggerated by exertion and any mental excitement.

Giddiness is also a common symptom. It may result from change of posture from the recumbent to the upright position, but more commonly occurs after exertion.

Lewis, Cotton, and Rapport[5] thoroughly investigated this subject. They found that certain cases exhibited a considerable drop (30 to 40 mm. Hg.) of blood pressure when the position was changed from the recumbent to the upright. This was accomplished without exertion on the patient's part by means of a swingboard. Such a gross change was so exceptional, and the results of change of posture so inconstant in a group of cases, that they came to the conclusion that "Beyond the statement that postural giddiness in these patients seems to be associated with faulty distribution of the circulating blood during the period of giddiness, it is impossible for the present to proceed."

The presence of giddiness after exertion is very common in these cases. There is no evidence that this is the result of any conspicuous fall in blood pressure immediately exertion ceases. The fall of blood pressures (systolic or diastolic) and the pulse rate after exercise are, as a rule, if anything, delayed beyond the normal. There are cases, however, where the sudden fall of systolic blood pressure might suggest the production of cerebral anemia. This is the exception. Giddiness is not always present in these cases, while it frequently occurs in patients in whom the pulse rate and blood pressures remain elevated longer after exercise than in controls.

The rôle played by anoxemia in the production of giddiness after exertion is important. This is a common cause of giddiness in comparatively normal persons. In these patients, if the exertion be pushed far enough, cyanosis may develop, and there occurs with this intense giddiness even associated with semi-consciousness. Administration of oxygen by means of a small mine rescue apparatus while at work prevents the occurrence of the cyanosis and

giddiness, but does not conspicuously reduce the respiratory rate.

There is associated sometimes with the giddiness on change of posture and after exertion a history of fainting. This symptom has been investigated by Lewis and Cotton.[14] They found that fainting may appear after unusual but trivial occurrences, such as venopuncture, or from standing at attention for a considerable period, or by a sudden stimulus, such as a rapid machine-gun fire or bombardment. In the cases they observed the most constant findings were a conspicuous slowing of the heart's action to 40 or 50 per minute, and a coincident fall of systolic blood pressure to below 60 mm. Hg. There were, however, occasional cases in which these phenomena did not appear. Although they attribute the main cause of the fainting attacks in these patients to increased vagal tone, they "are not convinced that this is the sole cause of loss of consciousness in these patients, and suggest that other forms of attack may still remain unexplored."

The psychoneurotic factor in cases of "Irritable Heart" has been investigated by Oppenheimer and Rothschild.[15] They have brought forward facts which go far to show that a large proportion of these cases have a positive family or personal history of a psychoneurotic factor. They have separated these cases into two distinct classes. In the first class are those who exhibit definite psychoneurotic factors in both the family and personal histories. In these a history of constitutional asthenia (pre-army debility) was found in 70 per cent., while in the second class, or those without definite psychoneurotic symptoms, a history of constitutional asthenia was found only in 12.8 per cent. The differences in the symptoms and length of service between these two groups are very conspicuous, and strongly point to the fact that this condition is not a clinical entity, but as investigation proceeds distinct and separate groups of these cases, with separate fundamental pathology, will in time be separated.

4. *Ductless Glands.*—On account of the frequent claim by certain observers that derangement of the function of the thyroid, or of the suprarenal glands, is the sole fundamental cause of these symptoms, they cannot be passed without notice. Such a conclusion must carry its own conclusive proof, and as yet this has not been forthcoming. On the other hand, Fraser and Wilson[20] carried out experiments with adrenalin injected intravenously. They found that some patients showed a more pronounced reaction, in so far as the subjective symptoms of pallor, flushing, vascular pulsation, and restlessness were concerned. These symptoms all passed off in the course of a very few minutes. The change in pulse rate and blood pressure was practically the same as in the controls; in fact, the typical adrenalin reaction to hyperthroidism was not observed. The intravenous injection of apocadeine in these patients produced a blotchy erythema, but none in the controls, while an increase in pulse rate greater than in controls was also observed. They came to the conclusion that the sympathetic nervous system in these patients is more susceptible both to stimulation and inhibition.

An enlargement of the thyroid in these patients is the exception; in fact, it is found no more frequently than in the ordinary run of normal people. Furthermore, the administration of thyroid extract gives no indication that these patients are suffering from hyperthyroidism. Hyperthyroidism may play a rôle in a certain small percentage of them, particularly in those with a long-standing history. But that this might account for more than a very limited number there is at present no evidence.

As yet, no observations have been recorded which would prove or disprove the rôle of deranged suprarenal function.

5. *Blood.*—The examination of the blood in these patients has revealed some interesting and important facts. Not only is this the case in so far as the cellular elements are concerned, but also in regard to the chemical reaction of the whole blood or plasma.

(*a*) *Red Blood Cells and Hemoglobin.*—Numerous reports have now been published concerning the changes in the percentage of the red blood corpuscles and the hemoglobin. Hunt and Price Jones[16] found a pronounced polycythemia in cases of "Irritable Heart," following gas poisoning. These cases, although showing all the symptoms of "Irritable Heart," in varying degrees, where especially conspicuous on account of the disturbances of respiration, and in particular nocturnal dyspnea. Levy,[17] on the other hand, in cases not the result of gas poisoning, found an increase in the erythrocytes but no increase in the hemoglobin. The occurrence of polycythemia in these cases appears to be a compensatory phenomenon to anoxemia, and is very probably only conspicuously present in those with pronounced respiratory disturbances.

(*b*) *Leucocytes.*—In all varieties of cases there is evidently an increase in the leucocyte count. This is most evident in cases which have recently undertaken any form of exercise. Grace Brisco[18] has found that at rest the average leucocyte count is 10,600, while the same type of patients, when up and about, shows 12,700, and immediately after exercise this rises to 15,000 or more. If, however, healthy men undertake exercise which produces the same degree of symptoms as is produced in the patients on a much milder exercise, the increase of the leucocytes will reach the same degree as it does in the patients.

The differential leucocyte counts by the same author have shown several interesting points. A high lymphocyte count is common, but the patients are subject to greater diurnal changes than is found in normal people. The chief change in the differential count occurs in the lymphocytes, which may vary in different cases from 25 to 75 per cent. of the total count, depending upon the amount of exercise taken.

Reaction of the Blood.—This has been investigated by several observers with various methods. Barcroft and his co-workers[18] found that there was a decrease of "buffer salts" in the blood, or, in other words, that the bicarbonate reserve was reduced. They have considered that this was the cause of the dyspnea. Apart from this investigation little work has been done on cases suffering from "Irritable Heart," except in those cases which follow gas poisoning.

Douglas[19] found a definite reduction in the alveolar CO_2 of patients suffering from these symptoms on

recovering from gas poisoning. These results might be open to question, perhaps, on account of the difficulty of obtaining satisfactory specimens of alveolar air from such patients, except that Haldane, Meakins and Priestley[12] found a similar reduction in the CO_2 in the alveolar air in the same class of cases, and that they also exhibited a pronounced reduction in the CO_2 combining power of the blood, or the bicarbonate reserve.[19] Drury[5] found that the CO_2 in the alveolar air of cases of "Irritable Heart" having comparatively mild respiratory symptoms was in the lower limits of normality.

There seems no doubt that there is a relative acidosis in these cases, but whether this is the cause or the result of the shortness of breath is a matter of difference of opinion.

The fact has been established, however, that by treating these patients either continuously[20] or intermittently[19] by oxygen the polycythemia and nocturnal dyspnea are removed, and the combining power of the blood for CO_2 returns to normal. On the other hand, cases of "Irritable Heart" not due to gas poisoning were not relieved of their symptoms to such a conspicuous degree,[21] and although estimations of the CO_2 combining power of the blood were not recorded in these cases, it is to be presumed that had this been reduced it would have returned to normal, as occurred in other cases where a similar reduction existed.

Haldane, Meakins, and Priestley[19] come to the conclusion: "That the CO_2 capacity of the blood is diminished, and that it varies very distinctly from day to day, the variation being abolished or diminished by oxygen. The results obtained point, we think, to a simple explanation of the acidosis which is said to accompany or even cause the symptoms of 'Irritable Heart.' These cases showed in a very definite degree the rapid, shallow breathing which is such a prominent feature in many such cases, and it follows from the results which we have previously published[12] that these patients must have been especially liable to suffer from anoxemia, particularly at night. It is most improbable, however, that the degree of anoxemia was constant. Now, it is well recognized that anoxemia lowers the CO_2 capacity of the blood; hence it appears probable that the cause of the low and variable CO_2 capacity of the blood of these patients was varying anoxemia; this was certainly due to the shallow breathing resulting from the disordered respiratory reflexes.

"We are driven to the conclusion, therefore, that the so-called 'acidosis' in cases exhibiting the symptoms of 'Irritable Heart' is a direct consequence of the varying degree of anoxemia which must occur in these patients as a result of their shallow type of breathing."

Etiology.—The study of the symptoms of this syndrome has not as yet given any definite indication of its pathology. In fact, the more it is investigated the greater appear the difficulties of correlating the diverse factors. When the causes are similarly studied a definite pathology becomes even more remote, and it seems more and more apparent that probably a number of closely allied conditions are being grouped together, which on further study may be separated into their proper spheres. For the purpose of simplicity the main etiological factors will be considered separately.

(*a*) *Infections.*—In the cases studied at the Hampstead Military Hospital by Lewis and his associates[2] the infectious diseases played a predominant etiological rôle. They found that 33 per cent. of the cases investigated dated their symptoms directly from convalescence of some infectious disease. Furthermore, they found that careful study of the histories gave evidence in 50 to 60 per cent. of the cases that the infectious diseases played a prominent part in promoting this condition in its initial stages.

Of the infectious diseases, rheumatic fever occupied a predominant place. In fact, in 12 per cent. of the cases the symptoms dated definitely and categorically from acute rheumatic fever. Other infections of importance were pneumonia, dysentery, trench fever, diphtheria, and pyogenic infections. The other 40 or 50 per cent. was made up of a variety of conditions, none of which were sufficiently prominent to make a definite or important division.

(*b*) *Gas Poisoning.*—Although in the cases studied by Lewis and his associates gas poisoning played a relatively unimportant rôle (3 per cent.), other observers have had experience to the contrary. Hunt and Price Jones studied a large number of gassed patients during the convalescent period,[18] and found symptoms of "Irritable Heart" in 56 per cent. of them. Other workers have published similar reports. Such contradictory statements must demand some explanation. If the matter is regarded in a broad manner this will be apparent. The cases dealt with by Lewis and his associates were a conglomerate series resulting from indefinite etiological causes. The cases which were gassed, however, were diagnosed as gassed cases, and remained as such during their period of convalescence, whether symptoms of "Irritable Heart" were present or not. It is common knowledge with those who have had experience in reserve depots in Great Britain that cases who have been invalided for gas poisoning remain classified as such, and that the main disability eventually resulting is "Irritable Heart." It must be pointed out, however, that the respiratory symptoms play an important rôle in these cases. Intrapulmonary signs are seldom found, while all the associated symptoms of "Irritable Heart" (palpitation, precordial pain, and exhaustion) are conspicuously present. The natural conclusion is that gassed cases are usually considered as such, and not as cases of "Irritable Heart." It must also be pointed out that certain gasses are more prone to produce these symptoms than are others. For instance, the suffocative gasses, such as chlorine, phosgene, chloropicrin, etc., are more frequently followed by these symptoms than are the irritative gases, such as mustard gas or Yperite. The fact is quite accepted that symptoms of "Irritable Heart" have been frequently observed in cases recovering from gas poisoning.

(*c*) *Shock.*—The experience of those who have worked with cases of shell shock, or the allied conditions which occur among soldiers on active service, is that symptoms of "Irritable Heart among these patients is comparatively common. This is likewise in opposition to the findings of Lewis and his associates. But what applies to the cases of gas poisoning likewise applies to these cases. When a soldier is invalided for shell shock he is treated, usually,

for this condition in a special hospital, where the psychoneurotic symptoms receive the most attention. But, nevertheless, the occurrence of shortness of breath and palpitation on exertion, paroxysmal dyspnea at night, and ready exhaustion, are also prominent and distressing symptoms.

In dealing with these last two etiological factors it must not be overlooked that concurrent infections may exert an important and perhaps essential factor in the etiology of the condition. In cases of suffocative gas poisoning a secondary pulmonary infection is very common. The observation has been made by Priestley that in cases of shell shock exhibiting symptoms of "Irritable Heart" a history of coincident infection is quite frequent. Up to the present this point has not been clearly defined, but it is essential to bear such a contingency in mind, and that as yet the exact sequence of events has not been definitely outlined.

(*d*) *Previous Habits.*—When analyzing the previous history of these patients several points must be taken into consideration. These include habits, occupations, and constitutional characteristics.

(1) *Alcohol.*—It has been found by Lewis and his associates[2] that alcoholism is comparatively rare among this class of patients. The principal reasons would appear to be either a conscientious abstinence, or experience that alcohol aggravates the symptoms. It will be shown that the majority of these cases are recruited from the sedentary occupations, and are, as a rule, of a weedy type. As a consequence, they are less apt to indulge in the excessive use of alcohol. It is quite conclusive that there is no evidence that alcohol plays a rôle in the etiology of this condition.

(2) *Tobacco.*—It has been claimed by some observers that the excessive use of tobacco is the cause of "Irritable Heart. There has been no direct proof up to the present time to substantiate this view. On the contrary, MacGregor[22] makes the statement that this condition is as frequent among Sikh soldiers, who are non-smokers, as among other Indian troops. Lewis[2] has also found, according to the patients' own statements and also from observation, that consumption of tobacco is not inordinate. On the other hand, it is a common experience to find patients who state that smoking, particularly cigarettes, aggravates their symptoms.

Parkinson and Koefod[23] have investigated the influence of cigarette smoking on these patients, and have found that there was an increase in the pulse and respiratory rate, both on the part of the control and the patient, but more so in the latter. They found, also, that cigarette smoking increased the symptoms on exertion in the patients but had little or no effect in the controls. They came to the conclusion that "excessive cigarette smoking is not the essential cause in most cases of 'soldier's heart,' but in our opinion it is an important contributory factor in the breathlessness and precordial pain of many of them."

(*e*) *Occupations.*—Lewis,[2] in his memorandum, makes an exhaustive analysis of the previous occupations of these patients. He found that 57 per cent. were recruited from sedentary occupations, 20 per cent. from moderate, and 23 per cent. from heavy employments. The number recruited from the light or sedentary occupations seems extraordinarily high. The question arises whether these symptoms arose through the patients being unaccustomed to heavy work, or whether they had adopted light employment through preference. The latter appears to be the case in many instances. It is quite common to obtain a voluntary statement from these patients that they had to give up a heavier occupation on account of the symptoms, or that they never attempted more than sedentary work, as they found, as boys, they could not undertake strenuous exertion. The fact is also elicited from a certain number of patients who had always been engaged in sedentary work that they first noticed their symptoms in training; in other words, they were quite ignorant of any inability to accomplish physical exertion until they were called upon to keep up with their more strenuous and hardy comrades.

There is at present no proof that sedentary employment predisposes to this condition, although it may be stated that those employed in such positions constitute a considerable percentage of those so affected.

(*f*) *Constitutional Characteristics.*—It has been forcibly impressed on all those who have worked with these patients that they belong, as a rule, to the "weedy" class. Many exceptions may be cited to this rule, but these almost uniformly consist of those who have been subjected recently to some extraordinarily severe mental or physical strain, such as serious gas poisoning, burial, or infection. Oppenheimer and Rothschild[15] have demonstrated the existence of a constitutional asthenia in a large per cent. of these cases. By this they mean "a relative infirmity or an anomaly in the assemblage of inherent characteristics, both functional and morphologic, which make up the organism."

(*g*) *Strain.*—The influence of severe physical exertion in producing these symptoms appears to be of very minor importance. Cases which give a history of the onset of symptoms dating definitely from some severe strain are comparatively rare. On the other hand, patients frequently date their symptoms from first undertaking some comparatively mild exertion, such as walking, during convalescence from an infection. It would appear that the infection was the primary cause, while the exertion merely elicited the symptoms.

PROPHYLAXIS AND TREATMENT.—Prophylaxis in these cases applies both to recruits and to invalid soldiers, perhaps more to the former than the latter. Taking into consideration the high incidence of this condition in men of sedentary habits and occupation, and the large number who fail during training, it is essential that more reasonable and more tender methods be adopted during the initial training of the recruits. Of course, under the strenuous circumstances of an urgent mobilization this may be altogether impossible. However, even in the most acute situations no good is accomplished by attempting to force the palpably weedy recruit to accomplish hurriedly the same power of physical endurance as the man who has always been accustomed to strenuous labor. No matter how enthusiastic the spirit, often the body is weak; therefore it is necessary to separately train those who fall by the wayside during the early weeks or months of their army career. No good can be accomplished by forcing

them beyond their power of physical endurance; they will be broken, not made. At the same time, it is necessary to observe these men carefully in order that the symptoms may not be exaggerated out of proportion to what the observed signs would warrant.

This more tender method of training was early recognized in regard to the invalided soldier. He was one with experience, a more valuable man, on the whole, than the recruit. His retraining became an easy but steady re-education to full physical powers. The weaker were taken more slowly than the stronger, but all the time a careful scrutiny and firm manner was adopted. The power of physical endurance was tested by practical exercises. This is the clue to the prophylaxis, prognosis, and treatment of these cases. It has become such an important part of this condition that it requires considerable consideration.

Physical Exercise.—It is quite evident from what has been stated already that the condition known as "Irritable Heart" is an exaggeration of the normal. The ordinary individual can accomplish a certain amount of physical work without symptoms, but if they attempt more than this amount they become palpably distressed. The patients act likewise, but the amount of work producing a similar degree of distress is much less than in the normal. That they do not react all in a like degree is most obvious. How, then, may the less affected be differentiated from the more affected, and how may those who are unfit for further military service be recognized.

Early in the work of the Hampstead Military Hospital it became apparent that some method of determining these points was essential. Therefore, a system of physical exercises was adopted. These were modified from the army manual. This served a double purpose. They were already familiar to the man who had been some time in the service, and also formed part of the training of the recruit. Further, they could be continued when the men returned to their depots and battalions, and no change of method or system would be necessary. The particular exercises were chosen so that an easy graduation from one stage to another could be obtained, and they were supplemented by route marches of various lengths, with and without kits. They are here given in detail:

Exercise Table A^{15}

(Fifteen Minutes)

Heels raise, feet close.
Head backward bend.
Hips firm, arms bend, arms upward stretch.
Trunk turning (with feet closed).
Foot sideways place.
Trunk bending sideways.
Trunk forward bend.

Exercise Table B^{15}

(Fifteen Minutes)

Heels raise and knees bend.
Arms sideways stretch, one arm upward, one arm downward stretch.
Trunk turning (feet apart).
Feet close and full open.
Trunk bending sideways.
Slow march.

Exercise Table C^{15}

(Fifteen Minutes)

Heel raising and knee bending quickly.
One arm upward, one arm downward stretch.
Foot placing sideways.
Trunk bending sideways.
Trunk backward bend.
Trunk forward bend.
Slow march.

Exercise Table C^{15}

(Fifteen Minutes—Second Part)

Arms forward bend.
Trunk turning.
Knee raising.
On the hands down.
Quick march.
Knee raising quick mark time.
Slow march.

Exercise Table D^{30}

(Thirty Minutes)

Heels raise, knees bend, arm stretching sideways.
Head backward bend.
Arm swinging upward.
Trunk turning quickly.
Foot placing sideways.
Leg raising forward.
Trunk bending sideways quickly.
Lying on the back down, leg raising.
On the hands down, arms bend.
Trunk forward bend, arm stretching sideways.
Knee raising, quick march.
On alternate feet hop.
Upward jumping.
Slow march.
Arm raising sideways, upward, sideways, downward.

The individual exercises were grouped under the headings A^{15}, B^{15}, C^{15} (first part), C (second part), each of which occupies fifteen minutes, and under D^{30} which occupied thirty minutes. The exercises were taken daily and in favorable instances a patient moved to a higher grade exercise after three or four days. The patient moved from A^{15} to B^{15} to C^{15}, to AB (thirty minutes) to BC (thirty minutes) to C^{30} (both parts), and finally to D^{30}. Thus he passed through seven groups of exercises, in a scale of ascending severity. D^{30} was eventually taken in combination with route marches of four or more miles without pack, with light pack, or in full marching order.[24]

As soon as a patient finished his first day on a new exercise he reported to his medical officer, who noted the symptoms and signs, such as dyspnea, tachycardia, facial expression, pallor, sweating, etc. According to the occurrence or severity of these signs he was continued on the exercise, or reduced for the time being to a milder one. Never has an accident of consequence occurred in any of the cases during the performance of these exercises.[25]

"That a man's observed capacity to accomplish work of a given order is the only dependable test of such capacity would seem self-evident; yet it was our experience that medical officers rely more upon physical signs obtained while the subject was at rest."[22]

If recruits who are palpably deficient in physical

endurance were so handled for a few months, the absolutely unfit could easily be eliminated, the more fit could be temporarily classed in low categories, while the border-line cases, instead of being more or less permanently broken as first-class soldiers, would frequently be "trained" or developed to become capable of a sufficient amount of physical endurance to make them first-class soldiers. This is equally true both of the recruit and of the convalescent. The importance of gradual training cannot be overestimated in the young adult, scarcely past adolescence, who makes up a large part of the potential reserve of man power in any country which has been at war for more than a few years.

There is an important peace-time lesson to be learned from this so-called soldier's disease: namely, the importance of gradual and graduated athletics in our schools and colleges. The number of youths who have been permanently disabled by attempting, without supervision, too strenuous exertion while convalescent from some perhaps paltry infection is undoubtedly great. Likewise if we knew the number of youths who have been permanently disabled by attempting or persisting in games beyond their immediate powers of endurance it would throw a strong sidelight on our present-day rivalry in athletics.[27]

Prophylaxis in "Irritable Heart" of soldiers resolves itself into the question of scientific training of the recruit and the convalescent, while the prognosis "depends upon the observed capacity to accomplish work of a given order."[24]

Besides the method of physical reeducation by graduated exercises, many methods of treatment have been attempted with more or less success.

Occupation.—This constitutes a very important branch of treatment, particularly for those cases in whom the nervous symptoms are prominent. By occupation is not merely meant work of a physical nature; mental work is also of importance. These cases are notoriously introspective, and great benefit results from keeping them interested in some occupation. The whole day should be occupied by various means, games, gardening, walking, indoor and outdoor duties about the hospital or camp. These methods are particularly applicable to the convalescent.

Rest.—It has been shown quite conclusively that rest in bed aggravates the cardiac and respiratory symptoms on exertion.[14] The anoxemia resulting from rapid, shallow breathing is exaggerated by resting in the prone position. Therefore it should be discouraged under all circumstances except during an acute infection, or where the condition of the patient is so severe through tachycardia, dyspnea, or precordial pain as to make it an absolute necessity. When it is imperative on account of these circumstances, the patient should always be kept in the upright or semi-prone position.

Focal Infection.—All sources of focal infection should be diligently sought for and removed. It has been shown that not only are infections the most important etiological cause of this condition, but also that when they occur during the course of the disease they greatly aggravate the existing symptoms.

Digitalis.—Parkinson[25] has made a careful study of the effect of digitalis on the tachycardia found in these cases. He comes to the conclusion "that digitalis scarcely influences the group of patients classified as 'Irritable Heart,' even when the pulse is frequent, and that it is not indicated in this condition."

Oxygen.—Barcroft[20] and his associates have obtained brilliant results from the continuous inhalations of oxygen in cases of gas-poisoning exhibiting the symptoms of "irritable heart." Haldane, Meakins, and Priestley have corroborated these results by the use of oxygen during the sleeping hours only. Unfortunately similar results have not been obtained in cases who date their symptoms from other etiological factors, such as infections.[21] These observations on the proper use of oxygen in cardio-respiratory disorders of function have done a great deal to place the use of this therapeutic measure on a new footing after years of misuse and consequent skepticism.

Conclusion.—Any one who has closely studied this subject of "Irritable Heart" cannot but be impressed by the wide distribution of the condition and the importance it plays in civilian and army life. That it is a definite pathological entity there is no proof; on the contrary, all evidence goes more and more to show that it is a conglomerate collection of functional disturbances producing a more or less identical group of symptoms. Although all cases are similar, they are not identical. In some the respiratory symptoms predominate, in others the cardiac, while in still others the nervous symptoms. It seems probable that this is a disease of function more than of structure, and until such time as perversions of function are investigated independent of structural change, a definite understanding of this syndrome of symptoms may not be arrived at. The key of the situation appears to be hidden in the interrelationship of cardiovascular and respiratory functions, with the nervous and chemical processes which govern them.

REFERENCES

1. Warfield & Smith: *Jour. Amer. Med. Ass'n*, Vol. 71, No. 22, p. 1915.
2. Lewis: Medical Research Com., Special Report Series No. 8.
3. Cotton, Rapport & Lewis: *Heart*, Vol. VI, No. 4, p. 269.
4. Meakins & Gunson: *Heart*, Vol. VI., No. 4, p. 285.
5. Meakins & Wilson: *Heart*, Vol. VII., No. 1, p. 17.
6. Meakins & Gunson: *Heart*, Vol. VIII., No. 1, p. 1.
7. Meakins & Gunson: *Heart*, Vol. VI., No. 4, p. 343.
8. Lewis: Soldier's Heart and the Effort Syndrome, Shaw & Sons, 1918.
9. Kylin: *Deutsches Archiv f. klin. Med.*, 1917. 124, 105-117.
10. *Deutsches Archiv f. klin. Med.*, 1918, 127, 387-396.
11. Haldane & Mavrogardato: Proc. Physiological Soc., July 15, 1916. *Jour. of Phys.*, Vol. L.
12. Haldane, Meakins & Priestley: Report of Chemical Warfare Medical Committee, No. 11.
13. Haldane, Meakins & Priestley: Report of Chemical Warfare Medical Committee, No. 5.
14. Lewis and Cotton: *Heart*, Vol. VII, No. 1, p. 23.
15. Oppenheimer & Rothschild: *Jour. Amer. Med. Ass'n*, Vol. 70, No. 25, p. 1919.
16. Hunt & Price Jones: Report of Chemical Warfare Medical Committee. No. 15.
17. Levy: *Brit. Med. Jour.*, 1917. Dec. 1.
18. Lewis, Cotton, Barcroft, Milroy, Dufton & Parsons: *Brit. Med. Jour.*, 1916, 11, 517.
19. Haldane, Meakins & Priestley: Report of Chemical Warfare Committee, No. 15.
20. Barcroft, Hunt & Dufton: Report of Chemical Warfare Committee, No. 4.

21. Barcroft, Hunt & Dufton: Report of Chemical Warfare Committee, No. 12.
22. MacGregor: *Brit. Med. Jour.*, 1916, I., 504.
23. Parkinson & Koefod: *The Lancet*, Aug. 18, 1917.
24. Meakins, Cotton, Lewis and others: *Brit. Med. Jour.*, Sept. 23, 1916.
25. Parkinson: *Heart*, Vol. VI., No. 4, p. 321.
26. Lewis: *Brit. Med. Jour.*, Mar. 30, 1918.
27. Cordeiro: United States Army Medical Bulletin, Oct., 1918, 12, No. 4.
28. Charon & Halberstadt: *Paris Méd.*, 1918, 8, 140-143.
29. Lian, C.: *Ann. de Méd.*, Par., 1918, 5, 358-373.
30. Fraser & Wilson: *Brit. Med. Jour.*, 1918, July 13, 27.

459 Sherbrooke Street, West.

Medicolegal Notes.

Harrison Act Held Valid.—On appeal from a conviction for violation of the Harrison Anti-Narcotic Act by the sale of morphine, heroin, and cocaine to persons not producing written orders on forms issued by the Commissioner of Internal Revenue, it was contended that the statute was unconstitutional. It was urged that the purpose of the statute was the suppression of the drug habit, and that it is therefore not a revenue measure, but one of police, within the exclusive province of the states. But it was held by the Circuit Court of Appeals, Eighth Circuit, that the act is valid as a revenue measure, having real relation to the raising of revenue by bringing the traffic in such drugs into the open, and it is immaterial that another purpose of Congress may have been the suppression of the drug habit. It was also urged that there was no evidence that morphine, heroin, and cocaine are derivatives of opium and coca leaves. The court held this to be a matter of which judicial notice may be taken, and no evidence on the subject was necessary. In a sense the question is one of the definition or meaning of words long in common use, about which there is no obscurity, controversy, or dispute, and of which the imperfectly informed can gain complete knowledge by resort to dictionaries within reach of everybody. Had it deemed it necessary, the court might have affirmatively told the jury the nature of the drugs sold by the accused, but instead of doing so, it assumed without question that they were of the kind covered by the statute, as in fact they were. Common knowledge, or the common means of knowledge, of the settled, undisputed things of life, need not always be laid aside on entering a courtroom.

It was held that it was immaterial that the defendant was a physician; his sales not being in the practice of his profession, but as a registered dealer.—Hughes v. United States, 253 Fed. 543.

Expert Testimony as to Value of Physicians' Services—Use of X-rays in Diagnosis.—In an action for $1000 for professional services the defendant sought to recover damages for alleged unskilful treatment. The jury found for the plaintiff and against the defendant on his cross-complaint. On appeal it appeared that the plaintiff was called upon to attend the defendant, whom he found suffering from a fracture of the neck of the femur. At his first visit the plaintiff adjusted the broken part and applied a weight to the limb. A trained nurse was called to attend the case and the plaintiff continued his ministrations during several months, and until the defendant was able to move about on crutches. It was shown that the patient later became able to walk, even without the aid of a cane, at least for short distances. The patient made about eighty-five visits to the defendant. During the time he attended him he was called upon to prescribe for other conditions than the broken bone, to wit, pneumonia and rheumatism. From all of the medical testimony, even that produced by the defendant, it appeared that so far as the fracture was concerned, the results obtained by the plaintiff were better than the average. Under the evidence as presented, it was held that the matter of the value to be placed upon the services rendered by the plaintiff to the defendant was a question exclusively for the jury.

On the cross-examination of one of the expert witnesses, who had testified hypothetically, objection was held properly sustained to a question which assumed facts which did not appear in the evidence, or did not correctly narrate the conditions shown by the hypothetical question, which was the basis of the witness' first answer.

The same witness was asked, on cross-examination, as to whether it was not customary, in cases of the character involved, to take an X-ray picture. Objection to this was sustained. It was held that this ruling could not prejudice the defendant. Concededly the taking of an X-ray picture was only valuable for purposes of diagnosis, and it was clear that the diagnosis made by the plaintiff without the aid of the X-ray was the correct one. Moreover, the matter of the advisability and value of X-ray pictures was fully gone into in the testimony introduced later in the case.

It was also held that where a medical expert testified hypothetically as to the value of medical services, it was within the trial court's discretion to refuse to allow a discussion, possibly lengthy, as to a course of treatment not included within the facts as shown, upon which he based his testimony.

Questions asked of a witness who was the trained nurse who had attended the defendant under the plaintiff's direction all went to the point as to what the witness had observed other physicians do in like cases, or what she considered good or customary treatment. The court did not think that the opinion of the trained nurse was competent evidence to show that the treatment administered by the plaintiff was improper.—MacCoy v. Gage (Cal.), 177 Pac. 296.

Privileged Communications—Limits of Scope.—In an action on a life insurance policy, the testimony of an operating and assistant surgeon at the hospital where the insured died, as to the condition the insured was in at the time of the operation, was held inadmissible under the New York Code Civ. Proc., §834, prohibiting disclosure of professional information by physicians and surgeons. The record of the insured's case, kept by a hospital where he was treated about three months before applying for insurance, was also held properly excluded under the statute. But though the doctor of the hospital where the insured was treated before applying for insurance could not have described the operation, or any condition be observed necessarily disclosed by inspection of the insured's body, he could have testified that at a certain time he performed the operation. In Klein v. Prudential Ins. Co., 221 N. Y. 453, 117 N. E. 942, the court held it was not error to allow a physician to testify that he attended the deceased on a certain day, and that he was sick. And in Patten v. United Life & Acc. Ins. Ass., 133 N. Y. 450. 31 N. E. 342, it was held that a physician could testify that he attended professionally upon the deceased at a given period of time, and how many times he called, and whether daily or hourly; in fact, that the physician attended the deceased in a professional capacity; but that the information concerning which the inquiry is made was necessary to enable him to act in that capacity must be developed in order to lay a foundation for the objection under section 834.—Sparer v. Travelers' Ins. Co., 173 N. Y. Supp. 673.

Basis of Expert Opinion.—A physician in giving evidence as an expert may base his opinion upon his observation and examination of the patient, together with a history of the case as given to him, and such opinion will not be rendered inadmissible in evidence because based partly upon statements made to him by the patient with reference to her condition, symptoms, sensations and feelings when they were made to him, and were necessary to an examination and proper diagnosis and treatment of the patient's injuries. In an action for personal injury, a physician's testimony that from the patient's statements her jump out of a wagon would have been sufficient to produce her miscarriage was not objectionable as invading the jury's province by stating what did in fact cause the miscarriage. Where an injury complained of is of such a character as to require skilled and professional men to determine the cause and extent thereof, the question is one of science and must necessarily be proved by the testimony of skilled professional persons.—Ft. Smith & W. Ry. Co. v Hutchinson, Oklahoma Supreme Court, 175 Pac. 922.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, June 28, 1919.

THE PREVENTION OF SCURVY.

DURING the past few years scurvy has been more or less common among the armies in the near and far East. In consequence, the etiology and treatment of the condition have been studied quite closely. Of course, it has been known for some time to be a deficiency disease, that is a disease due to a deficiency or lack of vitamine content in the diet, but this fact has been strongly emphasized by the investigations made in Mesopotamia and elsewhere. Also dietectic treatment has further clinched the point that scurvy is a deficiency disease. The Food Committee of the British Royal Society issued a short time ago the following conclusions as to scurvy, based on investigations made at the Lister Institute, London: (1) Scurvy, like beriberi, is a "deficiency disease" and is due to the continued consumption of food lacking in an accessory food substance or vitamine. (2) This vitamine is contained in a number of fresh foods, in largest amounts in oranges, lemons, and fresh green vegetables, in considerable amounts in roots and tubers, such as turnips, potatoes, etc. It is deficient in all dried and preserved foods. (3) It is destroyed by prolonged heating. Thus potatoes in stews would be devoid of vitamine, but if boiled rapidly will still contain a small quantity. Alkalies rapidly destroy antiscorbutic properties. Soda should not, therefore, be added to water in which vegetables are soaked or boiled. (4) Before the onset of definite symptoms of scurvy there is a period of debility and weakened resistance to disease. Cases of debility in any body of troops without sufficient cause should at once direct attention to the diet. (5) West Indian lime juice as ordinarily prepared is useless. Fresh limes have an antiscorbutic quality but their efficiency is only one-fourth that of lemons. Orange juice is as effective as lemon juice. (6) Potatoes and root vegetables have a distinct value in the prevention of scurvy, much less, however, than green vegetables or fresh fruit juices. (7) Pulses—beans, peas, and lentils—in the dried condition have no antiscorbutic properties. If, however, the dried seeds are soaked in water and allowed to germinate for a short period, they develop the antiscorbutic vitamine. At the same time these pulses are also rich in the vitamine which prevents beriberi, and are, moreover, valuable foods. (8) The antiscorbutic value of fresh meat is very low in comparison with fresh vegetables and fruit. Tinned and preserved meats possess no antiscorbutic value. Frozen meat, while more valuable than preserved meat, must be considered inferior to freshly killed meat. (9) The destruction of antiscorbutic properties of foods during the process of cooking depends upon the time of cooking and temperature employed. All foods, especially vegetables, should be cooked in as short a time as possible at boiling point. Slow methods of cooking, such as stewing or simmering below boiling point, should be avoided. Potatoes should be plunged into boiling water and boiling continued for twenty or thirty minutes after boiling point had again been reached. Frozen meat should be roasted when practicable.

These findings go to show that views as to the value of the various foods from the nutritive standpoint have changed greatly within the past ten or twenty years. The vitamine content of food must not be greatly impaired or nutrition will not only be unsatisfactory, but beyond a certain point pathological conditions will be produced. Meat has been shown to be in many respects, and especially so far as vitamines are concerned, inferior to other foods which not long ago used to be regarded with thinly veiled contempt. The pulses, either fresh or germinating, have been elevated to a high position among the food products and are as economical as they are nutritious. The report from which quotations have been made gives some useful advice as to cooking, an art concerning which there is a great deal of ignorance, and particularly with regard to cooking in such a manner as to preserve as much as possible the nutritive properties of the food. Lastly, it was shown that canned and dried foods do not contain the amount of nourishment which is contained in fresh foods, and that so far as vitamine content is concerned they are useless. Our ideas as to food must evidently undergo a great deal of revision from all points of view.

INDURATIONS OF THE CORPORA CAVERNOSA.

CORBINEAU in a synthetic review of this subject published in the *Journal d'urologie* for May has collected notes of 189 cases reported during the period 1743-1918. The subject had previously been summed up by Zislin in 1911, this author having incorporated many cases probably not previously published. But few scattered cases were on record up to 1875 at which period Van Buren published notes of 5. During the 80's many cases came to light and Maurice alone reported 17, Tuffier 10, and Verneuil 6. Since that epoch several cases have come to light annually but it is probable that the real total is much greater than appears from this article. The number is certainly large enough to admit of an instructive analysis.

In the first place there is no doubt of the rarity of this affection for Ricord with his great experi-

ence saw about a score of cases only. It should be stated here that many cases reported under this head were doubtless examples of wrong diagnosis and all such have been left out of the tabulation. An affection of elderly men, it is yet seen at times in early adult life. The most common seat is the anterior third of the penis but quite a number appear at the root and sometimes the entire organ is involved. In regard to cause and nature the author gives the following: Inflammatory or gonorrheal, syphilitic, traumatic, diathetic, and unknown. Under diathetic he includes all such constitutional factors as diabetic, gouty, rheumatic, tuberculous. The frequency of each type has varied much with the material and two or more alleged factors may coexist in a case. The author's combined material shows that traumatism is not a common cause while the diathetic or metabolic factors are very numerous, no less than 66 possessing such a factor. Tuberculosis plays a negligible rôle. No less than 55 of the patients had had gonorrhea alone or with other factors, while about a score had had syphilis. The number of cases without data and those with negative data totaled 37.

Such numerous antecedents serve to confuse the pathogeny, and we have theories without end which seek to connect causes and effects. This vagueness is offset by the vividness of the symptoms, for the condition simulates in some ways chordee, the organ being bent and painful during erection and emission. Coitus is impossible with marked deviation, while in moderate degrees the ligneous hardness of the organ is extremely burdensome for the woman. The act of erection may be very slow and deliberate. This condition is capable of causing some of the worst cases of sexual neuroses and hypochondria.

THE PROPHYLACTIC OR CURATIVE VALUE OF BACTERIAL VACCINES.

The estimation of the value of bacterial vaccines generally is not particularly definite. This has given rise to the view that vaccine therapy is, as a rule, not to be greatly depended upon. While it is true that some of the results of prophylactic and curative treatment by means of vaccines are unsatisfactory, the mode of treatment should not be wholly condemned on this account. A good deal of the confusion which exists as to value of vaccines is because not infrequently the data upon which conclusions are based will not bear close investigation. Dr. G. W. McCoy, director of the Hygienic Laboratory, U. S. Public Health Service, points out in Public Health Reports, May 30, 1919, some of the pitfalls in determining the prophylactic or curative value of bacterial vaccines which are in the path of those who employ them.

According to McCoy, the most common source of error is that due to the employment of a vaccine in an institution or in a group not in an institution, after cases of the disease have appeared. Influenza develops among the persons in a given group, prophylactic vaccinations are undertaken more or less promptly, and no cases may occur after the inoculations have been completed. However, closer examination generally reveals the fact that so large a proportion of the personnel involved has developed the disease before the vaccinations were done that in all probability the remainder would not sicken whether vaccinated or not. Thus the figures lose their significance. A second source of error consists in vaccinating all persons in a group and interpreting failure of the disease to appear as evidence of protection. It only requires a study of the data with regard to certain institutions where without vaccinations the disease has been excluded, or has spread but slightly, to realize how fallacious such arguments are. The third, and in McCoy's opinion the most common, pitfall is the drawing of conclusions from meager data.

He therefore thinks that many of the cases of cure, especially perhaps in influenza and pneumonia, attributed to the use of vaccines should be received with a certain amount of reserve, and should not be accepted at their face value until convincing proof has been given that the results were really owing to vaccination.

According to McCoy, the sole way in which promptly acceptable evidence of the value of a bacterial vaccine can be secured is by the vaccination of only a portion of the individuals in a large group, holding the remainder as controls; age, sex, and conditions of exposure being the same in the two groups. On the other hand, a vaccine should not be condemned unless properly controlled, and unless it has failed to show protective value when sufficient time has elapsed after the inoculation to make it reasonably likely that any immunity which may develop will have had an opportunity to do so.

Vaccine therapy has a great future, but it will not be helped by making extravagant claims for it. Its use should be conducted upon a strictly scientific basis, and cases should be so thoroughly investigated that there can be no doubt as to the results. Employed in an unscientific manner, or in a hit-or-miss way, the outcome is uncertain, and in the long run the use of vaccination by such methods will not tend to create confidence in it, either as a prophylactic or as a cure.

THE COMMON INTERESTS OF THE MEDICAL PROFESSION AND THE COMMUNITY.

There is to be a Ministry of Health in Great Britain, and it is feared—and this fear is not without cause—that in the framing and in the carrying out of a bill to appoint such a ministry the medical profession will not have the voice and the power which are justly their due. The tendency of the labor classes in Great Britain is to depreciate the medical profession, to regard it as of the privileged class, and to endeavor to shear its influence in every way. It seems that if the labor party has its will the medical man will lose his independence and become a servant of the people. If the framing of the bill is left wholly in the hands

of the politicians it is more or less certain that such will be the result. The politician will kow tow to the strongest party. The medical profession is almost negligible in politics, and thus the outlook for the British medical profession is not promising, and it is realized that if its members are to be saved from the fate which appears to threaten them they must organize and fight the politicians with their own weapons.

A conference of medical men was held recenly in London for the purpose of promoting such an organization. Among the speakers was Dr. Arthur Latham, who in the course of his remarks said that the medical profession would never have political power until the public was on the side of the medical man, and that would happen when the public was approached through a body which was recognized as one looking after the community rather than after the doctor. And this was the right order, for the interests of the doctor would be cared for if the interests of the community were met. The mistake the medical profession had made in the past was that they had not led the public to understand that the interests of the profession were wrapped up in the interests of the community.

Of course, all this is very true, and the public and medical men must be in harmony or there will be little hope for a successful national department of health. If the conditions of service are unfair, the doctor will be discontented, the work will be bad, and the best brains will not be attracted to the medical profession. It is obvious that the public and medical men must pull together or no workable scheme for a department of health will be forthcoming; or, if forthcoming, will be unsatisfactory and will fail when put into practice.

There is little doubt that in this country also a national department of health is coming, and while the conditions here and in England differ there is enough similarity to make the experiences through which the profession of that country is now going instructive. In both countries the medical profession wields little or no political influence, and without organization is at the mercy of the politicians. Consequently it would appear that the wisest procedure on the part of the medical professions of the English-speaking lands on both sides of the Atlantic will be to organize promptly so as to defend their own interests and at the same time being recognized as strictly fair to the community.

The "Signe du Tiroir" of the French.

Mouchet recently described this phenomenon, as named by Rocher of Bordeaux, at a meeting of the Paris Surgical Society (*La Presse Médicale*, April 10). In four cases of young people in Rocher's service who sprained the knee certain troubles long persisted, including a limp, atrophy of the quadriceps, creaking sounds on motion, fatigue after walking, occasional appearance of fluid in the joint, etc. In these cases there was suspicion of chronic arthritis and also of simulation. In cases of this type Rocher calls attention to a peculiar sign which had indeed been seen by others but not studied critically. It is an induced phenomenon in which the subject lies supine on the table to obtain complete relaxation. He is now made to flex the thigh on the trunk and the knee on the thigh, the degree in the latter case being from 90 to 110, obtained by placing the sole flat on the table. The palms of the hands are now placed against the posterior upper third of the calf and the tibial surfaces pushed or slid along the femoral surfaces of the joint, as if one were closing the drawer of a commode. If the crucial ligaments have ever sustained an injury a veritable subluxation is produced from behind forward. The same gliding movement can be produced by the muscular contraction of the patient, both in the sitting and standing postures. All he has to do is to flex slightly his leg. The gliding may be attended by a slight dry sound and the displacement in the joint is clearly shown in the radiograph. Mouchet, who reported the work of Rocher to the Society, has by experiments on the cadaver in which the crucial ligaments were divided corroborated the finds of the latter. Hence the forward displacement of the tibia on the condyles when the joint is flexed, denotes injury to the crucial ligaments, either both or the anterior only. At the same time slight torsion from without inward occurs, the nature of which has not been fully decided but which is expressed by a slight prominence at the rear of the joint. This latter phenomenon is inconstant and in the absence of illustrations is not readily visualized.

News of the Week.

Bronx County Medical Society on Health Insurance.—At a recent monthly meeting of the Bronx County Medical Society resolutions were passed stating that it was the consensus of opinion of the members of the society that every member pledge himself not to act under any Health Insurance Act which might be passed but which had not the support of the society. Cards have been sent to each member of the society requesting his signature to these resolutions.

Bureau of Narcotic Research.—The constantly widening breach between physicians and health authorities as to the true definition of drug addiction and the best method of combating the evil have created a difficult situation in New York State, which has emphasized the need of an intelligent study of the situation. To meet this need the Bureau of Narcotic Research has been established at 47 West Forty-second Street. The purposes of the bureau are to study the situation, keep abreast of the times by collecting all data, remedial and legislative, bearing on the problem, and to provide the machinery by which this information can be disseminated through proper channels. The bureau is under the direction of A. R. Parkhurst, and will be at all times at the disposal of the physician, the medical press, and the decent addict. On file are all the treatises on drug addiction prepared by authorities on this subject. Hundreds of histories of addicts are also on the files, all of which have been checked up to the minutest detail and found to be truthful. Advice is given to the addict as to the best

means of obtaining treatment and not a few addicts who are penniless are sent to the Public Addiction Clinic conducted by the Board of Health. The energies of the Bureau for the time being will be concentrated on propaganda of an educational nature with the hope of arousing the public to the necessity of studying narcotic drug addiction as a disease and not as a vice.

Birth Statistics in United States for 1917.—The Bureau of Census, Washington, D. C., has issued a preliminary report presenting statistics in the birth registration area of the United States which shows that 1,353,792 infants were born alive in 1917, representing a birth rate of 24.6 per 1,000 of the population. The total number of deaths in the same area was 776,222, or 14.1 per 1,000. The births exceeded the deaths by 74.4 per cent. The mortality rate for infants under one year of age averaged 93.8 per 1,000 living births. The birth registration area has grown rapidly, comprising, in 1917, the six New England States, Indiana, Kansas, Kentucky, Maryland, Michigan, Minnesota, New York, North Carolina, Ohio, Pennsylvania, Utah, Virginia, Washington, Wisconsin, and the District of Columbia. This includes about 53 per cent. of the estimated population of the United States. The birth rate for the entire registration area fell below that for 1916 by two-tenths of one per 1,000 population; the death rate was less by six-tenths of one per 1,000 than in 1916. Thus the excess of the birth rate over the death rate for 1917, which amounted to 10.5 per 1,000, was somewhat greater than the corresponding excess for 1916, 10.1 per 1,000, although it fell slightly below that for 1915. If the birth and death rates of any one of these years were to remain unchanged, and if no migration were to take place to or from the area to which they relate, its population would increase at the rate of slightly more than 10 per cent. in a decade. This would be about one-half the rate—21 per cent.—by which the entire population of the United States increased between 1900 and 1910. The infant mortality rate in the different states of the registration area ranged from 67.4 for Minnesota to 119.9 for Maryland. For the white population separately the lowest and the highest rates were 66.3 for Washington and 109.5 for New Hampshire. A comparison of the mortality rates on the basis of the nationality of the mother shows a minimum of 66.2 per 1,000 births for infants whose mothers were born in Denmark, Norway, and Sweden, and the maximum of 172.6 for infants with mothers born in Poland, while for Negro children the rate was 148.6. The plural births were a little more than 2 per cent. of the total number. From the data available as to previous births in the families reporting births for 1917, it appeared that there was an average of very nearly three living children in each family in which a birth took place in 1917.

Medical Society Elections.—The AMERICAN MEDICAL EDITORS ASSOCIATION, at its Golden Anniversary meeting, held in Atlantic City June 9 and 10 under the presidency of Dr. George W. Kosmak, of New York, elected the following officers for the ensuing year: *President*, Dr. Seale Harris, Birmingham, Ala.; *First Vice-President*, Dr. Franklin H. Martin, Chicago; *Second Vice-President*, Dr. H. S. Baketel, New York; *Secretary*, Dr. Joseph MacDonald, Jr.; *Executive Committee*, Dr. George W. Kosmak, New York; Dr. E. H. Lewis, New York; Dr. D. S. Fairchild, Clinton, Ia.

THE WESTERN ELECTROTHERAPEUTIC ASSOCIATION was organized in Kansas City, on May 8, for the purpose of cultivating and promoting knowledge in whatever relates to the application of electricity and other physical measures in medicine and surgery. The officers for 1919-1920 are: *President*, B. B. Grover, Colorado Springs, Colo.; *First Vice-President*, W. P. Grimes, Kansas City, Mo.; *Second Vice-President*, Theo. F. Clark, Eldorado, Kan.; *Secretary*, Chas. Wood Fassett, Kansas City, Mo.; *Treasurer*, Chas. Keown, Independence, Mo.; *Registrar*, E. A. Nelson, Phillipsburg, Kans. The next meeting will be held at Kansas City, Mo., May 18-20, 1920.

The AMERICAN PSYCHOANALYTIC ASSOCIATION, at its ninth annual meeting, held at Atlantic City, June 20, 1919, under the chairmanship of Dr. Smith Ely Jelliffe, of New York, elected the following officers: *President*, Dr. A. A. Brill; *Vice-President*, Dr. H. W. Frink; *Secretary and Treasurer*, Dr. W. A. White; *Council*, Drs. Smith Ely Jelliffe, G. L. Taneyhill, and C. P. Oberndorf.

The ARKANSAS MEDICAL SOCIETY, at its annual meeting, held in Little Rock, May 22, 1919, elected the following officers for the ensuing year: *President*, Dr. George S. Brown, Conway; *First Vice-President*, Dr. C. E. Kitchens, DeQueen; *Second Vice-President*, Dr. A. L. Carmichael, Little Rock; *Third Vice-President*, Dr. R. E. Cooksey, Magnolia; *Secretary*, Dr. C. P. Meriwether, Little Rock; *Treasurer*, Dr. W. R. Bathurst, Little Rock.

The FLORIDA STATE MEDICAL ASSOCIATION, at its annual meeting, held in Jacksonville, May 23, 1919, elected the following officers for the ensuing year: *President*, Dr. William E. Ross, Jacksonville; *First Vice-President*, Dr. H. C. Babcock, Miami; *Second Vice-President*, Dr. J. A. Simmons, DeLand; *Third Vice-President*, Dr. W. D. Davis, DeLand; *Secretary*, Dr. Graham E. Henson, Jacksonville.

THE FRISCO SYSTEM MEDICAL ASSOCIATION, at its eighteenth annual convention, held in Springfield, Mo., May 12, elected the following officers for the ensuing year: *President*, Dr. C. M. Lutterloh, Jonesboro; *First Vice-President*, Dr. C. N. Cargyle, Bentonville; *Second Vice-President*, Dr. Miles Duncan, Dallas, Tex.; *Secretary-Treasurer*, Dr. A. R. Woolsey, St. Louis.

THE VIRGINIA HOMEOPATHIC MEDICAL SOCIETY, at its annual meeting, held in Petersburg, elected the following officers for the ensuing year: *President*, Dr. R. S. Faris, Richmond; *Vice-President*, Dr. H. B. Baker, Richmond; *Secretary-Treasurer*, Dr. G. W. Johnson, Danville.

THE MISSISSIPPI STATE MEDICAL ASSOCIATION, at its annual meeting, held in Hattiesburg, May 14, 1919, elected the fellowing officers for the ensuing year: *President*, Dr. F. J. Underwood, Aberdeen; *Secretary*, Dr. I. M. Dye, Clarksdale; *Treasurer*, Dr. J. M. Buchanan.

Commencements.—At the ninety-fourth annual commencement of Jefferson Medical College on June 8 the degree of Doctor of Medicine was con-

ferred on 142 graduates. Surgeon General Marritte W. Ireland, of the class of 1891, delivered an address on "The Progress of Medicine in the Twentieth Century." The degree of Doctor of Laws was conferred upon Dr. Ireland and the degree of Bachelor of Science on Dr. Duncan L. Despard.

At the commencement exercises of Hahnemann Medical College of Pennsylvania held at Philadelphia on June 12 there were 25 graduates. It was announced that in the future women would be for the first time admitted as students in the college.

At the sixty-ninth annual commencement of the Woman's Medical College of Pennsylvania held at Philadelphia on June 18 there were 78 graduates.

At the annual commencement of the University of Pennsylvania held at Philadelphia on June 18, there were 1 2 graduates in medicine and General Leonard Wood delivered an address. The degree of Doctor of Laws was conferred upon Dr. Edward Martin, Pennsylvania State Commissioner of Health and the degree of Doctor of Science on Dr. Arthur Hopewell Smith.

The graduation exercises of the Kansas City University of Physicians and Surgeons were held on June 2, at which time the degree of Doctor of Medicine was conferred upon 64 students by Dr. A. M. Wilson, Dean of the University.

At the twentieth commencement of the Cornell University Medical College in New York recently medical degrees were conferred on 29 men and women. Among the prizes were two awarded for the first time this year. These were prizes in gynecology in memory of the late Dr. William Metcalfe Polk. The graduation address was delivered by Dr. Edward L. Keyes, Jr.

Charitable Bequests.—By the will of the late Isabel McLeod Brewster the sum of $500 is bequeathed to the Germantown Hospital and Dispensary of Philadelphia.

By the will of the late Simon B. Fleisher of Philadelphia the sum of $9,000 is bequeathed to the Hospital of that city.

By the will of the late Robert Ralston Stewart of Philadelphia the sum of $10,000 is bequeathed to the Pennsylvania Hospital.

By the will of the late Marcella Ennis of Philadelphia the sum of $1,000 is bequeathed to St. Joseph's Hospital.

By the will of the late Dr. J. Ewing Mears of Philadelphia the sum of $100,000 is bequeathed to Harvard University, for the study of methods directed to the reform and cure of criminals and mental defectives by surgical means; the sum of $5,000 to Jefferson Medical College, for a free scholarship; $',000 to the Rush Hospital for Consumption and Allied Diseases, for free beds in memory of Frances B. Tyson; $2,000 to the Pennsylvania Training School for Feebleminded Children at Elwyn, Pa.

By the will of the late Harriet Blanchard of Philadelphia bequests are made as follows: Protestant Episcopal Hospital, $200,000; Pennsylvania Hospital, $200,000; University of Pennsylvania, $100,000; Hospital of the University of Pennsylvania, $100,000; Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases, $100,000; Woman's Hospital, $100,000; Children's Hospital, $100,000; Polyclinic Hospital, $50,000; Pennsylvania Training School for Feebleminded Children, $25,000; Jefferson Hospital, $10,000.

Taunton Doctors Raise Fees.—The physicians of Taunton, R. I., have voted to raise their schedule of fees. House calls have been raised from $2 to $3, with $4 for visits between 6 and 10 o'clock in the evening, and $5 from 10 at night to 7 in the morning. Office calls will be $2 and telephone calls will be charged as office calls. The Taunton doctors claim that they are compelled to take this step to meet the increased cost of living.

Columbia University Plans New System of Physical Education.—A new system of physical education, revolutionizing methods of caring for the health of college students, has been adopted by Columbia University. Medical surveillance will be extended to the student from the day he enters college until he receives his diploma. The idea will not be to bring every man up to a fixed standard but to perfect him in his own standard. Records similar to those of the army draft boards will be kept. When physical defects appear they will be corrected, with the purpose of turning out men 100 per cent. perfect physically as well as mentally. One aim is to teach every graduate at least two outdoor and indoor sports, so that when he leaves college he will have a basis for relaxation and play. The plan was devised and perfected by Dean Herbert E. Hawkes, Dr. W. H. McCastline and Dr. George L. Meylan. Plans have been made to care for students showing malnutrition, and a restaurant in connection with the college will supply food properly balanced and special diets. Efforts will also be made to give each student a knowledge of his own physical assets, limitations, and peculiar tendencies, and he will be taught that health in the middle and later periods of life is greatly dependent upon a proper understanding of one's own physical make-up.

Obituary Notes.—Dr. JAMES W. SNOWBALL died at Atlantic City, N. J., on May 16 at the age of 54 years. He was graduated from Jefferson Medical College in the class of 1891. He was a member of the Atlantic County Medical Society, the New Jersey State Medical Society, and the American Medical Association.

Dr. VALENTINE J. BOLD died at Philadelphia, on May 21, at the age of 50 years. He was graduated from Jefferson Medical College in the class of 1890.

Dr. CAROLINE V. STILL ANDERSON died at Philadelphia on June 3 of apoplexy at the age of 70 years. She was graduated from the Woman's Medical College of Pennsylvania in the class of 1878.

Dr. HIRAM L. LUTZ died at the University Hospital, Philadelphia, on June 8 at the age of 40 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1900. He was a member of the Philadelphia County Medical Society, the West Philadelphia Medical Society, the Philadelphia Medical Club, the Medical Society of the State of Pennsylvania, and the American Medical Association.

Dr. WILLIAM AUGUSTUS BURNS died of heart disease at Philadelphia on June 8 at the age of 75 years. He was graduated from the medical department of the University of Pennsylvania in 1869.

Correspondence.

LUNG VENTILATION AND ARTIFICIAL RESPIRATION.

To the Editor of the Medical Record:

Sir:—Having recently seen the paper "History and Analysis of the Methods of Resuscitation" by S. J. Meltzer in your journal of July 7, 1917, I find the investigations performed by me in collaboration with Wollin and Nilsson criticised in a manner that is not correct. It is stated that we made experiments on the lung ventilation of man during artificial respiration in apnea, and it is said that "the apnea was brought on by a small series of deep respirations." In contrast to us, Henderson is said to have made experiments on students "who experienced, after overventilating their lungs by two or three minutes of voluntary forced respiration, a lack of desire to breathe (apnea)."

Now, in our publication (*Skand. Arch. f. Physiol.*, 29) it is explicitly stated that there probably can have been no satisfactory apnea in older experiments, and mentioned that our subjects in all experiments in question were breathing maximal (with a frequency of 40 to 60 times and a ventilation from 50 to 78 L.) during one minute and thus obtained an apnea of 85 to 92 seconds on an average. The apnea in Henderson's experiments lasted 40 to 80 seconds.

At the same time I take the liberty of pointing out that it seems to be chronologically incorrect when it is said in the official reports of the commissions on resuscitation from electric shock and from mine gases, respectively, that their results have been confirmed by us. Our publication on lung ventilation by artificial respiration in man being older, was accordingly cited in both the reports, and on several points in much detail, and it seems to me, therefore, that our results were rather confirmed by the commissions than the reverse. It was also stated in a letter to one of us from Haldane that he could confirm our conclusions.

G. Liljestrand, M.D.

Tomtegatan 19A, Stockholm.

OUR LONDON LETTER.

(From Our Own Correspondent.)

London, May 29, 1919.

The Medical Services Bill.—The bill for the creation of a Ministry of Health has now received consideration and approval—as far as approval can be given to matters so much in embryo that their real development can only be guessed at—in both Houses of Parliament, where also consideration has been given to representations made by the big medical corporations and companies. It may be taken for granted, therefore, that the bill in the shape which it now possesses will be placed on the statute book as an act at an early date. The scope of this bill, it will be remembered, is mainly the rearrangement of State activities as far as they relate to medicine; the abolition of overlapping so effected will bring into a coordinated whole the activities exercised by the Local Government Board, the National Insurance Commissions, the Board of Education, and in a minor degree the Statistical Bureau at Somerset House, the Foreign Office, the Privy Council, and certain other state departments having under their ægis some sort of medical dispensation and patronage. That is what the bill does; but it does not either institute a State service of medicine as such, nor does it take over the voluntary hospitals and make of their staffs salaried servants of the state.

A corollary of the bill is therefore immediately required to deal directly with the position of the medical practitioner under the act, for while the whole spirit of the new legislation is to give full play to the growing interest manifested by the public in medicine, it is obvious that the public can only enjoy a good medical service if the medical practitioners under that service are treated with proper consideration in the matters of time given and salaries or remuneration received. In the House of Commons, on Wednesday last, Dr. Addison announced that he was already far advanced on a second stage of the Ministry of Health proposals, and that the result should be shown in a Medical Services Bill which he intends to introduce in the House of Commons with promptitude. The underlying purpose of the Medical Services Bill will be to deal with the problems for the solution of which the establishment of a state medical service has been freely urged in certain quarters, though no one familiar with the problems involved expects or desires any transformation of the whole medical profession under a regimented scheme. During the debates upon the Ministry of Health Bill there was ample discussion of the necessity for transferring at an early date to the new ministry the medical side of the Poor law. This is one of the questions which will certainly be tackled in the forthcoming measure, and our readers know well that reforms in this direction are overdue. The Poor-law authorities have been sorely tried, hardly worked, and unjustly abused, but all who know wherein lie the real problems of medicine see that it is high time to relieve the Poor-law authorities of such responsibilities as the provision of institutional treatment for the sick and infirm and for maternity cases. The Ministry of Health Bill will possibly become law before Whitsuntide, and there is a strong desire at the Local Government Board to proceed with its corollaries as quickly as possible. Dr. Addison has stated that he will put his proposals regarding medical services before the Medical Advisory Committee before formulating them in the shape of a bill, and no doubt he will thus receive a great deal of assistance in his effort to meet admitted difficulties for which a plethora of remedies have been suggested, none of which has escaped criticism.

It will be seen that much turns upon the constitution of the Medical Advisory Committee, and it will be recognized also that it is proposed to use this committee in a most practical manner for the good of the medical profession. The rearrangement of functions among the great government departments can well be left to those who have great departmental experiences, and in Sir George Newman, lately the principal medical officer to the Board of Education, and Sir Robert Morant, the chairman of the Joint Committee of National Insurance Commissions, we have two officials, now formally designated for executive charge of the Ministry of Health, who after high trial have been found eminently successful in bureaus where medical and public in-

terests have most closely interdigitated. But the executive of the Ministry of Health will require also information, instruction, and assistance in making effective the general powers for good of the medical profession as the actual executants of the health policy of the measure. Here it is that a properly chosen medical advisory committee, having a statutory position under the parent legislation, can advise as to the shape which a medical services bill should take, so as to place at the disposal of the public the services of the general practitioner with the best chances of benefit to the public and simultaneously under conditions fair to the medical men.

It is not difficult to guess the line which the proposed legislation under a medical services bill will take. The general policy will be one of decentralization of medical activities and the erection of numerous health centers proportionate to the needs of local populations. While it is understood that the great general hospitals, with their medical schools attached, will remain, at any rate for the present, upon their historic and charitable basis, the numerous infirmaries at present working under the Poor law will be elevated to their proper position as the seats of institutional treatment for the sick and infirm and maternity cases. Each of these hospitals will then become a local center for postgraduate medical education and for consultative medical opinion, as well as a focus for the institutional treatment of the sick. The general practitioners in each locality will look to the local hospital for assistance in special medical and surgical cases and for information on various pathological problems. The officers will have to receive salaries, settled on whole-time or half-time basis, according to circumstances.

Vital Statistics at the Zenith of the War.—The annual report of the Registrar General for 1917 has just been issued. Various statistical items with reference to the increase and decrease of populations, and the variations in birth, marriage, and death rates of epidemics, and so on, have all been issued from time to time during 1918—or at any rate the facts have emerged from the publication of separate figures out of which the general summary has been constituted—but the annual report is the considered report and scientific statement showing the net results to Great Britain and Ireland at the time when the war had been in full and disastrous swing for nearly three and a half years. The births registered 117,000 fewer than the previous year and about 210,000 less than were registered in 1914, which may be regarded as the last year unaffected by war conditions. But the birth rate, 17.8 per thousand living, was the lowest ever recorded, the total fall between 1914-1917 inclusive being six per thousand, or just over 25 per cent. The decrease in illegitimate births was more than proportionate, affording thereby direct contradiction of those who prophesied that the circumstances of war would inevitably lead to a vast wave of immorality, and it should be remembered that some of these prophets invented facts to tally with their Chabandism.

The birth rate looks bad, but the death rate of 1917 puts a different complexion upon the position. The civilian death rate, 14.4 per thousand living, at all ages, was actually lower than the average rate of the last ten years of peace experience, 1905-1914. This figure again has its moral, for it proves that despite the depletion of medical service at the height of the war, and despite the difficulties under which public health administration was carried on, the medical profession at home rose to the emergency, and kept civilian health at a good standard. Indeed, a remarkable feature of the year 1917 is the extraordinary low death rate of children under five years, the rate being only about half that prevalent in the concluding decade of the previous century. The high death rate of civilian males bears the obvious explanation that they included among the civilians those men who had been invalided out of the forces and were thus deprived from military circumstances of the statistical assistance of the mass of healthy men serving with the army and navy.

The causes of death, as statistically arranged, present both good and bad features. The year concerned was marked by no influenza epidemic and at the same time a decrease was registered in deaths from enteric fever, scarlet fever and diphtheria. The figures for scarlet fever were the lowest on record, but on the other hand tuberculous disease in the aggregate accounted for the death of more than 2000 persons in excess of 1916. The serious increase in tuberculous mortality is most marked in the ages of 5 to 25, and the incidence among the elders of these young people has been determined possibly by factory conditions, while among the younger it was due to dietary changes. Another factor in the increase of tuberculous deaths is alluded to by the Registrar General as a possible one—namely the overcrowding of lunatic asylums. This overcrowding did not follow upon any marked increase in lunacy but was due to the fact that several of the large lunatic asylums were vacated by their customary inmates, and the buildings being devoted to military purposes the patients were billeted in the remaining institutions. There is a notable increase in deaths from malignant disease, bringing forward again the eternal question: Do modern conditions of life conduce to cancer, or has the perfection of medical science led to the detection of cases of malignant disease which in former times remained undiagnosed? The answer to the latter half of the question is obviously "yes," but unfortunately that does not enable us to answer the first part of the question with an equally obvious "no."

Death of Dr. Luxmoore Drew.—Dr. Clifford Luxmoore Drew, whose death took place last week, was widely known and deservedly popular in medical and legal circles as Coroner for the Western Division of London. Born in India during the famous mutiny, he was educated at Aberdeen, of which University he was a medical graduate. Later, taking up a legal course of training in London, he entered the Middle Temple, became a barrister-at-law, and obtained, with the double qualification, the coveted post of a metropolitan coroner. Here he was an unqualified success, his ability, fairness and courtesy winning him universal esteem. Some years before his death he had the honor of serving as President of the Coroners' Society of England and Wales.

LETTER FROM GENEVA.

(From Our Own Correspondent.)

GENEVA, April 26, 1919.

Effect of War on the Birth-rate.—A society in Copenhagen is stated to be studying the effects of the war on the population, and the German newspapers have published results that have been obtained in their country. These contain one very curious fact which unquestionably requires confirmation. It is stated that for every 1,000 births of males there have been 1,086 female births instead of the normal 1,024. Nothing is known with certainty as to the conditions that determine sex in the human species, but there is quite a large amount of evidence in support of the generalization that during wars and famines, when the conditions are generally adverse, especially with regard to nutrition, the proportion of male relative to female births increases. If there is any foundation for this generalization, then we must conclude either that the figures are wrong, or that Germany was mighty well nourished during the war, or else that some entirely aberrant influence was at work.—

Typhus Fever.—I am in a position today to give you some authentic data relating to typhus fever in Europe since the latter part of 1918. As you know, severe epidemic typhus fever occurred upon several occasions during the war. In 1915, particularly, the epidemic in Serbia caused considerable ravage, to such an extent that the Allied Powers were obliged to combine their efforts in order to suppress the disease. On the other hand, there were an enormous number of victims of typhus in Germany in 1915, among the prisoners of war, particularly at the camps of Cassel and Langensalza, and this has cast an everlasting discredit on the German medical profession on account of the brutal actions and cowardice of both the military and civilian medical men. In the prison camp at Wittenberg, also, the cowardly medical officers ran away, leaving the care of the sick to the British medical officers detained illegally in the camp.

Now, although there was cause for surprise when the disease first appeared and spread, we possess to-day the necessary means for stamping out the affection, and it might have been expected that any menace from it would remain vain. But the conditions of order and rigorous discipline requisite for properly carrying out the necessary prophylactic measures are far from being the same in the present conditions that they were before the cessation of hostilities. Therefore, a recrudescence of the scourge has ensued in eastern Europe, and testimony coming from every direction, and from authoritative sources, is quite enough to cause serious disquiet to the populations of central Europe, who now perceive that they will be the first to be attacked. The following figures are certainly not of the kind to be looked upon lightly.

At Moscow, 1,000 new cases of typhus have been of late declared weekly; in the Ukraine an average of 10 cases of typhus per village in the Dniester region has been computed, making a total of 12,000 cases; in the district of Warsaw there have been 800 cases weekly. The data collected by the delegates of the International Committee of the Geneva Red Cross, who visited the hospitals of Poland, the Ukraine, and in Yougo-Slavia, partially confirm these reports. Holuby and Powiorsk, near Warsaw, have been mentioned as particularly active foci of the disease. The more the East is approached the greater become the numbers of cases.

At Bielostok, on Feb. 22, 1919, there were 200 typhus cases, only 22 of which were in a plague hospital, the remainder being scattered in houses throughout the city. At Grodno, on the same date, 500 cases was the rough estimate, 44 of which were in hospital. More to the south, at Brest-Litovsk, the railway station hospital contained 85 typhus patients; one physician had contracted the disease, likewise twelve of the members of the auxiliary service. At Kowel no figures could be obtained, but the reports received to date are in themselves quite enough to show amply that that town is a potent focus of contagion. The numerous cases were not to be found in hospitals; quite the contrary. The localities surrounding Stanislaw, as is the case for Kalusz and Halicz, are suffering greatly. Foci of contagion are being created in the commonalities, schools, and barracks. These foci are represented by soldiers or repatriated prisoners, who, in a state of absolute mental depression, weakened by hunger and privation of all kinds, lacking clothing of every description, and literally covered with lice, propagate the epidemic. Even at Budapest, 130 cases of typhus have been reported from among the convoys of repatriated people.

In Poland, the Germans finally understood the danger to which their country would be exposed by these epidemics, and the authorities got together and outlined a sanitary cordon extending from Divinsk via Orcha, as far as the Austrian frontier. This barrier no longer functions. A disinfection is carried out on prisoners, laborers, and repatriated Germans to Germany, but the necessary severity is greatly lacking. Only those who are willing to submit to disinfection undergo it. Trains coming from Russia collect along the route returning prisoners from Bielostok, Brest and Kowel, who are in an indescribable condition of filth, and these creatures are thus brought into the midst of Poland. The recrudescence of typhus at Ivangorod appears to be exclusively due to patients coming from Russia. At Kowel the same conditions have been noted. Galicia appears just now particularly menaced as typhus is fearfully rampant in Ruthenia and the Ukraine.

For the time being, the hospital authorities have prevented a diffusion of the disease by creating a barrier difficult to pass. But from the time when relations shall be reestablished after peace has been concluded the danger of epidemic extension will recur with all its gravity.

I would point out that Germany, ever on the lookout for its own welfare, has foreseen the fearful danger which it confronts, likewise all Europe, and has formed international defensive organizations at Budapest and Vienna. At the former city the French military commission, commanded by Lieut.-Col. Vix, has already created, under the direction of Dr. Courtil, an international board of health and prophylaxis whose authority will extend over all Hungary.

Progress of Medical Science.

New York Medical Journal.

June 14, 1919.

1. Medicine, a Determining Factor in War. Alexander Lambert. (See MEDICAL RECORD, June 14, 1919.)
2. Caesarean Section Following a Previous Extraperitoneal Caesarean Section. J. W Markoe.
3. The Willems Treatment of Knee Joint War Injuries. Clarence A. McWilliams.
4. The Medical Modernization of the Back Country. W. B. Konkle.
5. The Remote Danger of Chickenpox and Measles in Children. LeGrand Kerr.
6. Fracture and Dislocation of Dorsal Spine with Complex Rupture of Cord. R. Heitzberg.
7. The Problem of Syphilis as Affecting Our Soldiers. Charles Wolf.
8. Report of Bone Graft Cases. Julius A. Miller.

5. The Remote Danger of Chickenpox and Measles in Children.—LeGrand Kerr points out the importance of the adequate nourishment of children in acute infectious diseases. To this end variety is necessary, not only because there must be a continued appeal to overcome the natural aversion to food, but because, as Woods and Merrill have shown, the giving of two or more food materials at one meal puts less strain on the digestive system than the giving of an equal amount of one alone. Acute infectious disease does require a special dietary, but here two rules should be borne in mind: Due consideration should be given to the patient's previous condition and habits, and as to whether the suggested diet will agree and be acceptable; and no article of food should be forbidden without a definite reason for doing so. Restriction of the diet is often both arbitrary and unnecessary and the idea that a liberal administration of food raises the temperature in the presence of fever is erroneous. The reverse is often true; in very young children a rise in temperature will accompany acute malnutrition. It is a repeatedly demonstrated fact that the lighter articles of diet at least are as perfectly digested in the presence of hyperpyrexia as in conditions with normal temperature. Theoretically, a large proportion of protein would be indicated in the acute infections but practically their administration is impossible, so that the best that can be accomplished is to use the means of conserving the protein by giving fats and carbohydates. The fats are consistently refused, and therefore the carbohydrates seem to meet the situation. The author points out the value of the addition of sugar of milk to drinking water (one ounce of sugar to one pint of water), a fact which is not sufficiently realized. These dietetic points are of the greatest importance in relation to the real danger in chickenpox and measles, the secondary anorexia. Sometimes this follows so closely upon the infection as to suggest that habits formed through the special indulgence of the child have something to do with it. As a rule, however, it is after convalescence is well established that children exhibit a loss of appetite which persists for weeks or months. There is not only lack of desire for food, but a real distaste, which is associated with variation in growth and development. Apart from its influence on the growth of the child, this anorexia may play an important part in the production or furtherance of conditions which favor the development of tuberculosis. Treatment should therefore anticipate the occurrence of secondary anorexia and with the establishment of convalescence after chickenpox or measles, the diet should be above that which would otherwise be considered sufficient. It should be remembered that the anorexia is associated with chickenpox and measles only and not with other infections, that it is independent of the severity of the infection, that it can be distinguished from the anorexias which are the result of habit or associated with the acute features of infectious diseases, and that there is not alone an anorexia, but a real distaste for food. With exception of bronchopneumonia, this secondary anorexia is the most consistently serious complication of chickenpox and measles.

Journal of the American Medical Association.

June 14, 1919.

1. Medicine, a Determining Factor in War: Presidential Address. Alexander Lambert. (See MEDICAL RECORD, June 14, 1919.)
2. Intestinal Parasites in Overseas and Home Service Troops of the U. S. Army, with Especial Reference to Carriers of Amebiasis. Charles A. Kofoid, Sidney L. Kornhauser, and J. T. Plate.
3. The Local Use of Antianthrax Serum in Treatment of Anthrax. Joseph C. Regan.
4. Some Clinical Observations on the Influenza Epidemic at Camp Upton from Sept. 13 to Dec. 1, 1918. Irving P. Lyon, Charles F. Tenney, and Leopold Szorlip.
5. Hypophysial Dystrophy in Hydrocephalus. August Strauch.
6. The Surgical Treatment of Rhinophima. Joseph E. Fuld.
7. Sterility of Catgut. T. Butterfield and Leo F. Ely.

7. Sterility of Catgut.—T. Butterfield and Leo F. Ely were assigned by the Surgeon-General to make bacteriologic examination of catgut manufactured for the army during the period from December 11, 1918, to May 3, 1919. Approximately 15,000 tubes, selected at random, were examined. The number of contaminated tubes found was 1,518, or 11 per cent. As a result of this examination, they have come to the following conclusions: (1) When oil is used as an immersion fluid for the catgut, washing before planting should not be carried out if a fair check is desired on the sterility of the catgut. The suture should be taken from the tube for bacteriologic examination according to the methods commonly practised among physicians when they have occasion to use catgut. (2) Chromicized catgut is slightly more resistant to sterilization by heat than the plain catgut. (3) The infection that is found is either within or on the catgut itself and is not present in the immersion oil alone. (4) From 28 to 30 pounds pressure of live steam for three hours is absolutely necessary to sterilize catgut such as that which was submitted to the authors for examination. (5) Since any contamination may be pathogenic or otherwise, it would seem imperative that some system of federal control should be devised similar to that for biologic products so that all firms manufacturing catgut could be required to adhere to the same standards of sterility.

The Lancet.

May 24, 1919.

1. Lettsomian Lectures (in abridged form) on Jaundice with Special Reference to Types Occurring During the War. Delivered before the Medical Society of London. Lectures I and II. William Henry Willcox, C.B., C.M.G.
2. The Croonian Lectures on the Rôle of the Sympathetic Nervous System in Disease. Delivered before the Royal College of Physicians of London in June, 1918. Lecture II. W. Langdon Brown.
3. Latent Infection of Healed Wounds. Sir Kenneth Goadby, K.B.E.
4. Faradic Stimulation of Nerve and Muscle During Operations. Harry Pratt and E. S. Brentnall.
5. The Use of a Vaccine in a Recent Epidemic in Influenza. F. T. Cadman.
6. Blackwater Fever. J. P. Williams.
7. Cerebrospinal Meningitis: A Clinical Method of Determining the Type of the Infecting Meningococcus. A. S. Gordon Bell.
8. Destruction of Mosquito Larvæ in Streams: A Thorough and Economic Method. Arnold K. Henry.

3. Latent Infection of Healed Wounds.—Sir Kenneth Goadby refers to previous reports made to the Medical Research Committee and published in the Lancet in July, September and November of 1916 on facts relating to "flares" after operation and their prevention by preliminary immunization; also a report made to the same committee on the bacteriology of unhealed excised and non-excised wounds admitted to home hospitals showing (1) the persistence of anaerobic organisms in such wounds, and (2) a diminution in the anaerobic flora directly attributable to the early excision of the wounds, published in the Lancet in May, 1918. The present report, also made to the Medical Research Committee, epitomises further work on post-operative flares with special reference to latent infection in healed and unhealed wounds, comprising cavities containing metal fragments, soft tissues, sequestra, etc., removed for examination during subsequent operations. In all, 226 wounds were studied; 41 which had healed and subsequently broken down, 20 healed from which tissues were removed at operations for resection or freeing of nerves, 40 closed cavities containing metal fragments, and 12 closed wounds from which bone was excised from joints, and 113 unhealed wounds from which bone fragments were removed in either the early stages of the wound or later as sequestra. A considerable number of wounds gave cultivations of

anaerobic organisms of the spore-forming variety and 44 contained *B. welchii*, 17 being healed and 27 open wounds. One hundred and forty cases showed the presence of streptococci of anaerobic type and 89 those of aerobic type; of healed wounds, 57 per cent. showed anaerobic streptococci and 29 per cent. aerobic, whereas in unhealed wounds these percentages were 67 and 50 respectively. The colon-proteus group was not often met with in wounds of from 10 to 100 days, but in those from 100 to 400 days they occurred more frequently. The author points out that in casualty clearing stations streptococci are not found in more than 20 per cent. of recent wounds. It would appear therefore that secondary infection of the wound occurs later, a fact which is not surprising and is probably entirely unpreventable. The results of his observations are briefly summarized by the author in the following conclusions: (1) That healed gas infection is an extremely common occurrence and a serious factor in the promotion of latent sepsis. (2) That anaerobic infection, though persistent in a large proportion of wounds, does not commonly give rise to secondary gas infection subsequent to operation. (3) That the chief cause of temperature reaction, breaking down of wounds at subsequent operations on both healed wounds and sinus cases, which operation was undertaken for the removal of sequestra, may be attributable to certain types of streptococci of facultative anaerobe habit, which have been demonstrated as lying present in wounds for very long periods. (4) That the use of immunization to the streptococci previous to operating on healed and semi-healed wounds, or the removal of sequestra, very greatly diminishes the risk of temperature reaction and subsequent breaking down of the tissues operated on, and he would therefore strongly recommend the routine adoption of streptococcal vaccine in the preparation of wound cases for subsequent operation, especially those involving bone section.

6. **Blackwater Fever.**—J. P. Williams has reached the following conclusions from a study of ten cases of blackwater fever in hospitals on the Gold Coast: (1) The previous history in each case tended to show that the blackwater fever of West Africa is a manifestation of recurrent and inefficiently treated malaria. This is further supported by the fact that immediate and repeated intramuscular injections of quinine, combined with galyl injected intravenously and vigorous hydrotherapy, are a satisfactory treatment. (2) The prophylaxis of blackwater fever is essentially that of malaria. (3) In galyl we have an important remedy, since it apparently has (a) a stabilizing effect upon the hemoglobin, and therefore is antihemolytic; (b) an antiparasitic action; and (c) an accelerating effect on the formation of red blood corpuscles. In one grave case in which it was successfully used the hemoglobin (Tallquist) was only 20 per cent. of the normal. Further, in no case of blackwater fever in which it has been used have any ill effects attributable to galyl appeared. (4) No person who has suffered from blackwater fever should return to an endemic area until after at least four months spent in a temperate climate. The return should be conditional upon an undertaking being given faithfully to observe the conditions necessary for the prophylaxis of malaria, *e.g.*, the taking of quinine as a prophylactic according to a recognized system and the proper use of a mosquito net. Otherwise there is grave liability to a second attack, which would probably prove fatal. Moreover, people who hold, as the author's patients did, that it is not necessary to take quinine systematically in West Africa, are, by spreading their pernicious doctrine, a danger to other Europeans.

The Practitioner.

April, 1919.

1. A Clinical Study of Ectopic Pregnancy. John Benjamin Hellier.
2. The Diagnosis Between Organic and Functional Anesthesia. R. T. Williamson.
3. Some Unusual Cases of Spontaneous Pneumothorax. F. Parkes Weber.
4. The Diagnosis of Myocardial Debility. Richard Thorne Thorne.
5. The Effects of Moderate Exercise on the Blood-Pressures. Gerald Smythe.
6. Retrospect of Otology. Macleod Yearsley.
7. The Treatment of Asthma. R. Stewart.
8. The Anxiety State. An Aspect of Treatment. Laughton Scott.

4. **The Diagnosis of Myocardial Debility.**—R. T. Thorne thinks that no practitioner of experience can fail to have been struck by the not infrequent occurrence of cases displaying evidence of cardiac debility, yet showing no sign of dilatation or valvular murmur on examination. There is probably no physician who has not met numerous cases complaining of shortness of breath, cold and congested extremities, palpitation, and perhaps pain in the cardiac region, and yet the most careful examination fails to reveal any evidence of organic disease. The question therefore naturally arises: Are there no means of ascertaining the condition of the myocardium? Or again, what practitioner of experience has not met the tragedy of sudden death after apparent recovery from pneumonia or diphtheria, perhaps more often in one who appeared, on previous examination, to be in perfect health? Cannot such a calamity be foreseen and prevented? Is there no method by which we can accurately estimate the strength of the myocardium? Is there no instrument which will enable us to detect a weak and inefficient heart? Dr. Thorne believes that the differential stethoscope will supply our need. When we remember that the heart is nothing more than a muscular pump, divided into four compartments and provided with four valvular openings; that in the muscle alone resides the power which carries on the circulation; and that the valves themselves are only of minor importance, we can realize the immense value of being able to ascertain the muscular efficiency of an organ on which life depends, and which is nothing more than a muscular syringe. The latest textbooks tell with regard to the symptoms and signs of myocardial changes or debility that they are uncertain and vague, and we learn practically nothing from them as to diagnosis. In fact, our greatest physicians have had to admit in the past that no exact method was known of ascertaining the condition of the heart muscle. We see a man with pronounced valvular disease continuing his work for years in good health, provided there is adequate compensation. On the other hand, we see cases with no valvular disease suffering from evidence of cardiac debility. What is the explanation? The former has a healthy heart muscle, the latter has not. The differential stethoscope enables us to diagnose the latter condition. The differential stethoscope consists of the usual binaural ear pieces and tubing, which are connected with a hollow aluminum chamber, divided transversely by a septum into two compartments, the upper being connected to the ear pieces by the tubing, the lower having the chest piece attached to it. The center of the dividing septum is pierced by a conical opening, into which a metal cone can be inserted or withdrawn, closing it completely or varying the size of the opening, and thus allowing more or less of the sounds to reach the examiner's ear. The position of the cone is indicated by a pointer on the upper surface of the chamber, and the figures shown there give the values of the sounds passing through the aperture with the cone in varying positions. Now it has been found by experience that the value of the first sound at the apex in a normal healthy heart is about double that of the second sound at the base. For example, in a healthy heart, if the first sound at the apex registers 3.2, the second sound at base will be in the region of 1.6; or if the former is 4.7, the latter will be about 2.4. Thorne calls this the normal 100 per cent. ratio. A ratio falling below 50 per cent. normal standard is, in his opinion, evidence of myocardial debility. To use the differential stethoscope, apply the chest piece to the apex of the heart, having previously rotated the pointer one complete revolution from left to right from the closed position, so that it stands at 0. Now slowly close it, turning the pointer from right to left until the first sound is just not audible, mark the figure on the dial, perhaps it is 3.2. Now place the chest piece over the aortic base, and repeat the same procedure, noting the figure at which the second sound is just not audible, say it is 2.4. Now we have the figures 3.2 and 2.4 giving us a ratio of about 25 per cent. normal; this would indicate a weakness of the myocardium. A normal heart would prob-

ably have given a reading of 3.2, 1.6, 4.7, 2.4, or 6, 3.2. That is about 100 per cent. normal standard. While working at a military hospital Thorne has found the differential stethoscope of great value in detecting malingerers who plead heart weakness, palpitation, and breathlessness, when they do not wish to return to duty. His experience leads him to believe that it can be relied on in the diagnosis of such cases. According to the author, if his facts are accurate, the value of the differential stethoscope can hardly be exaggerated.

5. The Effects of Moderate Exercise on the Blood Pressures.—Gerald Smythe in seeking material for his paper could conceive of no better example of "moderate muscular exercise" than that of the physical training practised as a routine in the army. The British Army Physical Training Manual gives most clearly and concisely the scope of the training soldiers undergo and describes how exercises should be given for the development of every organ of the body, including the brain, which is taught to control the muscles and make them respond readily to any message it should give them. Smythe is of the opinion that an hour of such training can be reckoned as a good standard of moderate exercise, and it was before and after such that he took his blood pressure readings. A summary of the figures derived from Smythe's investigations as to blood pressures by the auditory method, on 100 officer cadets, whose ages varied between eighteen and thirty-nine years and who were all fit men of good physical development and practising moderate muscular exertion, is as follows: 1. The pulse rate tends to be only slightly altered. 2. The systolic blood pressure is lowered by 5 mms. 3. The diastolic blood pressure remains the same. 4. The pulse pressure was lowered 5 mms. All observers seem to be agreed that during the actual performance of an exercise involving physical strain the systolic blood pressure rises, and that when the effort is over there is a fall in the pressure. Smythe's opinion is that during exercise the ventricular contraction is more vigorous, and at first, at any rate, there is no alteration in the peripheral resistance, so that the blood pressure is raised. During the process of exercise the muscles may produce a substance, the result of muscular metabolism, which causes vasodilatation and so lowers the peripheral resistance. Oliver has suggested the formation of lactic acid or some other substance which destroys the adrenalin which maintains the normal muscular tone of the arteries. This is all speculation and there is no proof that any of the above theories is correct. But this we do know, that it is undoubtedly the dilatation of the arteries and capillaries in the muscle bed which causes the fall in blood pressure rather than the weakness of the ventricular force. In Smythe's observations in most cases the heart beat was scarcely altered after exercise. These are the summary of results: 1. The auditory method is the best way of determining the blood pressure for ordinary purposes. 2. The average systolic blood pressure in a resting man between the ages of eighteen and thirty-nine is 125 mms. 3. The average diastolic pressure is 86 mms., and is unaltered after exercise. 4. In the majority of cases the systolic blood pressure is lowered after moderate exercise. The lowering is caused mainly by the dilatation of the arteries and capillaries, and not by fatigue of the heart muscle. 5. The average pulse rate in the series was 78 per minute, both before and after exercise. 6. The effects of moderate exercise on the system are beneficial, inasmuch as the peripheral dilatation caused thereby increases the warmth of the skin, and provokes the flow of sweat from the sweat glands, without taxing the heart to any degree. After physical training on Swedish lines the man finishes up unexhausted and fresh.

Berliner klinische Wochenschrift.

March 17, 1919.

The Genesis of Cicatricial Cheloid from Modern Conceptions.—Menes states that cheloids result from irritations occurring during cicatrization, such as infectious or external causes which naturally predominate in exposed parts, such as the head. As to predisposition, a place should be given to scrofulosis, tuberculosis, and syphilis which interfere with the process of tissue repair. Recurrences occur when prolongations of cheloid tissue invade the surrounding structures and thus the cheloid resembles carcinoma; on account of its histological make-up, which is similar to sarcoma, while from excessive proliferation at the very onset cheloid is to be distinguished from benign fibroma.

Varicose Veins in the Etiology of Sciatica.—W. Alexander studies the literature of this much mooted question. The oft contradictory data obtained from pathological examination being insufficient, one must solve the question by clinical facts. Now, practice contradicts on every point the doctrine that varicose veins may give rise to true sciatica. Therefore, venous ectasis should be eliminated from the etiology of sciatica and placed in the chapter of differential diagnosis. The writer concludes by giving a synoptic table of the elements of this differentiation, all of which are perfectly well known.

Münchener medizinische Wochenschrift.

March 14, 1919.

Nonspecific Protoplasmic Activation.—W. Weichardt and E. Schrader have carried out a quantitative study of this property of the organism to react by means of an increase in the processes of defense against all kinds of substances administered by parenteral routes. The first series of injections were made in rabbits having in the first place received antityphoid vaccination. Under the influence of injections of deuteroalbumose, nucleate of soda, and peptone, a sudden rise in the strength of the antityphoid agglutinins took place. The injections were also given to unvaccinated animals and in them an increase of the agglutinins was produced, although less marked. In this latter series of injections the action of the deuteroalbumoses was not so evident as in the vaccinated animals. From the viewpoint of dosage, the writers were able to note that an increase of the amount of the products injected resulted in a greater activation of the process of defense, but that the general behavior of the tracings nevertheless remained the same for each substance injected. From their experiments, the writers conclude that nonspecific parenteral therapeutics are perfectly justifiable. Treatment with milk injections is included and, in point of fact, give very happy results in the most varied forms of infectious diseases.

The Diagnosis of Aneurysm of the Abdominal Aorta, Particularly Radiodiagnosis.—A. Boettner points out that the diagnosis should include the subjective signs (gastric crises, gastroxynsis, various abdominal pains, etc.); phenomena of compression of the pancreas, ureters, splenic, or renal vessels. When the aneurysm is seated at the level of the mesenteric arteries it gives rise to symptoms of intestinal arteriosclerosis. Paraplegia due to involvement of the vertebræ and medullary compression has even been met with, likewise edemas from compression of the vena cava, etc. Radiodiagnosis, which has been most uncertain until recently, was successfully carried out in two instances by the writer, by taking the following precautions: thorough emptying of the intestine, gastric, and intestinal insufflation, and finally pneumoperitoneum. A pulsatile tumor could then be seen, which was pathognomonic.

Deutsche medizinische Wochenschrift.

March 13, 1919.

The Value of Food in Sufficient Quantity to Satisfy.—O. Kestner remarks, and rightly so, that the estimate of foodstuffs in calories is decidedly insufficient. It is an arbitrary criterion which does not take into account physiological facts, such as the appetite, digestibility, etc., nor of clinical experience which can do without the question of calories but not of the nitrogen content. The writer studies the factors which instinctively guide man in his daily feeding. Hunger is partially produced by "the activity of emptiness" of the digestive organs, this being the result of the absence of the acid gastric secretion. On the contrary, satiety is related to the gastric motor activity and secretion as well as to the blood changes which depend upon it. Now, it is the duration of the contact between the food and stomach which constitutes the satisfying value of a given food;

this duration varies according to the food. The duration of the progress through the intestine of the food is, for that matter, to a certain extent proportional to the gastric time of digestion. Looked at from this viewpoint, foodstuffs possess a much different value from that of their calorimetric value. Meat possesses a value of the higher order on account of the excitor-secretory action of its extract: 200 grams roasted meat provokes secretion of 1246 c.c. and a contact of four hours; 200 grams of toasted bread provokes secretion of 839 c.c. and a contact of two and one-half hours. Generally speaking, vegetable foods have a less satisfying value than meats and a vegetable diet necessitates more frequent meals. It therefore is more applicable to rural professions than to city people who can only partake of two or three repasts a day on account of working hours. Sugars are absorbed slowly and have a slowing action on the passage of food through the intestine, therefore a prolonged satisfying action, so that they should be taken at the end of meals. Various simple or complex dishes are examined by the writer from this essentially practical and really physiological viewpoint.

Gazette des Hôpitaux.

March 22, 1919.

Cocaine Intoxication.—Giroux, who has been associated with Courtois-Suffit, the authority on forensic medicine and hygiene, writes on this subject. The use of the drug is on the increase in Paris and the author is interested in this study in the sniffers only. In the occasional user the effect on the sniffer is not unlike that of alcohol. The subject is filled with energy and must act or talk. The experience is shortlived, seldom lasting over half an hour, and is followed by the most burdensome feeling of lassitude, combined with restlessness. As he walks restlessly about his legs seem to buckle beneath him, and if he lies down he suffers from tachycardia, accompanied by precordial anxiety. He is in a state of acute cocaine poisoning and exhibits pallor, fixity of the eyes, dilated pupils, etc. This state may disappear quickly or only after several hours. To obtain these symptoms the subject must be unaccustomed to the drug or the dose must be large, for the condition described is an intoxication. In a sufficiently small dose the period of exaltation is less strenuous and the reaction limited to depression. In the habitué the first sniff is always disagreeable after the initial euphoria, but the need of a stimulant drives one to take a second, and, unless the sensations which suggest the drug are removed, the subject is bound to become an addict. The latter has his periods of physical excitation following each sniff. Mental workers can concentrate and work rapidly, and do work of an unsuspected excellence. Sociable men talk easily and brilliantly. Men of action are capable of unlimited effort and are tireless. This period of exaltation, however, as in alcoholism, often shows a moral bias. The egotism of the fiend is notable and he cannot bear contradiction, while he is rendered furious by trifles. He does not sleep and suffers from anorexia. In many ways he is like a hypomaniac, and may even exhibit violence toward people or inanimate objects. When his condition is confirmed he has troubles of the special senses which greatly facilitate the development of hallucinations. The phenomena of chronic cocainism are sufficiently well known, but diagnosis may present difficulties. It is not always easy to determine whether the cocainism is acute or chronic. In the masked case marked irritability, cerebral excitation with a fantastic humor, diarrhea, insomnia, loss of appetite, etc., may cause a suspicion of the habit. Cocainism must be distinguished from morphinism and mixed addiction.

Revue médicale de la Suisse romande.

March 19, 1919.

Subalimentation and Edema of Famine.—Guillermin and Guyot state that inanition is something which all medical men have a chance to see in ordinary practice, as in psychoses and cancer of the esophagus. But never up to 1915 had physicians now in practice expected to witness a veritable plague of famine in Europe. This attitude was a natural result of the ever-increasing improvement in transportation; but this optimism had to yield to the effects of war on all of the components—production, conservation, transportation, and distribution. At present few statistics are available. In Cologne, believed to have been fairly well fed, the child mortality, which held its own for years, rose considerably in 1918, reaching over 18 per 100 births. These figures evidently refer to nurslings, as the increase is attributed to inferiority of breast milk. In Keil the amount of scrofula in the school children has doubled during the war. The death rate in Prussia in subjects over 60 has increased nearly 50 per cent. In Koenigsberg the deaths from tuberculosis have doubled. The medicinal doses for the ailing have to be cut down to avoid intoxication—mercury for example in syphilis. Amenorrhea, abortion, post-partum hemorrhage, and still births have increased while gout, obesity and eclampsia have diminished. The specific disease of subalimentation, however, is edema. It has now become well known and even the Swiss physicians see it in French prisoners. Conditions which call for increased consumption of food aggravate it, as cold and severe manual labor. The loss of weight may attain 40 per cent. and the contrast between emaciation and edema is striking. In Germany the condition was first noted in the Russian prisoners and the underfed Poles. Next to emaciation and edema the anemia is conspicuous. Edema may be present anywhere and the distribution resembles that seen in nephritis. The latter, however, is not seen. Hemeralopia is, of course, common. These edema subjects fall an easy prey to epidemics. Scurvy appears more as a complication than part of the disease. This is in contrast to the starving at the siege of Paris in 1871 when edema was merely a forerunner of scorbutus.

Correspondenz-Blatt für Schweizer Aerzte.

March 15, 1919.

Studies in Epilepsy.—Tramer speaks of the apparent absence of all types seen in analysis of many cases of epilepsy. Paroxysms of this affection are seen in any and all psychic or psychopathologic states when the latter are chronic. We may, therefore, speak of cases with and without dementia, with and without affects, etc. The psyche may or may not be normal. In regard to secondary dementia it is often difficult to draw a sharp line between physiological variation and disease. In other words, the mere fact of being an epileptic should in itself affect unfavorably the subject and cause unusual behavior in the soundest mind, while on the other hand the so-called epileptic alteration is seen in nonepileptics. A supposed pathological psyche may after rigorous study be found to be within normal bounds. The author holds a brief for the existence of an acute type of the disease which, while it may persist for a long while, will end spontaneuosly in recovery. In some of these the so-called secondary dementia is plainly in evidence, yet when the attacks cease the patient recovers from this as well. This fact teaches plainly that secondary dementia of authors may be only functional. Of neither the exogenous or endogenous causal factors of the disease do we know much. The epileptic with infrequent attacks—they can be rendered still less frequent with a little bromide off and on—is at times a man of unusual mental power. Another special type is epilepsy with primary mental defect, and this is only too common. In such cases the seizures form the only component to be reached by treatment and bromides and salt starvation may hold back the secondary dementia. The marginal gliosis peculiar to epileptic brains must be looked on as a substitution tissue which replaces the loss in nervous elements.

The Pandemic in Macedonia in the Spring of 1918.—That other territories were attacked as early as Spain appears to be shown by an account of the disease in the French Macedonian army in May-June of that year. This outbreak was at first confused with pappataci fever, but was soon identified with influenza when pulmonary complications set in. It is now fairly certain that the same affection appeared in Spain, Italy, and Macedonia at about the same time, but that for some unknown reason Spain became the chief distributing point.—*Office International d'Hygiene Publique.*

Society Reports.

AMERICAN MEDICAL ASSOCIATION.

Seventieth Annual Session, Held in Atlantic City, June 9, 10, 11, 12, and 13, 1919.

(Special Report to the MEDICAL RECORD.)

SECTION ON DISEASES OF CHILDREN.

First Day—Wednesday, June 11.

DR. FRANKLIN P. GENGENBACH OF DENVER IN THE CHAIR.

Chairman's Address: Our Section in War Work.—Dr. FRANKLIN P. GENGENBACH of Denver made this address. He said that it was fitting that there should be some permanent record of the work done during the war by the members of the Section on Diseases of Children. He had therefore made a survey which included work done in the service of the army and navy, Red Cross work abroad, work in teaching, child welfare work at home, and work in connection with the selective draft and Red Cross work at home. The list of those who had rendered such service was read and placed on permanent record. It showed that 120 pediatrists were registered in this service. Dr. Gengenbach told how the pediatrician had adjusted himself to the care of adults, not a difficult matter since he was first trained in general medicine before he became a pediatrician. He also laid emphasis on the importance of the child welfare work that lay ahead of them.

The "Victory" of Children's Year.—Dr. ANNA E. RUDE of Washington presented this communication in which she reviewed the work of children's year undertaken by the Children's Bureau and the United States Public Health Service. The report dealt with the protection of mother and child, the home care of the child, the care of the child during the school age, recreation, and the child needing medical care. She told of the assistance that they had had in their work from the Women's Council on National Defense with a membership of 11,000,000 women. Statistics were given showing the results of the weighing and measuring in a number of States, and it was shown that the results of the work of children's year were already visible in the many permanent activities that had been established following this campaign. At the International Conference on Child Welfare recently held in Washington minimum standards of child welfare work had been submitted. These were later presented and discussed at the regional conferences which were held in different cities throughout the country. At the general session of the Washington conference the economic and social aspects of child welfare were discussed. The details of these standards were presented. They included age minimum, educational minimum, physical minimum, hours of employment, etc., for children; minimum standards were presented for the protection of mothers and children, of infants and children during the preschool age, of school children and adolescents; standards for children needing special care with reference to home care, adequate incomes, removal of children from their homes, principles governng child placing, the care of children of illegitimate birth, rural social work, recreation, juvenile court, the mental hygiene of defective children, and child welfare legislation.

Sir ARTHUR NEWSHOLME of England stated that what he had seen at the regional conferences confirmed what Dr. Rude had said, though she had given but a bare outline of what he had observed in reference to the result of this work. The great value of the work was not expressed by the actual weighings and measurements. Even inaccurate weights and measurements had some value in that they drew the attention of the mothers to the importance of keeping their children in good physical condition. He emphasized the importance of having a physican available in connection with child welfare work and of having him consulted at frequent intervals. He had on a former occasion made a rather exaggerated statement, saying that doctors, as a rule, did not know a well baby when they saw it. That was not really true, but it was true that it was only exceptionally that a doctor had the opportunity of seeing well babies. If they saw healthy babies more often they could better detect the early signs of disease. In England one-third of all infants were periodically examined and nothing short of medical supervision would suffice. It might for some time be necessary to have baby weighings without doctors, but we must work toward medical supervision. The help of the medical profession was needed in this work because it deserved their very best support.

The Pediatrician at Home During the War.—Dr. FRANK C. NEFF of Kansas City, Mo., presented this paper, in which he said that practically all pediatricians had offered their services to the Government, Red Cross, draft board, or other war agencies. Many who volunteered for army work were not called. Teaching hospital, dispensary, and child welfare work were maintained by them. Their work was increased because of the responsibilities brought about by the shortage of physicians and the great amount of sickness. Pediatricians had taken an active interest in the care of the children of men who were in the service. The war had shown the value of child conservation and had shown the need of child welfare work in rural districts as well as in cities. The pediatrician stood ready to do his part in a program offered by the lessons of the war, namely, the betterment of child life, so that it might grow to the strongest physical, mental, and moral manhood.

Dr. J. M. DODSON of Chicago emphasized the point that Dr. Newsholme had made, that the physician rarely saw the well baby, normal baby, and thought that every school teaching pediatrics should have a postnatal clinic or a child welfare station in connection with it. If there was to be a choice as to whether the student should see normal or sick babies, it was better that he should see normal babies. If the student knew the normal baby and how to care for it, the sick baby would be reasonably safe in his hands. He also called attention to a fallacy in the argument that all defects found in the draft examinations were due to errors in the early care of children. Many were rejected for defects of vision that could not be blamed on early care. Defects of vision were responsible for 11 per cent. of the rejections. Diseases of the circulatory apparatus were responsible for 13 per cent. of the rejections, and it was extremely rare that physical culture would have prevented these diseases. There were 11 per cent. of rejections because of hernia, and certainly physical culture would not prevent hernia.

Dr. PERCIVAL J. EATON of Pittsburgh called attention to the deterioration in the milk supply during and since the war. It had thus far shown no tendency to come up to prewar standards. The bacterial count ranged from 2,500 up to 100,000, and even up to 259,000. Letters written to the secretaries of milk companies in different parts of the country had shown the same thing. The pedatrician should take up this matter and try to restore the quality of the milk as we had it before the war.

Dr. S. MCC. HAMILL of Philadelphia asked if in the decision upon these standards pediatricians had been consulted. He asked this because child welfare was a community problem involving all other sanitary problems and social and economic problems.

Dr. F. V. DAVIS of Chicago made a plea for closer cooperation between the obstetrician and the pediatrician. She expressed the opinion that there should be a pediatric clinic in connection with every maternity hospital, and the student could also study the normal baby in the maternity wards.

Dr. H. F. HELMHOLZ of Chicago brought out the point that the man who took care of the sick child was not necessarily prepared to do preventive work, because in order to do effective preventive work an entirely different mental attitude was necessary. It took six months to teach a nurse the proper attitude in reference to preventive work. The fact should be emphasized that preventive work was different from the practice of medicine, and that it took special training in order to be able to do such work as it should be done.

Dr. RUDE, in closing, replied to Dr. Hamill's question by giving the names of pediatricians who had assisted them in arriving at these minimum standards.

Dr. NEFF emphasized the need of medical supervision in child welfare work and recommended the plan

adopted in Massachusetts. The work should be done through the cooperation of medical and social service agencies, but should be kept free from politics.

The Work of the Children's Bureau of the American Red Cross in Lyons.—Dr. CLIFFORD G. GRULEE of Chicago made this presentation, which was illustrated by lantern slides.

Dr. FRANK LAMB of Cincinnati, who had worked with Dr. Grulee, spoke of the condition met with in France. He said there was comparatively little malnutrition. After they had organized to take care of contagious diseases they had very few of them. There was very little congenital syphilis. Nearly every child when it came under ther care had fleas, 75 per cent. had lice, and many had scabies and impetigo. The latter sometimes occurred in a very severe form; he had seen four cases in new-born babies where it led to the development of meningitis. He had never seen that in this country.

The Artificial Feeding of Athreptic Infants.—Dr. W. MCKIM MARRIOTT of St. Louis presented this communication, in which he used the term "athreptic" in reference to the well-known condition of extreme malnutrition of infants known as marasmus, or infantile atrophy. The condition of athrepsia was a condition of virtual starvation in which the volume flow of the blood was diminished. This diminished flow of the blood was dependent, in part at least, upon a decreased blood volume, seemingly the result of a decreased protein content of the plasma, and consequent inability of the blood to maintain its water content. Very considerable amounts of food were indicated to meet this condition, yet the tolerance of many of these children for food was low, and digestion and absorption were necessarily poor. The tolerance of the infant for food might be increased by the use of gum acacia saline mixture intravenously, as the writer showed in the Proceedings of the American Pediatric Society for 1919. The problem still remained of providing a food containing the elements essential to nutrition, and which could be fed in large amounts without causing gastrointestinal disturbances. In cases in which breast milk was not available, the use of lactic acid milk could be taken in larger amounts than sweet mlk. They had come to regard buttermilk and protein milk as their chief reliance in the feeding of infants with gastrointestinal disturbances. Fat free lactic acid milk, however, was low in caloric value. The carolic value might be increased by the addition of sugar and starch, but even when enriched by sugar addition it was not particularly adapted to the feeding of athreptic infants, particularly those under three months of age. There was no reason *à priori* why the fat should all be removed from lactic acid milk. In order to furnish the additional carbohydrates required by these athreptic infants they had employed the dextrines and glucose, the latter being absorbed with great rapidity. Glucose was very readily fermentable and hence had not been used extensively in infant feeding. The dextrines, on the other hand, were not readily fermentable. It therefore seemed that commercial glucose, otherwise known as corn syrup, being a mixture of dextrin, glucose, and maltose, might be suitable for the purpose. They had added carbohydrate in the form of corn syrup to the whole lactic acid milk and used it in feeding athreptic infants, and the results were as would have been anticipated. There was no tendency to diarrhea, even when as much as 10 per cent. of the carbohydrate was added. There seemed to be almost no limit to the amount of carbohydrate that could be added to such a milk mixture. In addition a 5 per cent. solution of corn syrup might be given between feedings, almost *ad libitum*, as a means of supplying further calories The thick syrup was rather inconvenient to handle and could best be used in a solution containing 50 per cent. carbohydrate. As such a mixture was thick a nipple with a large hole must be used in feeding. Up to the present time the writer had fed forty infants, varying in age from one and one-half months to 18 months, from periods of four days to eight weeks. The amount of carbohydrate added varied from 10 to 15 per cent. A gain in weight was noted in these children when a sufficient caloric intake was reached, and generally continued steadily for days and weeks, interrupted only by acute infections. Few infants whose weight was as low as 50 per cent. of the normal weight for the age gained on less than 160 calories per kilo, and many required 200 calories or more. The gain in weight in these infants was not due to a process of "water logging." There was no tendency to edema and none of the excessive flabbiness observed in condensed milk babies. It might be noted that, although the food described contained a high percentage of carbohydrates it was also high in protein and fat, the relative proportions being not unlike those of ordinary milk mixtures. Ths mixture as described contained from 25 to 30 calories per ounce. In concluding, Dr. Marriott emphasized the fact that he did not consider this type of feeding as a panacea for infants. It was simply a type of food that enabled one to administer a considerable amount of nourishment in an easily assimilable form.

Dr. FRITZ B. TALBOT of Boston said this paper gave a great deal of food for thought. One point brought out was that the underweight child required more calories than the normal child of the same age. That had been brought out in their experimental work on basal metabolism. That was a point overlooked in the past because of the teaching they had had. There was one point not brought out, and that was that a large number of these athreptic infants had a subnormal temperature and if the temperature could be restored to normal they would begin to gain. These children were very tolerant of sugar, but they had to be watched closely, for when the sugar went above a certain percentage they might get diarrhea. Perhaps with the type of sugar that Dr. Marriott had used this was not so likely to occur.

Dr. ALFRED F. HESS related his experience with twelve infants fed on this form of sugar. These babies did exceedingly well on corn sugar. Corn syrup was cheaper than cane sugar, and if it were shown that it was absorbed better it would be of great value.

Dr. J. P. CROZER GRIFFITH of Philadelphia said he had asked the chief resident physician of the Children's Hospital in Philadelphia if he were compelled to choose one kind of diet for an infant what it would be, and he said buttermilk; that was the common buttermilk mixtures. He was glad to hear Dr. Marriott's paper, which corroborated his own experience as to the ability of the child to take a large amount of sugar. He had had little fear of high percentages of sugar. It was often difficult to have the parents prepare the buttermilk because it required some judgment, and for this reason he had tried to get away from buttermilk by making a milk of the same percentage composition, but it did not work as well as the buttermilk, and this was probably due to the presence of the lactic acd in the buttermilk. They had been told by Finkelstein that fat would be tolerated by these children if the protein and whey were reduced in quantity, and that was his idea.

Dr. CHARLES GILMORE KERLEY of New York said that Dr. Marriott's paper had impressed him very favorably indeed. He had used a great deal of lactic acid milk, having used largely the fat free product or a very weak percentage of fat in intestinal disorders, and when the intestinal disorders cleared up other food was substituted. He would not have had the courage to have used sugar in the large quantities that were mentioned in the paper. He would be interested in giving it a trial, as carbohydrate was a necessity in these very marked cases of malnutrition in little babies. He had been giving carbohydrates in these cases in the form of starch and barley water. His procedure had been to use unsweetened evaporated or condensed milk cooked with starch and then the sugar added afterward, and that had given him the best results.

Dr. I. H. KERLEY of New York said that in these marantic cases there were many difficulties caused by casein of cow's milk forming hard curds, while that of mother's milk made a flocculent curd. He had had great success with evaporated milk which was heated and the protein molecule broken up so that it did not form a hard curd. One ounce of evaporated milk contained two and one-half calories, so that the caloric value might be increased by the use of evaporated milk, and then maltose or glucose added. Two per cent. lactic acid milk had given wonderful results in diarrheal diseases in children and its use was specially indicated in such conditions. In marasmus protein milk finely divided gave good results.

Dr. HENRY F. HELMHOLZ of Chicago related his ex-

perience with commercial corn syrup. They had used it in 125 babies in their milk station with very good success. They had used it as they would use a sugar and flour mixture. However, when the summer was over the nurses said that if they were going to keep on using the syrup they would leave, because of the difficulty of handling the syrup. He asked Dr. Marriott if he had found a way of handling the syrup conveniently. If it could be more easily handled, corn syrup made a cheap and excellent addition to the foods that were suitable for infants.

Dr. Lewis Hill of Boston said that he had felt for some time that one of the most important things in infant feeding was the proper understanding of the use of carbohydrates, particularly sugar. He was glad to hear what Dr. Kerley said, for he had done the same thing and wondered if he was right or wrong. Some years ago he and Dr. Talbot increased gradually the amounts of carbohydrates and kept the other elements of the food the same, and they found that the high carbohydrate content increased the nitrogen and salt retention. He believed this was because the carbohydrate acted as a nitrogen sparer. He had fed rather low protein, just enough to cover the nitrogen needs of the body, and had supplied the necessary number of calories by a mixture of maltose and dextrose. He found that babies could take 10, 12, or 14 per cent. of carbohydrate, and that the gain in weight under such feeding was not due to water retention. He believed there was a tpe of infant with an alkaline intestine that needed a great deal of carbohydrate. Such babies were likely to be constipated and were helped by being kept on a high percentage of carbohydrate until they gained weight or had diarrhea.

Dr. T. C. McCleave of Oakland, Cal., said he had been pondering for some years as to how to give more carbohydrates to certain types of children, and in some instances this had been explained by the method of feeding Dr. Marriott had described. He would like to ask about the intervals between feedings. He suggested that possibly the secret of being able to give a larger amount of fat was dependent upon the particular combination of carbohydrates furnished in the corn syrup. The glucose was immediately absorbed and the maltose in a little longer period. The proper absorption of the protein and fat was dependent upon a proper amount of carbohydrate. It seemed to him the beneficial effect of this method of feeding carbohydrates might be explained by this particular combination of sugars, together with the milk sugar that was normally present in the milk.

Dr. Marriott, in closing, referred to the point raised about the subnormal temperature, and said this opened up a very interesting question. In speaking of the pathogenesis, he had referred to the diminished volume of blood and the fact that the flow of blood was diminished. As the volume of blood was increased the subnormal temperature tended to disappear and the child began to gain. He thought the subnormal temperature was dependent on the diminished volume flow and that when the volume flow was increased the temperature was raised and the child began to gain. As to the method of preparation they boiled the milk, cooled it, inoculated it and put it in a thermos bottle over night. They made the corn syrup up in 50 per cent. solution and then this thin solution could be mixed easily. The feeding intervals were four hours, six feedings in twenty-four hours, that gave 280 calories per kilo body weight, so it was not necessary to feed more frequently. As to the effect of the carbohydrates on the fat, the carbohydrate influences fat absorption in two ways in the intestinal tract. A certain amount of carbohydrate was required for the absorption of the calcium salts and it was an advantage in intestinal metabolism. They had found no trouble with acetone bodies from the feeding of these high percentages of carbohydrates in the form of corn syrup. While the high percentage of carbohydrate was being fed the stools of these children were watched very carefully, and if there was a loose stool the corn syrup was stopped at once.

The Deleterious Effect of Alkalinization of Infants' Food.—Dr. Alfred F. Hess of New York read this paper, in which he made the statement that in the preparation of infants' food no regard was paid to its reaction, and such substances as sodium bicarbonate were added without thought in this regard. The same was true as regards proprietary foods. Most of them were of alkaline reaction, some of them in a high degree. The writer found that the antiscorbutic vitamine was peculiarly sensitive to an alkaline reaction and rapidly deteriorated in milk that had been rendered alkaline. He attributed the frequent occurrence of infantile scurvy in infants fed on malt soup preparations to the potassium carbonate which it contained. Experiments on animals seemed to confirm his conclusions. He suggested that potassium citrate be used by the manufacturers of proprietary foods instead of the alkaline potassium carbonate. He also suggested that this question of reaction might play an important role as regards other vitamines and that it might not be innocuous that cod liver oil was rendered alkaline in the preparation of the emulsions commonly employed.

Dr. Harry Lowenberg of Philadelphia expressed the opinion that while this work of Dr. Hess's was very interesting and enlightening it seemed hardly fair to draw such sweeping conclusions from one case and four guinea pigs, convincing as the data seemed to be in the light of clinical experience. He had yet to see scurvy develop in a case fed on alkalinized food. He had fed many infants on malt soup extract and potassium citrate and he never fed orange juice, so it was difficult to allow his convictions to be swept away by a report of this kind. He would like to see the work carried on still further.

Dr. Julius Hess of Chicago called attention to the fact that when Keller gave the formula for the use of malt soup he distinctly warned against their use for long periods on account of the possibility of their producing scurvy. In prescribing a food of this kind it should be understood that it is not to be given indefinitely without the supervision of a physician.

Dr. Charles G. Kerley of New York stated that one of the criticisms against the paper was that it was too conclusive and it proved the point too definitely. They did not have difficult feeding problems settled quite so readily. They had been feeding alkaline foods for years and yet they saw very little scurvy. He felt that the case against the alkalinization of food so far as its interference with the vitamine content had yet considerable to be said about it. As to the use of malt soup producing scurvy or having a tendency to produce scurvy over other means of feeding, Dr. Hess was right. He would not think of feeding an infant on a malt soup mixture without the use of orange juice at the same time because it certainly had a tendency to produce scurvy more than any other type of feeding he had encountered. He felt that if alkalinization of the food was a factor in the production of scurvy they would see more scurvy than they did.

Dr. J. P. C. Griffith of Philadelphia referred to a report of the American Pediatric Society presented some years ago in which they found that certain proprietary foods produced scurvy, and at that time the claim was made that it was not the proprietary foods but the boiled milk with which they were prepared that were responsible for the scurvy. It was true that the feeding of proprietary foods might be followed by scurvy, but perhaps simply because the scurvy followed the feeding the conclusion should not be drawn that the scurvy was due to that particular food. He had seen ten breast-fed babies develop scurvy, yet he would not like to say that the breast milk produced the scurvy. He felt that they did not have sufficient knowledge on this point as yet to state that the alkalinization of food was responsible for scurvy, for if that were true they would be seeing scurvy all the time.

Dr. St. Geo. T. Truman of Richmond, Va., said that during the last two years he had been looking for scurvy and had seen more than during the ten years before, and he felt that these cases came from the use of certain proprietary foods.

Dr. J. I. Grover of Boston said he felt rather sure that scurvy was not rare. They saw a case every two, three, or four days. He felt that the boiled and dried foods were responsible for the condition.

Dr. Lewis Hill of Boston said it was sometimes necessary to use certain proprietary foods in order to get a proper amount of carbohydrate, and he felt that

it was safe to use them if a proper amount of orange juice were given.

Dr. E. V. Davis of Chicago said she also protested against the condemnation of malt soup because it was prepared and sold as a proprietary food. She had seen healthy babies produced on such a preparation and they did not have scurvy if they were not fed on such a food too long. If she employed a food of that kind she added vegetable soup, orange juice, or carrot when the child was seven or eight months old. She stated that they had been putting soda into their beans, for they fed bean soup, but her attention was called to the fact that the soda was said to kill the vitamines and she had stopped adding it to the beans and indeed had stopped the use of alkalies to a certain extent, but she still thought the question as to the effect of alkalies in the food was unsettled.

Dr. E. C. Fleischner of San Francisco said he thought they were losing track of the subject which they were discussing; they were not discussing the etiology of scurvy. No one doubted that a certain amount of raw cow's milk kept a child free from scurvy. He brought out the point that a highly alkaline food could be given if large amounts of milk were used with it for there would then still be enough vitamine present to prevent the development of scurvy.

Dr. Frank C. Neff of Kansas City said it was brought out in the course of the discussion that dextromaltose was useful for the relief of constipation. In his experience when potassium carbonate was added there was no such relief.

Dr. Alfred F. Hess, in closing, said Dr. Kerley had answered the question with reference to malt soup as a factor in the production of scurvy. He could not explain it but if 100 children were fed on malt soup, they would get almost 100 cases of scurvy; he did not mean active cases with bulging red gums, subperiosteal hemorrhage, etc., but the mild cases with pallor, petechial spots, and tenderness of the femur. He thought there was a little misunderstanding in regard to malt soup. Malt soup contained 1.1 per cent. potassium carbonate, which was a larger amount of alkali than was present in some of the other foods. The statement had been made that he had insufficient basis for his conclusions. He could have duplicated the case and the experiments with the guinea-pigs many times over. He knew of no particular in which an animal scurvy differed from human scurvy and an antiscorbutic for guinea-pigs was an antiscorbutic for human beings, so that we could accept animal scurvy in the interpretation of human scurvy. Someone brought up the point of dried foods as a cause of scurvy. He did not think the drying was a cause, because he had recently shown that dried milk subjected to high temperature still retained its antiscorbutic qualities.

Second Day—Thursday, June 12

Relief Work in France.—Dr. W. S. Ramsey of St. Paul made this presentation. He stated that he had arrived in this country only two days ago after having been in France for a year. He described the conditions among the refugees when he arrived in France. His special work had been the organization of relief work in the sector in which Rouen was located. They had there from 5,000 to 10,000 Belgian refugees and from 25,000 to 30,000 French refugees, so that great overcrowding prevailed everywhere in that locality. His first undertaking was the establishment of a dispensary in which he had a French personnel, as he had refused to take in any Americans. Many of the children were very poorly nourished and impetigo was very prevalent among them. He described the way in which he had gained the cooperation of the mayor of the city, and described how he succeeded in winning the support of the midwives. The midwives in that locality cared for about 90 per cent. of the confinement cases and were strongly organized, and the social workers soon found that they could not do their work effectively with the antagonism of these women, so he sent for their leader and explained what he was trying to do for the women and children and succeeded in gaining their cooperation. He had also succeeded in interesting religious workers and in gaining the collaboration of one thousand factory workers. He described the way in which he had succeeded in establishing a maternity hospital, a social service work, a training school for social service workers, a prenatal clinic, playgrounds, and dental clinics, and a farm colony. Much of this work would be permanent in character.

Dr. J. P. Sedgewick said that Dr. Ramsey had not said much about the kind of illness encountered among the refugees. It was largely impetigo and allied troubles. When one took into consideration the difficulties with which Dr. Ramsey had to contend he thought they must all agree that he had done more than any of the other child welfare workers who had gone to France, and he had done it with very little aid from the Red Cross. He had succeeded in getting the French to furnish much assistance. If he had done as much as Dr. Ramsey had done he should feel very proud indeed.

Hemangioendotheliosarcoma of the Liver: A Disease of Early Life.—Dr. John A. Foote of Washington, D. C., presented this communication, in which he stated that he had recently reported a case of hemangiothelioma of the liver in an infant, and cited four others previously reported. A study also of the histories of a number of so-called primary hemangiosarcomas of the liver in infants led him to the conclusion that some of these at least were really hemangioendotheliomas and should be so classified. Because of the confusion in terminology, and since, according to Adami, the actively growing tumors of transitional lepidic character had also from this standpoint to be considered as sarcomatous, the writer had suggested that all malignant hemangiomas of this type be called hemangioendotheliosarcoma. He summed up the information gained from the study of ten cases from which he concluded that hemoagioendotheliosarcoma of the liver was a congenital disease manifesting itself by an enlargement of the liver and some digestive disturbances within three months after birth, and caused by rapid and unrestrained proliferation of the endothelium of the liver capillaries, causing the formation of nodules on the surface of and within the liver and a rapid and progressive increase in the size of that organ, with a fatal termination usually before the sixth month as a result of pressure and obliteration of liver tissue. Jaundice and ascites were not usually observed and metastases were not found. The liver was purplish in color, studded with nodules varying in size from a millet seed to an egg. Some of the nodules were confluent. These nodules were lighter in color than the surrounding tissue, and were also seen throughout the liver in cut sections, as dark red in the center surrounded by a lighter colored ring. Histologically the liver showed an infiltration of the more normal areas with small round cells. In places the liver cells were distorted, atrophied, and vacuolated. The interlobular connective tissue was increased. The smaller blood vessels were choked with large endothelial cells, some showing mitotic figures. The nodules were surrounded with a fibrous area of compressed liver tissue. In some places this fibrous band showed laminae containing degenerated liver cells. The larger nodules were packed with large round or irregular cells with large nuclei, some areas resembling myxosarcoma. Giant cells and neutrophiles were also seen in some areas. Hemorrhagic areas were also noticeable in some fields.

Observations on the Spinal Fluid of Acute Disease.—Dr. William W. Herrick of New York and Dr. Arthur M. Dannenberg of Philadelphia, presented this paper which gave the results of a study of the meningealchoroidal complex in relation to miscellaneous acute diseases, other than meninigitis and poliomyelitis. After reviewing known facts about the anatomy, physiology and pathology they stated that headache, irritability, hyperesthesia, exaggerated reflex activity and delirium, were inaugural features of perhaps the majority of acute infections of any degree of severity. Only when these symptoms of meningeal irritation were prolonged and severe did they ordinarily attract attention. Recorded determinations of globulin, sell counts, etc., in cases of meningismus, were surprisingly few. The cerebrospinal fluid of pneumonia had been fairly well studied by Voisin. Others have found pleocytosis, globulin increase, and pressure changes in isolated examples, or rarely in a small series of cases of scarlet fever, mumps,

enteric fever, pertussis, measles, rabies, diphtheria, sepsis with or without meningismus. The writers had examined the cerebrospinal fluid of over 100 miscellaneous medical conditions with symptoms of meningeal irritation, and had correlated their findings with other clinical and laboratory features of the diseases studied —as temperature, leucocytosis in the blood, degree of meningeal irritation and prognosis. No very direct relation of the reaction of the subarachnoid system to any of these features is apparent. Of 12 cases of labor pneumonia examined, 7 gave a cellular reaction in the cerebrospinal fluid of from 12 to 200 cells; 8 had globulin increase. In 14 cases of bronchopneumonia, 5 had pleocytosis of from 12 to 50 cells. Of 14 cases of influenza, 5 showed from 14 to 40 cells. But 3 had globulin increase. Three cases of follicular tonsilitis had pleocytosis, one showing 172 cells. Of 28 miscellaneous acute medical conditions, 17 showed cerebrospinal fluid pleocytosis, 4 globulin increase. Among these were examples of sepsis, scarlet fever, smallpox, and measles. The writers concluded from a review of the literature and personal study of 76 cases not resulting in meningitis that beyond question the cerebrospinal fluid often gave evidence, in increased pressure, pleocytosis, and heightened globulin content, of a reaction on the part of the leptomeninges to the infective agents or toxins of a large number of miscellaneous acute diseases, not ordinarily causing true meningitis. These diseases were lobar and bronchopneumonia, influenza, tonsillitis; the exanthemata, scarlet fever, measles, variola; herpes zoster, parotitis, enteric fever, sepsis, arthritis, pleurisy, migraine, reaction to typhoid inoculation and others. The cerebrospinal fluid showed variation from the normal in about one-third of the cases studied. Most, but by no means, all of the cases with subarachnoid reaction had clinical meningismus (Meningitis serosa, Dupre). On the other hand, many examples of meningismus were without pronounced changes in the cerebrospinal fluid. The greatest caution should be used in making a diagnosis of meningitis or poliomyelitis from fever, meningismus, and the changes in the cerebrospinal fluid mentioned. Cases with less than 100 cells should be viewed with skepticism, unless clinical, epidemiological, or other laboratory evidence was decisive.

Quantitative and Qualitative Changes in the Cerebrospinal Fluid and Their Significance.—Dr. Abraham Levinson of Chicago stated that this study was undertaken with a view to finding out whether there were any changes in the spinal fluid in meningism, chemical or physicochemical in nature, and what these changes were both qualitatively and quantitatively. Among 155 cases that presented some form of meningeal involvement they had been able to secure spinal fluids in 100 cases of meningism, in which the symptoms soon subsided and the miningism disappeared. All of these 100 cases showed an increase in the amout of prenssure of the cerebrospinal fluid. They did not find very many normal spial fluids among these, as no case was subjected to lumbar puncture unless the indications were very definite. In this series he had found the pressure varying from 200 to 700 mm. while 90 mm. was the normal. They had used an apparatus which permitted no loss of fluid. The normal spinal fluid was practically neutral, but on standing became more alkaline, and hence in making observations on spinal fluids one must take into account the length of time the fluid had been standing. They had investigated the electrical discharge of cerebrospinal fluid protein; the behavior of the spinal fluid toward precipitants; the hydrogen-ion concentration and alkaline reserve, and had studied the changes in the fluid in various forms of meningitis. Acidosis seemed to have no influence on the hydrogen-ion content and the alkaline reserve. The quantity of the protein in the cerebrospinal fluid was not as important as the quality. There were certain quantitative and qualitative changes that were of diagnostic value. The alkaline reserve was lower in tuberculous meningitis than in suppurative meningitis, being a little below normal. Since the cerebrospinal fluid was a fluid of the body it was reasonable to believe that whenever there was retention of a chemical substance in the body there would be an increase of those substances in the spinal fluid. For instance in nephritis there would be an increase in chloride retention and there would be a corresponding increase in the chlorine in the spinal fluid; in uremia one would expect to find an increase in the amount of urea in the spinal fluid; in glycosuria one would expect an increase in sugar. The cerebrospinal fluid was influenced by the blood in the cranium. Any irritation reaching the brain would accelerate the circulation in the cranium and this would be accompanied by increased pressure and an increased amount of blood in the subarachnoid space which would affect the spinal fluid. The amount of precipitin was a useful diagnostic feature in distinguishing between tuberculous and suppurative meningitis. The spinal fluid of nearly all cases if allowed to stand showed a precipitin while in cases of meningism there was no sediment in the spinal fluid on standing. In the classification of spinal fluid changes both qualitative and quantitative changes must be taken into account. There was no evidence of acidosis in meningism. The changes in the spinal fluid were due to mechanical causes, and included changes in the chemical and chemicophysical nature and in the cytology. The changes that occurred in the course of metabolic disease were shown by the spinal fluid by increase in chlorides in nephritis, of sugar in diabetes, and of urea in uremia.

Dr. Charles Gilmore Kerley of New York said he was sure the entire Section thanked Dr. Herrick and Dr. Levinson for having left their section in order to read these very highly scientific papers to them. These papers were valuable in establishing something definite in our knowledge of the relation of pathogenesis to the cerebrospinal fluid. They knew that there was an increased cell count and a positive globulin in pneumonia, scarlet fever, and mumps. Their knowledge in reference to the spinal fluid in may other conditions was very indefinite. The finding of a cell count of 172 in tonsillitis, of 200 in pneumonia, and of over 40 in a large number of other disorders must have a very direct clinical value. It was of great importance to know that there must be a much larger cell count than had hitherto been thought necessary before deciding that one was dealing with a particular disease. This knowledge would have been of the greatest value in the late epidemic of poliomyelitis when it was given out that a cell count of over ten established the diagnosis of poliomyelitis. A tonsillitis with a cell count of 173 would have landed the patient in a poliomyelitis hospital. There was no doubt but that during the epidemic many cases of poliomyelitis were wrongly diagnosed because of the lack of just such information as had been given them this afternoon.

Dr. Isaac Abt of Chicago said that Dr. Levinson's paper had opened up a new and fertile field. He thought they had not yet settled the question of the cell count. With reference to the term meningismus, we ought to define just what was meant. They all saw cases with definite meningeal symptoms in conditions such as typhoid fever and these meningeal symptoms would disappear and the disease would continue and run its course. Of course in the spinal fluid of such cases there might be some slight and insignificant changes but one would never find the changes that were present in true meningitis. The point to be emphasized was that the spinal fluid was a body fluid and reflected the changes going on in the organism just as did the other fluids of the body.

Dr. W. S. Ramsey of St. Paul said he had not heard a paper for years that was so beneficial as both of these papers were. They demonstrated what we had supposed for several years, namely, that there was an increased intercranial pressure both in cases in which one found real bacterial infection and where one did not. During the epidemic of poliomyelitis there was an epidemic of that disease in Norway and Sweden and the doctors did not know with what they were dealing and a variety of forms of poliomyelitis were demonstrated which were designated meningitis serosa. He had found one or two cases with all the symptoms of severe meningitis and after removing the spinal fluid that was under pressure those cases became normal almost at once and the fluids were completely sterile. It was difficult to say whether those cases were a type of poliomyelitis or whether they simply gave the signs of poliomyelitis as a result of pressure. The most practical thing to know was that one got an increased pressure in all sorts of conditions. Dr. Ramsey cited several

cases of conditions in which there were meningeal symptoms that lasted but a brief time and then cleared up and that served to illustrate that we frequently met with cases giving the symptoms of meningitis and which could not be differentiated except by lumbar puncture.

Dr. Alfred F. Hess of New York said that the most interesting part of this discussion had been with reference to meningismus which must have bothered most clinicians for many years. On this question the papers differed absolutely. The first paper stated that changes were found in the spinal fluid in meningism and the second stated that changes were not found in the cell count and chemistry. In view of this difference of opinion it might be worth while to say a few words in regard to the work of the Bureau of Laboratories of New York City. Dr. Neal had been studying spinal fluids for six or seven years and her results might be summarized by saying that in the examination of six or seven hundred cases of miningism during this period she found the cell counts normal in almost all these cases of meningism and the chemical examinations were normal in the cases of meningism except under certain circumstances as, for instance, in convulsions, especially with whooping cough, and in cases in which there was a suppurative condition near the meninges, as an otitis medial continuing for a week or ten days. A point he wished particularly to bring out was that in the acute cases running one or two days one kind of cell count would be found and those cases that had been running for a week or more would have a cell count resembling meningitis.

Dr. H. L. F. Locke of Hartford, Conn., stated that they had found that in meningism the cell changes were only of a minor character but where puncture was delayed five, six or seven days they had found a moderate increase in the number of cells and the amount of globulin. The reason was that cerebral congestion delayed the absorption of the fluid in these cases, and the longer these cases were allowed to go without puncture the more likely it was that changes would be found in the spinal fluid.

Dr. Herman Schwartz of New York expressed surprise that if the puncture was done early a cell count of 170 should have been found in a case of tonsilitis and he was not entirely convinced that a cell count of 60 or 70 was not of some value. Usually one found the sugar in the blood increased in certain inflammatory conditions but in most cases in which were real inflammatory conditions present in the brain the sugar was also increased in the spinal fluid.

Dr. Fritz B. Talbot of Boston said there was one point these papers brought out very clearly and that was that the same mistake had been made in this phase of medicine that had been made in all phases of medicine, namely, that they first studied the pathology and did not study the normal. It was very encouraging to see so much normal data being recorded. He hoped this tendency would be emphasized and developed.

Dr. W. R. Sisson of Boston spoke of his experience at Camp Lee in Michigan when the first cases of encephalitis lethargica occurred. They had at the same time a large number of cases of mumps, many fulminating in type, and a large number giving meningeal symptoms. He found a pleocytosis of 200 cells and they came to recognize mumps as not only involving the parotid gland and testicles but also the meninges and they noted that the presence of mononuclear cells had some significance; whether they were of endothelial origin or not they represented some reaction to bacterial infection.

Dr. Morse of New Haven said that in cases with meningeal symptoms they first made a blood culture and they had found positive cultures in a considerable number of cases. That led them to do a lumbar puncture and they had made cultures of the spinal fluid and found the meningococcus in considerable numbers in the spinal fluid, but the organisms were present in some cases that did not show meningeal symptoms. This suggested the possibility that the organisms might get into the spinal fluid in a greater number of instances than we had recognized without setting up inflammatory changes in the meninges which could be grossly recognized though there might be a response in the cells.

Capt. Arthur M. Dannenberg of Philadelphia said that in answer to the question whether the spinal fluids were examined early or later on, all were done immediately on the admission of the patient to the hospital, in from fifteen minutes to one hour. In the course of an acute tonsilitis the examination might be made after the patient had been in the hospital for several days and the lumbar puncture was an afterthought.

Dr. Herrick, in closing, said the English speaking clinician was behind the French and German clinician in regard to the investigation of this subject. A number of French and German investigators had shown that in a variety of acute infections there was a positive reaction as shown by changes in the cerebrospinal fluid. It was in only about 30 per cent. of their cases of meningism that these changes in the spinal fluid were found; that left a considerable majority without reaction. The work of Dr. Levinson was interesting as pointing out the possibilities of a detailed study of the chemistry of the cerebrospinal fluid. In the last analysis the diagnosis depended upon the demonstration of a bacterial infection. An increased pressure was an inaugural feature in acute infections and was defensive as it effected an increased consolidation of the meningeal choroid plexus. The practical point was that cases with less than 100 cells were usually not to be regarded too seriously unless one could demonstrate the etiological agent concerned.

Dr. Levinson said the discussion had brought out the timeliness of emphasizing two points. He believed that in medicine there was a tendency to generalization and the time had come when this tendency should be combatted. They had been inclined to place a little too much emphasis on the cytology of the spinal fluid and the time seemed to have come when they should give more attention to the chemical and chemicophysical side. They should see the spinal fluid as part of the normal organism, as a body fluid regulated by all the factors that were regulating the blood stream. If the blood pressure in the cranium was increased they must expect an increased spinal fluid pressure, and changes in the chemistry of the spinal fluid in uremia, diabetes, and other conditions. A study of the spinal fluid must not be confined to the investigation of the cytology, but must include the chemistry, chemicophysical characteristics, and the bacteriology, all taken into connection with the clinical findings.

Pneumonia in Infancy and Childhood Without Physical Signs.—Dr. Rowland G. Freeman of New York made this presentation which he illustrated with lantern slides. He stated that the question whether there could be a real pneumonia without physical signs had not been discussed and this possibility was not definitely stated in textbooks. The best opinion was that in children a positive diagnosis could be made without the presence of physical signs in the chest when there existed several of the following symptoms: Fever, overactivity of the alæ nasi; a pneumonic type of respiration, and a pause at the end of inspiration accompanied by an expiratory grunt; a relation between respiration and pulse of approximately one to three; rigidity of the lower extremities, and an effort on the part of the child to protect a sore chest. Notwithstanding this, in consultation he had found men surprised when a diagnosis of pneumonia was made without physical signs. It was of great importance that the possibility of the existence of pneumonia without physical signs be recognized, especially in a child who had acquired a respiratory infection where the ears had been involved and the temperature was persistently high and the question arose as to whether a mastoid operation should be done. Since the adoption of the use of the *x*-ray in hospital practice pneumonia had been found where no physical signs of its existence had been discovered and even after its discovery by the *x*-ray the physical signs were not found. There was urgent need for an *x*-ray apparatus that could be used in private houses; Dr. Freeman cited three illustrative cases all of which showed approximately the same area of the right lung involved and the consolidation in none of the cases ran up to the apex. It might be considered an involvement of the right middle lobe. If, however, it was the right middle lobe it should be possible to obtain signs over the anterior portion of the chest. It seemed to him much

more probable that the involvement was of the right upper lobe and that the signs were obscured because in order to hear them one would have to listen through the right scapula. It was not remarkable that no signs could be detected in the right axilla.

Dr. W. S. RAMSEY of St. Paul said that there was no question but that not infrequently pneumonia occurred without physical signs and it might go on to resolution without the signs being found. These might be central pneumonias. Dr. Freeman had mentioned the one sign by which to recognize pneumonia without physical signs and that was the pause at the end of inspiration and the expiratory grunt. One seldom had pneumonia without this characteristic breathing.

Dr. ERNEST ZUEBLIN of Cincinnati agreed that the physical signs in pneumonia might be more or less missing. In the recent epidemic they had had their attention drawn to a particular shadow in the intrascapular region which would correspond to the right middle lobe or the apices of both lower lobes; there might exist also a difference in dullness and the whispered voice might be increased together with a harsh expiration. Usually the shadows could be followed with the fluoroscope.

Dr. CHARLES G. KERLEY stated that these cases were most instructive and suggested that if a great many other diseases were subjected to *x*-ray examination much additional light might be thrown upon them. His recent observations on persistent chronic gastrointestinal disorders served to illustrate this point.

Dr. LAURENCE R. DEBUYS said he remembered Dr. Freeman's paper on this subject a few years ago and since that time his experience was very much as follows: Many cases of pneumonia went on to convalescence without physical findings. This was due to the fact that consolidation did not extend to the hilum. The plan he used was whenever he found the clinical picture of pneumonia and no physical signs was to arrive at the diagnosis by exclusion.

Dr. WALL of Washington said someone had asked for the symptomatology in these cases of pneumonia without physical signs. They had observed two types of dyspnea in children, the dyspnea of asthmatic bronchitis and acidosis and that of pneumonia. They had observed a dyspnea which was absolutely central in origin, associated with toxemia, pyrexia, or hyperpyrexia. It had been their observation that the dyspnea in pneumonia was a more or less stable condition and was unaffected by sleep.

Dr. GODFREY R. PISEK of New York said that if these cases of pneumonia without physical signs were carefully observed at stated periods he thought that some physical signs would be found. If these cases were carefully watched one usually got the signs before the drop in temperature. Sometimes the signs might be present only a few hours and then disappear.

Dr. LOUIS FISCHER of New York called attention to the fact that in addition to the *x*-ray, which was not adapted to private practice, the differential blood count was valuable. In pneumonia one found a high polynuclear percentage and a high leucocyte count, the polynuclear count running up to 70, 80 or 90, and with this finding one could establish a diagnosis even without physical signs.

Dr. ZUEBLIN spoke of the possibility of there being a pleurisy. If there was a pleural exudate it would not clear up so quickly as these cases had done. These cases did not look like pneumonia. There was no marked acceleration of respiration. There was a high blood count but none of the other symptoms that one looked for.

A Comparative Study of the Early and Late Secondary Complications of Influenza and Influenza-Pneumonia as Seen in the Army with Those of Infants and Children in Civil Practice.—Dr. JULIUS HESS of Chicago presented this communication which was based on the replies to a questionnaire received from forty-five teachers of diseases of children in practically all parts of the United States. There were in all data with reference to 3117 cases. In the analysis to classify these cases they had been divided into three groups, private practice, hospital, and institutional cases. The analysis included a comparison of the morbidity, nature, and severity of complications in the adult, child and infant, and of the relative severity and character of the pandemic in different sections of the United States and foreign countries, in children and infants. A few of the many points brought out were that there was a tendency toward family contagion. In children there was less tendency toward serious complications than in adults in the same family. Leucocytosis was a prominent finding, there being as high as two to four thousand cells per cm. The blood pressure in uncomplicated influenza of moderate degree was systolic from 104 to 126; there was an average of 42 pulse pressure. Adults and children showed practically the same results in reference to blood pressure. The percentage of children developing pneumonia varied greatly. It seemed that children were more susceptible to pneumonia in the first wave and infants in the second. Children on the whole seemed to show a lower morbidity and mortality, 15 to 56 per cent. In the army the incidence averaged 15 to 25 per cent. The morbidity was higher among children during the second wave than during the first in private practice, while the reverse was true in the lower classes. The most frequent complications were otitis media and empyema. The empyema occurred in the subscapular region in one or both lobes in 75 per cent. of the cases. All agreed that second attacks were rare. They, however, had had three distinct secondary attacks at the Michael Reese Hospital. Other frequent complications mentioned were laryngitis, epistaxis, and sinusitis. Severe jaundice had occurred in one per cent. of all cases, with swelling and induration of the liver. Cardiac deaths were frequent in adults. In most autopsies in soldiers the right heart was found dilated. Most reports stated that this finding was not common in children. Endocarditis was a rare complication. A considerable number of systolic murmurs were noted that were absolutely due to the epidemic. Emphysema was a rare complication in children. Some cases showed meningism, with the cerebrospinal fluid under pressure, and a slight or moderate increase in globulin and a cell count rarely exceeding 50. Encephalitis was rare and was only seen late in the epidemic. Abdominal complications, pseudo appendicitis and tympany, were rare. A persistent cough was one of the most common complications. Severe secondary anemia and chronic forms of anemia were comparatively rare in children. Secondary anemia in soldiers was a rather common finding. Pulmonary tuberculosis had not been noted to date as following influenza. They had come to the conclusion that pulmonary tuberculosis was an infrequent complication, nevertheless in the absence of marked changes the diagnosis of pulmonary tuberculosis could only be made by careful study. Among the hospital cases there were 1,085 recorded with a mortality of 9.2 per cent. In private practice the mortality among children was 2.4 per cent. and 4.8 among infants. The mortality of hospital cases was from two to four times as high. In well organized institutions the mortality had been exceptionally low. The general impression from this study was that influenza in children was much less severe than in adults and that in private practice the prognosis was better than in hospitals. Pneumonia and secondary pneumonia in children was less severe than in adults. Influenza was a disease involving the respiratory system with a special predilection to the production of capillary bronchitis or lobar pneumonia.

(*To be continued.*)

Silver Nitrate Poisoning Not an Occupational Disease.—The Illinois Appellate Court holds that silver nitrate poisoning is not an occupational disease and is not incident to the making of mirror glass. In order for silver nitrate poisoning to be peculiar to the work or process carried on in the manufacture of mirrors in a factory, or to be incident to the work or process, so as to constitute the disease an occupational disease within section 1 of the Illinois Occupational Diseases Act, it must have happened before and must be such a disease as those familiar with the process would realize was likely to occur.—Arnell v. Superior Mirror Co., 210 Ill. App. 486.

INDEX TO PAGES.

Pages	Date of Issue
1— 46	Jan. 4
47— 88	Jan. 11
89—134	Jan. 18
135—176	Jan. 25
137—222	Feb. 1
223—264	Feb. 8
265—310	Feb. 15
311—348	Feb. 22
349—390	March 1
391—428	March 8
429—470	March 15
471—508	March 22
509—550	March 29
551—588	April 5
589—630	April 12
631—672	April 19
673—718	April 26
719—760	May 3
761— 806	May 10
807— 852	May 17
853— 894	May 24
895— 940	May 31
941— 982	June 7
983—1036	June 14
1037—1080	June 21
1081—1134	June 28

INDEX.

A

Abdomen, distended, radiological diagnosis with a new method, 207.

Abdominal catastrophes, influenzal, 662; complications of the influenza epidemic at Camp Custer, Mich., 577; diagnosis, a new radiological procedure for, 207, 798; phenomena in gunshot injuries of the spine, 338; section, purgation before and after, 261.

Abortion, artificial, in antiquity, 108.

Abrams, Albert: the medical treatment of appendicitis, 484; the splenic reflexes of Abrams in the treatment of syphilis, 96.

Abscess, cerebellar, report of successful operation for, by obliteration of the lateral sinus and exploration and drainage through its inner wall and anterior surface of cerebellum, 274; large pelvic, due to foreign body in the posterior vaginal wall, 421; perisinus, a case of acute mastoiditis with, following influenza pneumonia, operation performed under novocaine and morphine anesthesia, 323; perisinus and epidural mastoid, subsequent to influenza, report of five cases, 819; pulmonary, following aspiration of sea water, 302.

Acanthosis nigricans in the cancerous, 537.

Accident and pre-existing disease, strangulated hernia, 733; find carelessness cause of, 414; heat prostration an, 486; industrial, an analysis of two hundred and sixteen, 685; industrial, causation and prevention of, 745; insurance, presumption against suicide, 63; poison voluntarily or involuntarily taken, 733; policy, meaning of "infection" in, 150; traffic, 656; where sunstroke held an, 63.

Acclimatization, as to, 569.

Acid, homogentisic, as a chromogenous product, 118.

Acidosis and operation, 833; diagnosis of, 741; iodine urine test for, 925; of epidemic influenza, alkali treatment applied to the, 661; simple urine test for, 404.

Acne, cheloid, of the neck, pathology of, 443.

Acromegalia, a familial affection resembling, involving the skeleton more particularly, 789.

Act, Harrison anti-narcotic, construction of, 638; held valid, 1100; see also *Drug*.

Addison's disease and sclerodermia, 378.

Adenomata of the sudoriparous glands, 1069.

Adenomyomata containing uterine mucosa, distribution of, 977.

Adrenalin, value of provocative injection of, in latent malaria, 252.

Advertising, modern, and the nostrum evil, 122; physicians, moving against, 699.

Aerophagy, the minor symptoms of, 886.

Albumin, heterospecific, the prevention of the phenomena of hypersensibility in the parenteral exhibition of 293.

Albumosuria, Bence-Jones', with lymphocytic leucocythemia, a case of, 206.

Alcohol, glycerine and, the purchase of, 71.

Alcoholic drinks, sale of, 1014.

Alcoholism, chronic, in Switzerland, 965.

Alkali treatment applied to the acidosis of epidemic influenza, 661.

Alkalinization of infants' food, deleterious effects of, 1115.

Alkaloids, isoquinolinic, (Isochinolin-alkaloid) of opium and emetine, choice of, and their therapeutic uses, 378.

Allen's, Major H. R., instantaneous method of reshaping tool handles so that they may be used by deformed or crippled hands, 269.

Allen, Walter C.: use of musk in pneumonia; not a scientific drug, and subject to gross substitution, 356.

Alopecia, post-influenzal, 402, 496.

Amaurosis from quinine synthetics, nature of, 368.

Ambulance corps, demobilization of the, 576.

Ambulatory chair, an, 260.

America, the spas of, 448.

American board of ophthalmic examinations, the, 370; expeditionary forces, some experiences with U. S. A. base hospital No. 37, 945; field service, closing of the, 748; gifts to Portsmouth, 450; hospital in London, 971; journal of care for cripples, the, 330; memorial, an, 450; peace mission, quarters for the, 114; Red Cross, see *Red Cross*.

Amputation stumps for voluntary movement of the arm prostheses, formation of, 162.

Amputations, cinematic, the utilization of the muscles of a stump to actuate artificial limbs, 1004.

Analgesia, visceral, in tabes dorsalis, 665.

Anaphylactic shock, acute, slow intravenous injection of antiserum to prevent, 291.

Anemia, alimental, in nurslings and early childhood, 797; aplastic, 253; chlorotic type of, in infants and children, 171; diagnostic significance of urobilinogen in the differentiation of cancer and, 536; severe, of pregnancy and the postpartum state, observations on the, 251; symposium on, at annual meeting of medical society of the State of New York, 932.

Anesthesia, 300; and eutocia, 981; local two hundred and fifty major operation under, 135, 167; sacral, a preliminary report, 991; spinal, has, established itself? 875.

Anesthetists, nurses as, 966.

Aneurysm of the abdominal aorta, diagnosis of, particularly radiodiagnosis, 1111.

Angina, pemphigoid, in influenza, 285.

Animated diagram in femoral hernia operation, remarks on the value of, 258; Taylor's technique, tendon transplantation for flat foot, 259.

Anthrax cured by neosalvarsan, 201.

Antimonium tartaratum, intravenous injections of, in bilharziosis, 118.

Antiserum, slow intravenous injection of, to prevent acute anaphylactic shock, 291.

Antitoxin, studies on a toxin of gas edema and its, 581; the treatment of tetanus by injections of, in the lateral ventricle, 619.

Antituberculosis campaign launched, 967.

Aorta, spontaneous rupture of a healthy, can it occur, and how does it take place? 163.

Apoplexy, suprarenal, the clinical picture of, 253.

Appendectomy, a new incision for, 638.

Appendicitis, medical treatment of, 484; acute, in the aged, 611; acute, pneumonia, acute empyema, pneumococcic peritonitis, their differential diagnosis, 102; chronic, notes on two signs in, 298; chronic, study of postoperative end results, 978; chronic, the two most important signs in, 55, 88.

Appendix, human, function of the, 293; the migratory, 497.

Appliances, safety, permanent exhibition of, 744.

Army ambulance service, United States, the, 375; avitaminoses in the, 364; death rate in, from battle and disease, 365; deaths in the, 789; distinguished services, citations for, 699; doctors accused of negligence, 605; experiences of a urologist with the fighting forces in France, 757; health of the, 440; honors for service men, 927; industrial, our duty to the, 260; leaves area at Nice, 532; laboratories, future of, 108; laboratory and the prevention of infectious disease, the, 996; little insanity in the, 740; losses in the United States forces, 282; malignant grippe in the, 281; medical officer, the return of the, 664; poliomyelitis in the, 501; social disease in the, 383; some notes on the examination of five thousand selected service registrants, 300; suicides in, 522; urological department, administration of, 759.

Arsenic in syphilis, administration of, 422; quinine and, prevention of grippe by, 34.

Arsphenamine, administration of, 791.

Arterial pressure, high, unusual tolerance, especially in women, to, 1076.

Arteriosclerosis, juvenile, 618; pathogenesis of, 535.

Arthritides, sporotrichosis, 923.

Arthritis, tonsilectomy in myositis and, 795.

Artificial limbs, cinematic amputations, the utilization of the muscles of a stump to actuate, 1004; see also, *Prostheses*.

Aspirin, incompatibility of quinine and, 69.

Asthenia, cardiac, a case of mitral lesion with, the ventricular weakness being demonstrable by the venous pulse, 33; neurocirculatory, N. C. A., 1068.

Asthma, a theory of, as confirmed by nearly four hundred cases, successfully treated, 393; bronchial, a clinical study of four hundred patients with, 421; of nasal origin, 580.
Ascites, a new operation for, 456.
Atrophy, tabetic optic, the treatment of general paralysis of the Insane by the introduction of salvarsanized serum into the lateral ventricle and a suggestion for the arrest of, by the same means, 839.
Aulde, John: dietary deficiency and disease, practical pointers on health maintenance, 518.
Auscultatory percussion, 561.
Autointoxication symptoms, origin of so-called, 116.
Autolysates, organ extracts and, action of, 163.
Automobile fatalities in 1918, 70; plague in Washington, medical and legal aspects of the, 858.
Autopsy, necessity for demand for, 486.
Autoserotherapy of influenza, 743.
Autoserum treatment of chorea, 1070.
Aviation candidates, observations on the medical examination of, 116; medical aspects of, 454; problems of, research work on the, 545; recruiting for, 113; sanitary, on the edge of the Sahara, 659.
Aviators, nasal obstruction in, 376; the ear and the, 211; vestibular reactions in five hundred and forty-one, 496.
Avitaminoses in the army, 364.

B

Bacillus botulinus, effect of heat on the spores of the, its bearing on home canning methods, 160; diphtheria, has normal horse serum an action on experimental injection of the guinea-pig with the, 754; fusiform, infection, a clinical and bacteriological study of, 932; influenza, culture of the, 76; Morgan's, in chronic discharging wounds, the occurrence of, 663; or disease, which should be treated in influenza, 519; Pfeiffer, production of indol by certain strains of the, 973; tumefaciens, gas gangrene due to infection with a new pathogenic anaerobe, the, 884; Weil-Felix, the agglutinative power of the, 709; Weil-Felix, on the frequency of the, 456; Yersin's, and influenza, 368.
Bacterial invasion, the role of cell necrosis and, in surgery, 471; protein injections in influenzal pneumonia, 616; vaccines, prophylactic or curative value of, 1102.
Bactericmia, tuberculous, and massive exogenous tuberculous infection in man, 432.
Bacteriological and serological essentials for the prophylaxis and treatment of gas edema with a polyvalent serum, 1019; diagnosis of diptheria, 798; findings in epidemic influenza, 492.
Bacteriologists, Italian, the pneumococcus and, 26.
Bacteriology and vaccines, report of the committee of the American Public Health Association on, 82; of the present influenza epidemic, 76.
Balfour sleeve resection closure of colostomy, carcinoma of the recto-sigmoid, colostomy for acute intestinal obstruction, 502.
Bandler, Samuel Wyllis: a therapeutic suggestion concerning endocrines, 429.
Barany's drum and reflex winking in the diagnosis of simulated deafness, the use of, 709.
Baruch, Simon: Influenza—a comparison, 52; the spas of America, 448.
Base hospital, the internal administration of the medical service of a, 692.
Bassler, Anthony: the psychology of success in medicine, 633.
Baumann, L.: a course in medical dietetics, 1051.
Beck, Emil G.: what shall be done with the open chronic suppurations of the chest cavity? 770.
Behrend, Moses: pneumonia, acute empyema, acute appendicitis, pneumococcic peritonitis, their differential diagnosis, 102.
Belgian doctors' and pharmacists' relief fund, closure of the, 419.
Belgium, university union with, 451.
Bell's facial palsy, study of etiological factors bearing on the therapeutics of, based on a review of 177 cases, 319.
Benedict, A. L.: auscultatory percussion, 558.
Bent back in soldiers, etiology of, 281.
Biggar, J. L.: rehabilitation in Canada, 821.
Bilharziosis, intravenous injections of antimonium tartaratum in, 118.
Biliary surgery, factors which determine the relative degree of cure in, 263.
Bill, Davenport-Donohue, protests against, 527; dogs, protection, 792, 925; medical services, see *Health*; ministry of health, see *Health*; to aid tuberculous poor, 573; Smith drug, defeated, 572; to make state sell milk, 247; to restrict vivisection, 923.
Biological principles in surgical practice, value of, 839.
Bipp, flavine and, in war surgery, 106.
Birth rate, annual, and the toll of youth, 372; rate, effect of war on, 1108; registration of, Congress asked to aid, 1063; and deaths in Illinois, registration of, 126; statistics in United States for 1917, 1104.
Bishop, L. F.: the importance of the adoption of electrocardiography and orthodiagraphy as routine measures in the management of disorders of the heart, I.
Blackwater fever, 1110; etiology of, 152.
Blackwell, Hugh B.: perisinus and epidural mastoid abscess subsequent to influenza, report of five cases, 819.
Bladder, irritable, in women, 296; symptoms in spinal cord disease, the recognition and management of, 976; urinary, a gauze sponge spontaneously expelled from the, 297; urinary, hydatid cysts of the, 368.
Blind, war wounds leave many, 196; of warfare, 163; of warfare, experiments with, 163.
Blinded in the war, 282; reeducation of the, 285.
Blood, action of quinine on the, 33; changes induced by a milk diet, 881; platelets, pathology and clinical indications of, 338; pressure and physical fitness of the soldier, 161; pressure, high arterial, unusual tolerance, especially in women, to, 1076; pressure in healthy men, 535; pressure, preoperative and postoperative, as an aid to the differentiation of shock hemorrhage, a clinical study of, 978; pressure, theories regarding, 929; pressures, effect of moderate exercise on the, 1111; regulation of the composition of the, 842; treatment of diseases of the, and injections with protein bodies, 1019; vessels, large injured, the suture of, 570.
Boehme, Gustav F.: a true case of mediastinal emphysema, 1052.
Bolduan, Charles F., and Benjamin S. Warren: war activities of the United States public health service, 863.
Bolsheviki kill incurables, 445; Petrograd under the, 176.
Bone grafting in gunshot fractures of the jaw, 162; substance, loss of, and non-union following gunshot injuries, 938.
Bonnier, Pierre: method of nasal cauterization in the treatment of certain chronic affections, 564.

Book Reviews:
Abdominal reflexerne et klinisk bidrag til reflexeren, by G. H. Mourad-Krohn, 799.
Ambulance de l'Océan (La Panne), Vol. VI, No. 1, published under the direction of A. Depage, edited by A. P. Dustin and G. Debraisieux, 620.
American Red Cross abridged textbook on first aid, by Charles Lynch, 711.
American Red Cross textbook on first aid and relief columns, by Charles Lynch, 756.
American Red Cross textbook on first aid, women's edition, by Charles Lynch, 711.
Anatomy, surgical applied, by Sir Frederick Treves, seventh edition, revised by Arthur Keith and W. Colin Mackenzie, 380.
Automatic functions and the personality, by Ed. J. Kempf, 540.
Autotherapy, by Charles H. Duncan, 756.
Bacteriology, principles of, by A. A. Eisenberg, 165.
Beverages and their adulteration, origin, composition, manufacture; natural, artificial, fermented, distilled, alkaloidal, and fruit juices, by Harvey W. Wiley, 667.
Chemistry, colloid a hand book of, by Wolfgang Oswald, trans. by Martin H. Fischer, with notes by Emil Hatschek, 583.
Chemistry, inorganic and organic, with toxicology, textbook of, by R. A. Witthaus, revised by R. J. E. Scott, 540.
Chirurgie de guerre, leçons de, by Cl. Regaud, 620.
Clinical diagnosis, by J. Campbell Todd, 209.
Clinical medicine for nurses, by Paul H. Ringer, 756.
Clinical medicine, treatise on, by William Hanna Thomson, 35.
Commotions et émotions de guerre, by A. Leri, 540.
Diabetes and its dietetic treatment, by R. D. Basu, 756.
Dictionary, a practical medical, by Thomas Lathrop Stedman, 200.
Diet, effect of, on endurance, by Irving Fisher, 120.
Dietetics for nurses, by Fairfax T. Proudfit, 340.
Disabled soldier, the, by Douglas C. McMurtrie, with introduction by Jeremiah Milbank, 975.
Dispensaries, their management and development, by M. M. Davis and A. R. Warner, 165.
Doctor's discovery, a, or the elixir of life, by John Haddon, 583.
Doctor's part, the. What happens to the wounded in war, by James Robb Church, 78.
Drugs, indigenous, of India, by J. C. Ghosh, 975.
Electro-pathology, studies in, by A. White Robertson, 540.
Electro-physiology (animal and vegetable), studies in, by Arthur E. Barnes, 583.
Eye, hygiene of the, by William Campbell Posey, 254.
Factory statistics in the investigation of industrial fatigue, use of, by Philip Sargent Florence, 799.
Food and drugs, aids to the analysis of, by C. G. Moor and William Partridge, 35.
Genitourinary diseases and syphilis, by H. H. Morton, 78.
Genitourinary diseases and syphillis, a compend of, including their surgery and treatment, 3rd ed., by Charles S. Hirsch, 340.
Glaucoma, by Robert H. Elliot, 295.
Gunshot fractures of the extremities, by Lt. Col. Joseph A. Blake, 340.
Gynecology, by Wm. P. Graves, 35.
Gynecology, manual of, by J. C. Hirst, 254.
Hearts of man, the, by R. M. Wilson, 295.
Histopathological technic, compendium of, by Emma H. Adler, 380.
Hospital accounting and statistics, fourth edition, compiled by Wm. V. S. Thome, 799.
Human machine and industrial efficiency, the, by F. S. Lee, 165.
Hydrotherapy, rational. A manual of the physiological and therapeutic effects of hydriatic procedures and the technique of their application in the treatment of disease, by J. H. Kellogg, 120.
Infection and resistance, by Hans Zinsser, with a chapter on "Colloids and colloidal reactions," by Professor S. W. Young, 209.
Internal secretion, the organs of, their diseases and therapeutic application, by Ivo Geikie Cobb, 711.
International clinics, Vol. II, 28th series, 1918, edited by H. R. M. Landis, 340.
Intravenous injection in wound shock, by W. M. Bayliss, 799.
Johnson's standard first aid manual, edited by Fred B. Kilmer, 340.
Lice and their menace to man, by Ll. Lloyd, with chapter on trench fever by W. Byam, 799.
Litiasis urinaria, estudio clinico de la, by Angel Pulido Martin, 975.
Long heads and round heads, or what's the matter with Germany, by Wm. S. Sadler, 78.
Massage and the original Swedish movements, their application to various diseases of the body, by Kurre W. Ostrom, 756.
Medical clinics of North America, the, Vol. 2, No. 3, November, 1918, 756.
Medical electricity, by H. Lewis Jones, 209.
Mental diseases, by W. V. Gulick, 165.

Microscopy and chemistry, clinical, by F. A. McJunkin, 711.
Muscles, action of, including muscle rest and muscle reeducation, by Wm. Colin Mackenzie, 78.
Nature of things, on the, by Hugh Woods, 295.
Neoplastic diseases, by James Ewing, 254.
Neurological clinics, edited by Joseph Collins, 120.
Neuropsychiatry and the war, prepared by Mabel Webster Brown, edited by F. E. Williams, 120.
Nose, throat and ear, a manual of diseases of the, by E. B. Gleason, 254.
Nutrition, the newer knowledge of, by E. V. McCollum, 120.
Obstetrics, notes on pathological and operative, by Lyle G. McNeile, 799.
Obstetrics, the principles and practice of, by Joseph B. De Lee, 295.
Organic chemistry, introduction to, by J. T. Stoddard, 165.
Orthopedic treatment of gunshot injuries, the, by Leo Mayer, with introduction by E. G. Brackett, 620.
Oxford looseleaf medicine, edited by Henry A. Christian and Sir James MacKenzie, Vol. I, Part I, 583.
Paper work of the medical department of the United States army, a guide for administrative work, by Ralph W. Webster, 756.
Pathological technique, by F. B. Mallory and J. H. Wright, 540.
Pathology, text-book on, by Francis Delafield, XI edition, revised by Francis Carter Wood, 975.
Pediatrics, the practice of, by Charles Gilmore Kerley, 667.
Pharmacy, a compend of, by F. E. Stewart, rev. and enlarged by H. W. Younken, 254.
Physiological chemistry, practical, 6th ed. by Philip B. Hawk, 340.
Physiology, a manual of, by G. N. Stewart, 295.
Physiology and biochemistry in modern medicine, by J. J. R. Macleod, 667.
Physiology, text-book of, for medical students and physicians, by Wm. H. Howell, 711.
Psychoneuroses de guerre, traitement des, by G. Roussy, J. Boisseau, and M. D'Oelsnitz, 667.
Progressive medicine, edited by H. A. Hare, assisted by L. F. Appleman, December, 1919, 540.
Projectiles Inclus dans le médiastin, les, by René le Fort, 620.
Quarterly medical clinics, Vol. I, No. 1, January, 1919, by Frank Smithies, 667.
Reeducation, physical, and occupational, of the maimed, by Jean Camus, 756.
Rockefeller institute for medical research, studies from the, Vol. XXVIII, 1918, 165.
Roentgen diagnosis of diseases of the head, by A. Schüller, trans. by F. F. Stocking, with foreword by E. Sachs, 540.
Roentgenotherapy, by A. F. Tyler, 711.
Speech training for children, by Margaret Gray Blanton and Smiley Blanton, 711.
Squibb's atlas of the official drugs, by Wm. Mansfield, 799.
Statistical manual for the use of institutions for the insane, 120.
Studies from the department of medicine, Cornell University Medical Bulletin, Vol. VIII, No. 3, January, 1919, 756.
Surgery, essentials of, by Archibald Leete McDonald, 799.
Surgery of oral diseases and malformations, their diagnosis and treatment, by G. Van Ingen Brown, 78.
Surgical clinics of Chicago, the, Vol. II, No. 4, August, 1918, 620.
Surgical clinics of Chicago, the, Vol. II, No. 5, October, 1918, 583.
Syphilis, paludisme, ambiasis, traitement initi'el et cure de blanchiment, by Paul Ravaut, 295.
Trebalis de la Societat de Biologia, Barcelona, Vol. 5, 1917, 78.
Tropical diseases, the diagnostics and treatment of, by E. R. Stitt, 667.
Tuberculous, information for the, by F. W. Wittich, 120.
Unsound mind and the law, the, by G. W. Jacoby, 165.
Urethra, male, diseases of the, including impotence and sterility, by Irvin S. Koll, 35.
Vaccines and sera in military and civilian practice, by A. Geoffrey Shera, with introduction by Sir Clifford Allbutt, 295.
War neuroses, by J. T. MacCurdy, with preface by W. H. R. Rivers, 165.
War surgery, abstracts of, prepared by the division of surgery, surgeon-general's office, 254.
War surgery from firing line to base, by Major Basil Hughes and Capt. H. Stanley Banks, with special chapters by Lt. Col. L. F. Smith and Miss C. Bilton, and an introduction by Col. Sir T. Crisp English, 380.
War surgery of the abdomen, by Cuthbert Wallace, 380.
Wassermann test, the, by Charles F. Craig, 35.
X-ray manual, United States Army, 799.

Bott, E. A., training for lay workers in functional restoration, 856.
Bradbury, S., and E. B. Krumbhaar: notes on a month of influenza at a base hospital in France, 594.
Bradycardia, clinostatic, 201; edema disease and, 422.
Brain, an original device for the control of hemorrhage from the large sinuses of the, by invulsion of the outer wall into the lumen, with report of a successful operation for cerebellar abscess, etc., 274.
Brains and milk, 58.
Bram, Israel: peculiarities in the symptomatology of exophthalmic goiter, 358.
Breads, a comparison of, 610.
Breathing gymnastics for the marching soldier, 101.
Brights disease, the conditions which precede, 742.
British cross for three American surgeons, 834.
British medical association, Coventry situation and the, 242; special clinical meeting of the, 290, 373, 793, 836.
Bronchiectasis secondary to obstruction of the bronchi by tuberculous lymph nodes, 169.
Bronchitis, hemorrhagic, Castellani's bronchopulmonary spirochetosis, 74.
Bronchopneumonia, influenza and, the treatment of by the use of human serum, 541; meningococcus, in influenza, 292.
Bronchoscopic and esophageal cases, five recent, 361.
Bronchoscopy and laryngoscopy, relation of, to the field of general medicine, 304.
Brooklyn, a medical center, plan to make, 1012.
Bubonic plague in Argentina, 201.
Bulkley, L. Duncan: cancer death rate in New York City during 1918, 112; medical versus surgical treatment of cancer, 177.
Burns, mustard gas, 300.
Burrow, J. Fleming: war lesions of the peripheral nerves, 905.
Bushnell, G. E.: experimental evidence as to immunity from tuberculous infection, 89; tuberculous bacteriemia and massive exogenous tuberculous infection in man, 432.

C

Cadbury, Wm. W.: typhoid vaccine as a therapeutic agent, 144.
Caisson disease, Stoffel's operation for, 344.
Calcium and neosalvarsan, the treatment of the pulmonary complications of influenza with, 207; preliminary note on the response of, shown in maniacal states, 796.
Camp work in the United States, organization, foot inspection, shoe fitting, moving pictures, 936.
Camphor, large doses of, especially in influenza, 119.
Camphorated oil, intravenous injections of, in the asphyxiating types of grippe, 293.
Canada, housing question in, 158; prohibition in, 158.
Cancer, acanthosis nigricans in the, 537; and anemia, the diagnostic significance of urobilinogen in the differentiation of, 536; bilateral mammary, presenting unusual features, 216; death rate in New York City during 1918, 112; deep radiotherapy in the gynecological clinic at Erlangen, particularly from the viewpoint of the dosage of the rays in the treatment of, 665; false teeth as a cause of, 275; general mechanical principles of, 223; in the Arctic regions, absence of, 823; intradural and extramedullary, of the spinal cord with paraplegia of ten years' duration, 345; malignant disease arising in the sebaceous glands of the penis, 107; malignant disease of the testicle, cure of, 154; medical versus surgical treatment of, 177; mortality from, 1009; nature of, 581; of the bladder, surgery versus radium in the treatment of, 39; of the cervix, large cauliflower, in a woman twenty-three years of age, 459; of the larynx, the curability of, 449; of the recto-sigmoid, colostomy for acute intestinal obstruction, Balfour sleeve resection, closure for colostomy, 502; of the stomach, early recognition of, 838; of the upper air and food passages, radium in, 457; of the small intestine, 262; primary pleural, case of, 886; problem, the, a chapter in medicine, 551, 586; problem, the present status of the, 752; radiotherapy in, summary of six years' experience in the treatment of malignant diseases, 351; sugar tolerance in, 972; uterine, cautery methods in the treatment of, 978; value and limitations of radium in the treatment of, 577.
Cannes, Red Cross congress at, 571, 655, 1016; sanitarians en route to, 927.
Carbonic acid gas baths, natural and artificial, effect of, on cardiac subjects, 163.
Carcinoma, see *Cancer*.
Cardiac and meningeal complications of measles, 283; compression from serous inflammatory exudates, operative communication between the pericardium and pleura in, 456; conditions in soldiers, some reflections on, 32; conditions in 66,575 drafted men examined at Camp Gordon, Georgia, analysis of, 891; diagnosis by military surgeons at the front, 619; distress, effect of, on the work of recruits, 251; hydropsy, the potato cure in, 457; phenomena, the present conception of the significance of, 890; pulmonary, and, cases for diagnosis, from the children's medical division of Bellevue hospital, 426; subjects, effect of natural and artificial carbonic acid gas baths on, 163.
Cardiodystrophies and their treatment by intravenous injections of glucose, 536.
Cardiospasm with dilatation of the esophagus, case of, 164.
Cardiovascular board at Camp Upton, the work of the, 302; ward at Camp Upton, 303.
Carrel-Dakin method at the war demonstration hospital, treatment of empyema by the, 800.
Carter, Wm. W.: deformities of the nose resulting from syphilis, how shall we treat them, 318; idealism in rhinoplastic surgery, 900.
Castor oil and the war, 243.
Case history from Willard Parker hospital, a, 585.
Castellani's bronchopulmonary spirochetosis, hemorrhagic bronchitis, 74.
Casualties among American medical officers in France, 605; in American expeditionary forces, new estimate of, 605; Turkish, 407.
Catgut, chlorine, dichloramine—T., and, 104; sterility of, 1109.
Cauterization, nasal, in the treatment of certain chronic affections (method of Pierre Bonnier), 564.
Cautery methods in the treatment of uterine cancer, 978; treatment of tumors of the upper jaw with the, 298.
Cecum and ascending colon, resection of the, 297.
Censorship and science, 501.
Cerebral accidents following pleural interventions, 1010.
Cerebrospinal fluid in syphilis, the, 68; meningitis, see *Meningitis;* fluid, quantitative and qualitative changes in the, and their significance, 1117; syphilitic lesions, the diagnostic value of the cerebrospinal fluid by the procedure of flocculation in, 207.
Cervical ribs, pathology of, 1079.

Cervix, large cauliflower carcinoma of the, in a woman twenty-three years of age, 459; treatment of infections of the uterus and, 1086.
Cesarean section, extraperitoneal, for contracted pelvis, 459; limitations of, 301; observations on a series of cases of, done at the Long Island College hospital during the past six years, 460.
Chancre and Vincent's ulcer, symbiosis of, 339; healed, contagiousness of a, 965; syphilitic, diagnosis of the, 964.
Chapin, Henry Dwight: health work for community councils, 589.
Charity, State, cost of, 413.
Cheloid acne of the neck, pathology of, 443; cicatricial, genesis of, from modern conceptions, 1111.
Chemists to study value of medicine, 285.
Chemical domination, German, freedom from, 69.
Chickenpox and measles in children, remote danger of, 1109.
Chief medical examiner, office of, its relation to the public, the district attorney's office and the medical profession, 166.
Child bearing, high maternal mortality of, 971; bearing, high mortality and, 1060; sick, feeding the, 618; welfare, 1016; welfare, conference on, 370; welfare congress, pan-American, 370; welfare, plan world conference on, 286; young, remote results of tonsillectomy in the, 539.
Children, association for the study of, 789; bureau of the American Red Cross in Lyons, the work of the, 1114; illegitimate, Germany to educate, 27; intestinal disturbances in, depending on mechanical agencies, 173; of Lille, horrible fate of the, 374; prophylactic treatment of constipation in, 707; remote danger of chickenpox and measles in, 1109; school vaccination of, 363; year, the "victory" of, 1113.
Childhood, alimental anemia in nurslings and early, 797; clubbed fingers in, 653; conditions which affect the occurrence of rectal diseases in infancy and, 1089; idiopathic splenomegalies of, 785; pneumonia in infancy and, without physical signs, 1118.
Chlorine, dichloramine-T, and catgut, 104.
Cholecystitis, acute, in a child two and one-half years old, 342.
Cholera at Berlin in 1918, epidemiology of, 338; epidemic of, in the autumn of 1918 at Berlin, 338; in Hamburg, 202.
Chondroma, large, of the ribs, associated with exostoses of humerus and tibia, 502.
Chorea autoserum treatment of, 1070; Maloney method of reeducation in the treatment of, 928; severe, intraspinous injections of magnesium sulphate in, 1011.
Chromogenous product, homogentisic acid as a, 118.
Circulatory complications in influenza, notes on the epidemic in the U. S. marine hospital, Stapleton, N. Y., 705; system the reaction of the, in fatigue, 754.
Cirrhoses, hepatic, of splenic origin, 696
Civilians, disabled, future policy in dealing with, some conclusions from experience, 142.
Clark, F. D., Edwin Henry Schorer, Raymond Sanderson, John D. Dickson and Frank M. Huntoon: pneumonia and empyema in the late winter of 1917-1918, 673.
Cleansing substances, mechanism of the action of, 378.
Climacteric of life, the, 227; illusion in the treatment of tuberculosis, the, 62.
Clinical hematometry, 609.
Clinostatic bradycardia, 201.
Clubbed fingers in childhood, 653.
Cocaine intoxication, 1112; the prescribing of, 1066.
Coffee in strangulated hernia, 526.
Colic, renal, diagnosis of, 976.
College faculties, literary activities of, 787.
Colon, ascending, resection of the cecum and, 297.
Colostomies, permanent, practical considerations in regard to, 298.
Columbia university plans new system of physical education, 1105.
Communicable diseases, fee for reporting, 967; in Ontario, decrease of, 1067; returned soldiers and, 200.
Compensation for vocational diseases, 123.
Concussion and contusion injuries of the eye in warfare, concerning, 544.
Congress, Latin America, in France, 245.
Constipation as a problem in Argentina, 348; in children, prophylactic treatment of, 707; treatment of pneumonia, the, 31.
Consumption, see *Tuberculosis.*
Contracture, digital, myotomy of the forearm in cases of, 501.
Cook, Finley R.: cancer, general mechanical principles, 223.
Copeland, R. S.: Report on cases of encephalitis lethargica requested, 494.
Coroners, New York gains by abolition of, 285.
Corpora cavernosa, indurations of the, 1101.
Corpus luteum extract in the vomiting of pregnancy, 982.
Correspondence, Canada, 158, 451, 703, 1066; Geneva, 881; London, 29, 71, 113, 156, 248, 289, 332, 372, 417, 448, 494, 529, 575, 613, 658, 702, 745, 791, 836, 879, 925, 970, 1014, 1065; Paris, 72, 114, 374, 450, 532, 576, 615, 659, 747, 793, 880, 927, 1016.
Coughlin, Robert E.: physical exercise in later life, 558.
Coventry situation and the British Medical Association, the, 242.
Cowpox, envenomization suggested as etiology of, 533.
Cox, Gerard Hutchison: gas poisoning in warfare, a study of the effects of so-called mustard gas upon the upper respiratory tract, 312.
Cragin, E. B., endowment fund as memorial to, 412.
Cremation, growth of, 1066.
Criminology, new views in, 334.
Crippled, deformed or, hands, Major H. R. Allen's instantaneous method of reshaping tool handles so that they may be used by, 269.
Crusaders, the, 794.
Crutcher, Howard: some observations on the nature of shock, 485; the climacteric illusion in the treatment of tuberculosis, 62.
Cumston, C. G.: a short historical sketch on death from drowning, 232; the treatment of scabies in private practice, 324.
Cure, potato, in cardiac hydropsy, 457.
Cutaneous changes in the nephritides, 422; lesions from solar rays, 755.
Cysts, hydatid, of the urinary bladder, 368.

D

Dakin's solution, flavine and, 21; in cases of empyema, remarks concerning the employment of the, 800; method for using, for continuously irrigating the mastoid wound, 61.
Davin, J. P.: compulsory health insurance, 494; health insurance and the State Medical Society, 748; health insurance bill, 288, 372; meeting of the medical society of the state of New York, 836; narcotic drug question, 968.
Dead grafts in surgery, use of, 208.
Deafmute, data about the, 743.
Deafness, acquired, a discussion of some social and economic problems resulting from, 713; acquired, mental and spiritual readjustments of, 713; acquired, practical aspects of readjustment of, 713; simulated the use of Barany's drum and reflex winking in the diagnosis of, 709.
Death, an inquiry into the reliability of diagnosis of diseases causing, 125; following an intravenous injection, 409; from drowning, a short historical sketch on, 232; from germ infection, 521; major general of the, 349; rate, English, exceeds birth rate, 527; rate, French, far exceeds birth rate, 331; rate in army from battle and disease, 365; rate in Paris, increasing 576; rate, Pennsylvania, for 1918, 154.
Debility, myocardial, diagnosis of, 1110.
Deficiency disease pathogenesis of, 499; diseases, remarks on the pathogenesis of, and on pellagra, 974.
Delineator, intestinal, *x*-ray visualization of the gut by means of a new, 509.
Delinquency, juvenile, in war, 286.
"Délire de rêve," Lasegue's, in a menstrual psychosis in a debile, 77.
Delivery, normal, rare complication following, 458.
Dermatitis coccidiosa, report of a case of, 361.
Dermatophobia, 608.
Demineralization from gassing, 833.
Demobilization and the venereal problem, 158; and venereal disease, 326.
Demobilized practitioner, the position of the, 614.
Democracy and public health, 124.
Dental caries, incidence of, 71; disease, prevention of, 284; medical and, professions, the need of cooperation between the, 952; practice, British, troubles of, 531.
Dentist, famous, death of a, 614.
Diabetes mellitus, 615.
Diabetic coma, prevention and treatment of, 336.
Diaphragm, functional paralysis of the, in two cases with acceleration of respiration, 663.
Dichloramine-T, chlorine, and catgut, 104.
Dickson, John D., Edwin Henry Schorer, F. D. Clark, Raymond Sanderson, Frank M. Huntoon: pneumonia and empyema in the late winter of 1917-1918, 673.
Diet, milk, blood changes induced by a, 881.
Dietary deficiency and disease, practical pointers on health maintenance, 518.
Dietetics, medical, a course in, 1051.
Digestive disturbances due to breast milk too rich in fat, 665; psychoses, a study of the, 753.
Dilatation, acute, of the stomach, 366, 529; of the esophagus, case of cardiospasm with, 164.
Diphtheria, advantages of combined serum treatment in, 118; bacillus, has normal horse serum an action on experimental injection of the guinea-pig with the, 751; bacteriological diagnosis of, 798, gains ground in Sing Sing, 526; increases in New York City, 412; serum treatment of, 292; toxin-antitoxin, the active immunization of children under eighteen months of age with, 462; treatment of, with plain horse serum, 33; wound, on, 501.
Directory, the new, 69.
Disabled civilians, future policy in dealing with, some conclusions from experience, 142; men, instructors wanted for, 241; soldiers, see *Soldiers;* reeducation of the, see *Reeducation;* rehabilitation of the, see *Rehabilitation.*
Discussion fiend, the, 922.
Divers' disease, 618.
Diverticula, congenital, of the intestines, report of case of a tumor growing from the tip of a congenital diverticulum in the lower sigmoid region, 297.
Doctors and the changing order, 849; charge illegal conspiracy, 70; German, a plethora of, 1012; hospital, pensions to, 702.
Dogs' protection bill, see *Bill.*
Doty, Alvah H.: outlook and problems of public health, 1037.
Drainage, abdominal, after laparotomy, 535; gynecological pelvic, its indications, methods, and materials, 300; thoracic, see *Thoracic.*
Drowning, a short historical sketch on death from, 232.
Drug addiction, government survey of, 700; addiction, narcotic, proposed discussion of, 966; addiction, report of special committee of the medical society of the state of New York on, 846; addicts clinic for, 655; addicts, clinics for treatment of, 612; addicts may be identified, 924; addicts, New York's, 446; anti-narcotic, investigation, report of committee of medical society of the county of New York, 86; campaign in New York, 700; clerks form union, 145; committee, mayor to name, 834; control board, Governor of New York State urges abolition of, 155; Harrison act held valid, 1100; Harrison anti-narcotic act, construction of, 638; law, supreme court to define, 110; narcotic, control, enforcing, 246; narcotic, control, the New York State department of, 155; narcotic, law, a loop-hole in, 572; narcotic, question, 968; narcotic, situation, the health commissioner and the, 969; rush for, to meet dry situation, 412; unprofessional conduct in prescribing, 439; users, opposition to finger printing of, 1062.

Druggists object to selling liquor, 445.
Dudley, Professor Emilius C., retirement of, 27.
Duodenal obstruction, chronic, 216; obstruction with duodenojejunostomy, 215; ulcer, perforated, 215.
Duodenectomy, a new method, 749.
Duodenojejunostomy, duodenal obstruction with, 215.
Duodenum, pathological, lantern demonstration of the, a type frequently overlooked, 217.
Dunton, W. R.: occupational therapy and tuberculosis, 942.
Duval, E.: etiology and mechanism of the "prison psychoses." An opinion and some case studies, 6.
Dying declarations, 150.
Dysentery, amebic, myristica (nutmeg) in the treatment of, 354; amebic, study of, 107; complications of, and their treatment, 33; venal changes in, 709.
Dyspepsia, unmotivated nervous, and tuberculosis, 245.

E

Eagleton, Wells P.: an original device for the control of hemorrhage from the large sinuses of the brain by invulsion of the outer wall into the lumen, with report of a successful operation for cerebellar abscess by obliteration of the lateral sinus and exploration and drainage through its inner wall and anterior surface of cerebellum, 274.
Ear and the aviator, the, 211; studies, practical value of, 210.
Earp, S. E.: some of the salient duties of a nurse, 862.
Eczema, seborrheic, of the lower lip with deep central cracking, 438.
Edema, cerebral, from salvarsan, 581; disease and bradycardia, 422; gas, see *Gas edema*; subalimentation and, of famine, 1112.
Education, physical, Columbia university plans new system of, 1105.
Einhorn, Max; jaundice, 1043; *x*-ray visualization of the gut by means of a new intestinal delineator, 509.
Eisenberg, I. C.: the prepuce as grafting material, 514.
Elaiopathia, pathomimic, 26.
Electrocardiography and orthodiagraphy, the importance of the adoption of, as routine measures in the management of disorders of the heart, 1, 38.
Electrotherapeutic work, massage and, in a war hospital, 65.
Emboli, lecture on missiles as, 1018.
Emphysema, mediastinal, a true case of, 1052; tissue, in influenza, 346.
Empyema, abscess, and gangrene of the lung following epidemic influenza, 250; acute pneumonia, acute appendicitis, pneumococcic peritonitis, their differential diagnosis, 102; acute respiratory diseases among troops with especial reference to, 195; following influenzal pneumonia, 291; pneumonia and, in the late winter of 1917-1918, 673; problem, the, 261; remarks concerning the employment of the Dakin solution in cases of, 800; roentgenograms of, 805; treatment of, by the Carrel-Dakin method at the war demonstration hospital, 800; what shall be done with the open chronic suppurations of the chest cavity? 770.
Encephalitis, epidemic influenzal, 442; epidemic, with stupor, 631; lethargica, 887; lethargic, an address on, 161; lethargica and mumps meningitis, 619; lethargica, report on cases requested, 494.
Endamebiasis, intestinal, comparative value of ipecac and its alkaloids in treatment of, 31.
Endocrines, a therapeutic suggestion concerning, 429.
Endometrium changes, symposium on diseases of the uterus, physiology and anatomy of, 977.
England and Wales, the diminishing population of, 703.
Envenomization suggested as etiology of hydrophobia, yellow fever, Rocky Mountain spotted fever and cowpox, 533; suggested as etiology of obscure war diseases, 160.
Epidemic disease, new public health regulations for the control of, 449.
Epidemics after wars, 661; Ambroise Paré on, 523; report of committee of American Public Health association on closing schools as a means of controlling, 127.
Epilepsy, influenza and, 492, 575; national association for the study of, 744; oneiroscopy of, 785; operative treatment of, four cases, 343; studies in, 1112.
Epithelioma of upper lip, excision and cheiloplasty, 215.
Erythema multiforme, as a rheumatic manifestation in children, 427.
Esophageal, bronchoscopic and, cases, five recent, 361.
Esophagus, case of cardiospasm with dilatation of the, 161.
Ether, treatment of peritonitis with, 338, 665.
Eutocia, anesthesia and, 981.
Eventration of the stomach, traumatic, into the left hemithorax, with a clinical picture of hypertensive pneumothorax, 378.
Exanthema of latent typhus fever and malaria, examination of the, according to Weiss' procedure of observation of the capillaries, 618; variola without, 293; varioloform hemorrhagic, during pneumonia, a case of, 253.
Exercise, physical, in later life, 558.
Exhibition, an interesting, 880.
Exophthalmic goiter, see *goiter*.
Exostoses of humerus and tibia, large chondroma of the ribs associated with, 502.
Expert evidence, Colle's fracture, 406; evidence, different schools of thought, 486; evidence, smoking opium, 363; medical cross-examination of, 919; opinion, 439; opinion based on excluded *x*-ray photograph, 919; opinion, basis of, 1100; testimony as to future physical condition, 325; testimony as to value of physicians' services, use of *x*-rays in diagnosis, 1100; testimony, care for child after birth, 406.
Extracts, organ, and autolysates, action of, 163.
Eye, concussion and contusion injuries of the, in warfare, concerning, 544; conditions, distressing general affections traceable to, 279; transmission of infection through the 453.

F

Famine in Germany, the, 456; subalimentation and edema of, 1112.
Faries, John Culbert: a study in rehabilitation of the disabled soldier, 861.
Fat, necrosis, multiple perforations of the anterior wall of the stomach, chronic pancreatitis with, 342.
Fatigue, the reaction of the circulatory system in, 754.
Febrile state, conception of the, 164.
Feebleminded, regulation and care of the, 1067.
Feeblemindedness in Canada, 452.
Feeding, artificial, of athreptic infants, 1114; of the Vienna population, data on the, 253; the sick child, 618.
Ferris, Albert Warren: a case of osteitis deformans, 853.
Fever, blackwater, etiology of, 152; hay, see *Hay fever;* pappataci, in Puerto Rico, 886; periodical, with tibialgia, 208; practical points in the treatment of, 818; Rocky Mountain spotted, see *Rocky Mountain spotted fever;* typhus, see *Typhus fever;* yellow, see *Yellow fever.*
Flavine and B. I. P. P. in war surgery, 106; and Dakin's solution, 21.
Flexion of the great toe, a sign of lesions of the sciatic nerve and its branches, 198.
Fibromyositis or "rheumatic conditions," 1083.
Fibrosarcoma of the skull, 261.
Field, C. Everett; false teeth as a cause of cancer, 275; radium, its present status as surgery's adjunct, 1081.
Figueira's syndrome, 109.
Filter-passing virus, preliminary report on the presence of a, in certain diseases, with especial reference to trench fever, influenza, and nephritis, 420.
Flat foot, exercises for, abstracts of lectures on, 259; tendon transplantation for, (a) animated diagram, Taylor's technique, (b) moving picture of Taylor's operation, (c) moving picture of Leo Mayer's operation, 259.
Fletcher, Horace, bequest to Howard university, 573.
Floculation, the diagnostic value of the cerebrospinal fluid by the procedure of, in cerebrospinal syphilitic lesions, 207.
Food in sufficient quantity to satisfy, value of, 1111.
Foot, deviation from natural function of the, exercises for flat foot, fallacies of so-called arch supports, abstracts from lectures on, 259; flat, see *Flat foot.*
Fox, Elsie: radiographic types of influenzal pneumonias, 513.
Fractures, gunshot, of the jaw, bone grafting in, 162; of the skull, diagnosis, treatment, and end results, 263; radiodiagnosis of the consolidation of, 379; recent retrogressions in the treatment of, 751.
Fraternizing, no, 288.
Friedman, G. A.; the possible spread of influenza through the bedbug, 14.
Friedmann's serum, results obtained in tuberculous patients treated in 1913 with, 423.
Front, surgery of the chest as carried out at the, 423.
Functional restoration, training for by workers in, 856.

G

Galen on simulation, 526.
Gall-bladder, comparatively healthy, are we justified in removing, 263; maglignant papilloma of the, 297.
Gangi's reaction, 24.
Gangrene, gas, see *Gas gangrene.*
Gas edema, bacteriological and serological essentials for the prophylaxis and treatment of, with a polyvalent serum, 1019; studies on a toxin of, and its antitoxin, 581.
Gas gangrene due to infection with a new pathogenic anaerobe, 884.
Gas poisoning in warfare, a study of the effects of so-called mustard gas upon the upper respiratory tract, 312.
hypertrophic stenosis in, 178.
Gassing, demineralization from, 833.
Gastric ulcer, see *Ulcer.*
Gastritis, phlegmonous, 503.
Genitourinary organs, war wounds of the, 734; skin and venereal services, organization of, 758; tract, experiences in France with surgery of the, 757.
German atrocities at Lille, 72; chemical domination, freedom from, 69; doctors, grave accusation confronts, 327; doctors, plethora of, 1012; medical practice restricted, 326; physicians and American medicine, 1065; scientists, overtures from, 525.
Gibbosities in tetanus, formation of, 252.
Glucose, intravenous injections of, the cardiodystrophies and their treatment by, 536.
Glycerin and alcohol, purchase of, 71.
Goiter, 842; classification of, 1074; exophthalmic and thyrotoxic, surgical treatment of, with special reference to bilateral resection, 260; exophthalmic, minor forms of Graves' disease, 293; exophthalmic, peculiarities of the symptomatology, 358; exophthalmic, the surgeon and the internist in the treatment of, 115; exophthalmic, treatment of, 882; exophthalmic, surgical treatment of, 298.
Goldwater, S. S.: a square look at compulsory health insurance as proposed in New York State, 414.
Gonococcus pneumonia, report of a probable case, 950.
Gonorrhea, dispensary treatment of, in New York City, 671.
Goodkind, Maurice L.: Pneumonia at base hospital No. 53, A. E. F., 599.
Goodman, Herman: experiences with neodiarsenol (Canadian neoarsphenamine) 241 injections without ill effects, 637.
Grafting material, the prepuce as, 515.
Graham, Douglas: acute dilatation of the stomach, 529.
Graves' disease, see *Goiter, exophthalmic.*
Great men of the seventies, the, 250.
Greene, George W.: the treatment of gastric ulcer by rectal injection of sugar, 604.
Griffith, F.: sawdust surgical handrub, 19.
Grippe, see *Influenza.*
Gunshot injuries, see *Injuries.*
Gunshot wounds, see *Wounds.*
Gynecological pelvic drainage, its indications, methods and materials, 300.

Gynecology, functional renal changes in, 920; the teaching function of the hospital with special reference to, 1079.

H

Haberman, J. Victor: memory (the mnemologic phenomena) in relation to intelligence, pedagogics, and psychopathy, 807.
Hamilton, Alice: war industrial diseases, 1053.
Hand, prehensile, the formation of a, deprived of fingers, 118.
Harrison anti-narcotic act, construction of, 638; held valid, 1100.
Harrison, Forrest Martin: influenza aboard a man-of-war; a clinical summary, 680.
Hart, T. Stuart: lobar pneumonia, a year's experience in the Presbyterian hospital with special reference to the use of antipneumococcus serum 895.
Hartwell, J. A.: the educational value of the war to the medical profession, 688.
Harvard medical unit, dinner to the, 333; the interallied fellowship of medicine and the, 332.
Haskell, Charles Nahum: the major general of death, 349.
Hay fever, active immunization in, 754.
Headache, chronic, with painful points, 453; war, and its surgical treatment, 885.
Health and public instruction, report of council of American Medical Society, 1023; and sanitation, department of, of the United States Shipping Board, the work of the, 123; and welfare, the future state policy in relation to, 124; bill endorsed, 202; campaign, national, plan for, 246; Canadian department of, 703, 1066; clause in the League of Nations, need of a, 881; commissioner and the narcotic drug situation, the, 969; commission, international, the danger of pestilence in Europe and the need of an, 972; conference of insurance organizations, 791; congress in June, 203; department, New York, labor unions protest against changes in, 155; insurance, 546; insurance, address on before the Medical Society of the State of New York, 846; insurance and the New York State Medical Society, 748; insurance as a State policy, 546; insurance bill, 288, 372; insurance, bill to block, 109; insurance bills in New York State, 287; insurance, Bronx county medical society on, 1103; insurance committee of Pennsylvania, the work of the, 545; health, compulsory, 494; in urban a. compulsory, as proposed in New York State, a square look at, 114; insurance, compulsory, oppopsition to, 924, 966; insurance, compulsory, report of committee of the Medical Society of the County of New York, 86, 506; insurance, compulsory, urge opposition to, 877; insurance, Davenport-Donohue bill, protests against, 527; insurance, doctors fight, 700; insurance hearing the, 529; insurance measure, new, 109; insurance, New York doctors oppose, 412; maintenance, dietary deficiency and disease, practical pointers on, 518; ministry of bill, 494, 530, 1106; ministry of, bill, an important amendment to the, by the standing committee, 658; ministry of, bill, the position of Ireland under the, 746; national, of England, 833; national, in Japan, new plan of improvement of, 1072; of the army, 440; problem presented by New York, 1063; record for 1918, New York City's, 966; resorts, spas and, of America, the therapeutic value of the, 321; service, a unified, 654; work for community councils, 589.
Hearing and its regulation, especially in middle age and early senescence, 56; unconscious, in psychogenous deafness, 207.
Heart beat, a case of repeated cessation of, 32; block, so-called, report of a case, including a brief review of recent literature, 580; disease and distress, left scapular pain and tenderness in, 795; disordered action of the, the common factor in, 117; importance of the adoption of electro cardiography and orthodiagraphy as routine measures in the management of disorders of the, 1, 38; in myxedema, 76; irritable, in soldiers and recruits, 1091; Le Fort's work in surgery of the, 660; influenza, 710; rupture of the valves of the, etiology of, 328.
Hemangioendotheliosarcoma of the liver, a disease of early life, 1116.
Hematocele of the thyroid gland, the causative factors of, 198.
Hematometry, clinical, 609.
Hemaphilia neonatorium, blood transfusion (citrate method) in, 171.
Hemoptysis, new experiences in the treatment of, 294; post-influenzal, 376.
Hemorrhage, cerebral, complicating pregnancy, 458; from the large sinuses of the brain, an original device for the control of, by invulsion of the outer wall into the lumen, with report of a successful operation for cerebellar abscess by obliteration of the lateral sinus and exploration and drainage through its inner wall and anterior surface of cerebellum, 274; postoperative gastrointestinal, 153; shock, a clinical study of preoperative and postoperative blood pressure as an aid to the differentiation of, 979; subdural, osteoplastic flap, 341.
Hepatic cirrhoses of splenic origin, 696.
Herder, S.: the need of cooperation between the medical and dental professions, 952.
Heredity, fundamental notions of modern science of, 618; in relation to ophthalmoscopy, 456.
Hernia, diaphragmatic, becoming strangulated in an old gunshot tear in the diaphragm, 378; diaphragmatic, gunshot wounds of the diaphragm and, 378; femoral, operation, animated diagram in, remarks on the value of, 258; strangulated, accident and pre-existing disease, 733; strangulated, coffee in, 526.
Herpes zoster, its causes and association with varicella, 377.
Herz, Lucius Felix: a case of violent reaction following antigonococcus vaccine, 820.
Hexamethylenamine and methylene blue in grippe, 379; intravenous injections of, 240.
Hodgkin's disease, treatment of, 299.
Hoffa's disease, 755.
Home canning methods, effect of heat on the spores of the *Bacillus botulinus*, its bearing on, 160.
Homogentisic acid as a chromogenous product, 118.
Honors, war, for physicians, 740; for service men, 699, 927.
Hookworm, commission to fight, 154.
Hospital administration, an experiment in, 658; American, in London, 971; base, the internal administration of the medical service of a, 692; bed as memorial to Roosevelt, 790; Booth memorial, 493; Bronx, ground broken for, 743; camp, war risk insurance takes over, 605; Canadian orthopedic military, in Toronto, 158; commission, state, annual report of, 331; charitable, discussion of liability of, 150; charitable, liability of, 194; charges, Congress will probe, 240; diagnostic, plans, 527; doctors, pensions to, 702; Edith Cavell, Colonel Depage announces plan for, 878; founded by the Women's Apparel Unit, of the American Women's Overseas Hospitals at Labouheque, 747; foundlings, in need of funds, 655; front and evacuation, surgery of the, 936; fund, King Edward's for London, 971; German, brutality in, 23; Howard A. Kelly, radium demonstration at the, 299; in the Bronx, 586; insane, tuberculosis in an, 922; Jordan memorial, New Brunswick, 158; King Edward's, fund for London, 113; liability of, for employees, negligence, 638; memorial, in Paris, 747; Memphis, addition to, 655; mobile, Serbia needs, 240; Mount Sinai, report, 445; physician builds, without aid, 967; private, liability of, 439; Red Cross, in Paris, evacuation of, 451; report of committee of Bronx County Medical Society on, 586; rural standardization of, 298; St. Louis, 423; Smith Memorial Maternity, Philadelphia, 745; the teaching function of the, with special reference to gynecology, 1079; tuberculosis, another county, 967; united fund, annual meeting of, 202; U. S. A. base, No. 37, American expeditionary forces, some experiences with, 945; want a voice in legislation, 572; war, massage and electrotherapeutic work in a, 65; Willard Parker, a case history from, 585; women's in Serbia, work of, 834; work in the Balkans, 1063.
Hospitalization of American soldiers in France, 747.
Housing of the poor, the local government board and the, 837; problem, the, 373; question in Canada, the, 158.
Huhner, Max: disorders of the sexual function, masturbation, withdrawal, impotence, etc., in relation to conditions in the posterior urethra, 596.
Hunt, Edward Livingston: some practical points in the diagnosis of syphilis of the nervous system, 391.
Hunterian lecture on the surgery of the spinal cord in peace and war, 497.
Huntington, Thomas W.: our attitude towards German physicians, 701.
Huntoon, Frank M., Edwin Henry Schorer, F. D. Clark, Raymond Sanderson, John D. Dickson: pneumonia and empyema in the late winter of 1917-1918, 673.
Hydrocele, quadrilocular intraabdominal, case of, 535.
Hydrocephalers, acute obstructive, due to cerebrospinal meningitis, ventricular drainage by puncture of the corpus callosum in, 251.
Hydrophobia, envenomization suggested as etiology of, 533; psychic, 419.
Hydropsy, cardiac, the potato cure in, 423, 457.
Hygiene board, United States interdepartmental social, announces appropriations, 611; social, board of (German), developments of the sanitary board and, up to the November revolution, 581; social, care of the injured in the war and, 34.
Hyperglycemia tests of thyrotoxicosis, the basal metabolism and alimentary, 1073.
Hyperhidrosis, local, radiotherapeutic treatment of, with hard rays, 422.
Hypersensibility in the parenteral exhibition of heterospecific albumin, the prevention of the phenomena of, 293.
Hyperthyroidism, symptoms of, observed in exhausted soldiers, 707.
Hypnotism, should, be used to correct stammering, 731; the use of, in the treatment of psychoneuroses, 601.
Hysteria, war, management of, 1080.
Hystero-traumatism, the mental status as an etiological factor in, 490.

I

Icterus, epidemic of, observed in Roumania during the campaign of 1917, 567.
Idiocy, Mongolian, and quadrupedal grit, 77.
Illinois influenza commission, the work of the, 81.
Immigrants, unwanted, 29.
Immunity, antituberculous, in influenza, the reactions of, 1020; from tuberculous infection, experimental evidence as to, 89; postinfluenzal, 788.
Immunization, active, in hay fever, 754; active, of children under eighteen months of age with diphtheria toxin-antitoxin, 462; against measles, 706; against typhus fever with proteus, X 19, 338; therapeutic, a lecture on the lessons of the war and on some new prospects in the field of, 750.
Impersonation, an interesting case of, 156.
Indemnity policy, physician's, recovery under, 325.
Indian medical service, pay in the, 449.
Indians, New York, health problem presented by, 1063.
Indol, production of, by certain strains of the Pfeiffer bacillus, 973.
Industrial diseases, war, 1053.
Infancy, education of the organic functions in, 697.
Infant mortality, high, of German babies, 492; mortality, in the United States during war, one year of, 127; mortality, syphilis and its relation to, 410; welfare in Germany during the war, 491; welfare, national conference on, 1065.
Infants and children, chlorotic type of anemia in, 171; athreptic, artificial feeding of, 1114; feeding, the special treatment that should be given milk intended for, 725; food, deleterious effect of alkalinization of, 1115; hypertonic, congenital hypertrophic stenosis in, 178.

Infection in personal injury cases, evidence as to, 150; intravenous, death following on, 109; meaning of, in accident policy, 150; transmission of, through the eye, 453.

Infectious disease, the army laboratory and the prevention of infectious disease, 996; the respiratory tract as portal of entry for, 86.

Inflammations, treatment of, with protein bodies and inhibition, 798.

Influenza, 72, 536, 889; a comparison, 52; aboard a man-of-war, a clinical summary, 680; acute, and influenzal bronchopneumonia, the use of vaccines in, 205; advocates serum for, 70; again on increase, 70; and bronchopneumonia, the treatment of by the use of human serum, 541; and epilepsy, 492, 575; and influenza-pneumonia as seen in the army, comparative study of the early and late secondary complications of, with those of infants and children in civil practice, 1119; and nephritis, preliminary report on the presence of a filter-passing virus in certain diseases, with especial reference to trench fever, 120; and pneumonia, the dangers of secondary infection in the ward treatment of, 541; as a complication of pregnancy, 979; at an isolation hospital last summer, 339; aural complications, 890; autoserotherapy of, 743; bacillus, culture of the, 76; bacillus or disease, which should be treated in, 519; bacteriology of, 345; boom in insurance follows, 877; bronchopneumonia, use of human serum in treatment of, 749; cartoons in 1848, 806; clinical observations on, 119; circulatory complications in, notes on the epidemic in the U. S. marine hospital, Stapleton, N. Y., 705; comatose forms of, 490; commission, Illinois, the work of the, 81; committee, joint, 369; data for a history of, 208; disappears from camps, 522; dramatic case of, 537; endemic before 1890, 606; epidemic, the, 34; epidemic and its prevention, the, 532; epidemic, alkali treatment applied to the acidosis of, 661; epidemic at Camp Custer, Mich., abdominal complications of the, 577; epidemic, bacteriological findings in, 492; epidemic, bacteriology of the present, 76; epidemic continues in the United States, 201; epidemic, empyema, abscess, and gangrene of the lung following, 250; epidemic in British Columbia, 705; epidemic, in pregnancy, the occurrence of, 381; epidemic, measures to curb the, 374; epidemic, remarks on, 119; epidemic, report of the committee of the American Public Health Association on administration for relief during the, 82; etiology of, 79, 456; etiology of, a filtrable virus as the cause, with some notes on the culture of the virus by Noguchi's method, 707; etiology and epidemiology of, 456; fatalities in South Africa, 330; grip-like infection in the fall of 1917, a, 755; heart, 710; hemethylenamine and methylene blue in, 379; in a tuberculosis sanatorium, 592, 626; in animals, 423; in army and navy, 22; in Batabanos, 1010; in Bordeaux, 164; in Brazil, 457, 710; in Britain and Spain, 412; in Central America, 27; in Dublin, 29; in Holland, 582; in India, 201; in Mexico City, 508; in Norway, 666; in parturient women, 49; in Puerta Rico, 457; in South Sea Islands, 27, 789; in the far East, 244; increase in 1918 death rate due to, 110; increases, 27; Indians ravaged by, 371; influence of, on the female organs of generation, 755; intravenous injections of camphorated oil in the asphyxiating type of grippe, 293; kidney and, 1061; large doses of camphor, especially in, 119; malignant grippe in the army, 281; masks in Australia, 286; medical complications and sequelae of, 39; meningococcus bronchopneumonia in, 292; mortality in Madrid during the grippe year, 444; no abatement in the prevailing epidemic, 114; nose, throat, and ear affections complicating or following the recent epidemic of so-called, with a ventured interpretation of their significance, 40; nostras, 789; notes on the month of, at a base hospital in France, 594; observations on, 582; organization of forces against, 80; otitis in 1918, 1020; pandemic, defense reactions in, 619; pandemic in France and Spain, the, 253; pandemic of, 831; pathological anatomy of, 536; pemphigoid angina in, 285; perisinus and epidural mastoid abscess subsequent to influenza, report of five cases, 819; Pfeiffer bacillus, production of indol by certain strains of the, 973; pneumonia and, prophylactic inoculation in, 79; possible spread of, through the bedbug, 14; prevention of, by quinine and arsenic, 34; prevention of, report on the, 516; prophylaxis in, 617; pseudo, 654; psychic disturbances during, 423; psychotherapy in, post, 283; ravages Alaska Indians, 1013; reactions of antituberculous immunity in, 1020; remarks on, 666; report of the public health committee of the New York Academy of Medicine on the prevention of, 541; return of the, 615; rôle of the hand in the distribution of, 81; serum, Boston to use, 28; serum treatment of, 293; Spanish, beneficial results of continuous stimulation of the hepatic detoxifying function by mild doses of calomel, 238; Spanish, etiology and treatment of, 436; Spanish, in 1853, 26; spring and fall, 538; still exists in Italy, 76; still prevalent in Paris, 369; studies on the etiological agent of, 618; surgical affections due to, 842; surgical complications and sequelae of, 40; surgical complications in 1,030 cases of, 262; sweeps India and the Belgian Congo, 744; symptomatology of, 346; takes off many nurses, 241; tissue emphysema in, 346; to help Alaska fight, 27; toll in Jamaica, 201; transmitted by indirect contact, 199; toxin, the, tannin and, 666; treatment of, 208, 579; treatment of pulmonary complications of, with calcium and neosalvarsan, 207; treatment of the pandemic of, 379; treatment of severe, with convalescent serum, 77; three clinical types of the current epidemic, 294; value of the "no-good," minor surgery and, 500; visitations of, and its influence on gynecological and obstetrical conditions, 381; Yersin's bacillus and, 368.

Influenzal encephalitis, epidemic, 442; intraabdominal catastrophes, 662; pneumonia, see *Pneumonia;* post, alopecia, 402; post, immunity, 788; injured employee, refusal of, to submit to operation, 280.

Injuries, concussion and contusion, of the eye in warfare, concerning, 544; gunshot, chronic osteomyelitis resulting from, 937; gunshot, loss of bone substance and non-union following, 938; gunshot, of the spine, abdominal phenomena in, 338; joint, mobilization after, 571.

Insanity as a defense in criminal cases, 363; pulmonary tuberculosis and, 205; drink abstinence believed to lessen, 413; moral, the psychology of, 619.

Insufflation, pharyngeal, 805.

Insurance applicant, evidence of impersonation of, 486; boom in, follows influenza, 877; health, see *health insurance;* organizations, a health conference of, 791; policy, physician's indemnity, construction of, 521; social, report of subcommittee of American Medical Association, 1027.

Interallied fellowship of medicine and the Harvard medical unit, the, 332.

Internal auditory canal, extraction of a shrapnel bullet from the, 666; disease due to warfare, the working capacity of subjects with, 885; medicine in New York State, a program for the development of, 893.

Internists, relation of, to military medicine, 1073.

Intestinal delineator, *x*-ray visualization of the gut by means of a new, 509; disturbances in children depending on mechanical agencies, 173; intoxication, acute, the treatment of, 428; obstruction, acute, colostomy for; Balfour sleeve resection; closure of colostomy, carcinoma of the rectosygmoid, 502; obstruction, unusual, three cases of, 458; stasis, chronic, clinical symptoms of, 663; stasis, chronic, what are the indications for operative interference, 578.

Ionization in the treatment of certain types of facial scars, note on the use of, 534.

Ipecac and its alkaloids in treatment of intestinal endamebiasis, comparative value of, 31.

Ireland, the exclusion of, from the operation of the ministry of health bill, 703; the position of, under the ministry of health bill, 746.

J

Jacobi, A.: ad vocem "musk," 447.

Jaundice, 1043.

Jewish Welfare Board, the, 747

Josephson, E. M.: ulnar nerve tenderness in lead poisoning, 205.

Juvenile delinquency, a psychological study of stealing in, 463.

K

Kahn, Alfred: a method for using Dakin's solution for continuously irrigating the mastoid wound, 61.

Kearney, J. A.: distressing general affections traceable to eye conditions, 279.

Keen, W. W.: fellowship with German physicians, 204.

Kennedy, Foster: epidemic encephalitis with stupor, 631.

Kernig's sign in true typhoid fever, 755.

Kidney, insufficient left, and right-sided nephrectomy followed by successful result, 1019; ruptured, suture of, with report of a case, 296; sublimate, 610; suspension of the, a new technique for, 708; the, and influenza, 1061.

Kitchen, J. M. W.: possible benefits of respiratory narcosis in preventing influenzal pneumonia, 657; relating to the possibility of protein split product poisons being formed in market milk, 186; the special treatment that should be given milk intended for infant feeding, 725.

Knapp, Mark L.: a theory of asthma as confirmed by nearly four hundred cases, successfully treated, 393.

Krumbhaar, E. B., and S. Bradbury: notes on a month of influenza at a base hospital in France, 594.

Kyphoscoliosis in tetanus, 252.

L

Laasé, Christian F. L.: the health commissioner and the narcotic drug situation, 969.

Laboratories, army, future of, 108.

Laboratory type of physician, the, 409.

Lambert, Alexander: medicine, a determining factor in war, 984.

Landsman, Arthur A.: conditions which affect the occurrence of rectal diseases in infancy and childhood, 1089.

Langstroth, Francis Ward: the treatment of infections of the uterus and cervix, preliminary report of 75 cases, 1086.

Laparotomy through the ages, 652.

Laryngitis, tuberculous, the solar treatment of, 842.

Larnygoscopy, bronchoscopy and, relation of, to the field of general medicine, 304.

Lasegue's "délire de rêve," in a menstrual psychosis in a debile, 77.

Law, when is a man drunk in the eyes of the, 71.

League of Nations, need of a health clause in the, 881.

Left-handedness, 378.

Le Fort's work in surgery of the heart, 660.

Legislation, committee of the Medical Society of the State of New York on, report of, 844.

Legislative information bureau of, report of special committee of the Medical Society of the State of New York on the establishment of a, 845.

Leidy, Joseph: myristica (nutmeg) in the treatment of amebic dysentery, 354.

Leiner, Joshua H.: study of etiological factors bearing on the therapeutics of Bell's facial palsy, based on a review of 177 cases, 319.

Lemchen, B.: the mind and its abnormalities, 192.

Leprince, A.: nasal cauterization in the treatment of certain chronic affections (methods of Pierre Bonnier), 564.

Leprosy, recent Spanish-American investigations into, 176.
Lessons, medical and surgical, of the war, 639, 688, 734, 776, 821, 863, 904, 953, 999, 1053, 1091.
Leucemias, chronic action of the *x*-ray on the, 606; malignant growths which begin with, 294.
Leucocythemia lymphocytic, a case of Bence-Jones' albumosuria with, 206.
Levbarg, John J.: singers' and speakers' sore throat, 520.
Levin, Isaac: the cancer problem—a chapter in medicine, 551.
Liljestrand, G.: lung ventilation and artificial respiration, 1106.
Lice, one million persons killed by, 66.
Lille, children of, horrible fate of the, 374; the university of, during the German occupation, 329.
Limbs, wooden, in the making, 240.
Lipovaccines with special reference to public health work, 122.
Literary activities of college faculties, 787.
Local government board and the housing of the poor, the, 837.
London transport, pathology of, 1066.
Lords, the, and the quacks, 1015.
Lumbar puncture, the primary treatment of cerebral wounds by gauze packing and, 457.
Lumbago, 581.
Lunacy patients, the visits of medical men to, 156.
Lung, syphilis of the, 722; ventilation and artificial respiration, 1106.
Luys, Georges: war wounds of the genitourinary organs, 734.
Lymphoma, tuberculous, and tuberculosis, 1011.

M

MacCallum, W. G.: pathology of epidemic pneumonia in camps and cantonments in 1918, 776.
McConnell, R. H.: the internal administration of the medical service of a base hospital, 692.
McCoy, G. W.: the administration of arsphenamine, 791.
Macdonald, Arthur: disequilibrium of mind and nerves in war, 727.
McKenzie, R. Tait: functional reeducation of the British soldier, 827.
McKinney, John McD.: the use of hypnotism in the treatment of psychoneuroses, 601.
McMurtrie, Douglas, C.: conference on rehabilitation of the disabled, 416; future policy in dealing with disabled civilians, some conclusions from experience, 142.
McNally, William D.: deaths by poisons in Cook county, Illinois, during the period 1905-17, 189.
Macula lutea, perforation of the, 665.
Magnesium sulphate, intraspinous injections of, in severe chorea, 1011.
Malaria, 1016; control, eradication of the mosquito and, 526; examination of the exanthema of latent typhus fever and, according to Weiss' procedure of observation of the capillaries, 618; latent, the value of provocative injection of adrenalin in, 252; new problems of, arising from the war, 535; preliminary note on the complement deviation in cases of, a new aid to diagnosis, 75; prevention of, 653.
Malginant disease, see *Cancer;* growths which begin with leucemia, 294; papilloma of the gall-bladder, 297.
Malocclusion, the value of the "no good," 618.
Maloney method of reeducation in the treatment of chorea, the, 928.
Malpractice, damages, privileged communications, waiver, 406; insufficient evidence of negligence, 194.
Maniacal states, preliminary note on the response of calcium shown in, 796.
Mann, W. L.: Spanish influenza, beneficial results of continuous stimulation of the hepatic detoxifying function by mild doses of calomel, 238.
Manton, W. P.: surgery and psychasthenia, 236.
Martin, William: the early treatment of facial paralysis, 635.
Massage and electrotherapeutic work in a war hospital, 65.
Mastoid operation in some measure a reproach to pediatrics, is the present frequency of acute otitis media and of subsequent, 1071; the *Streptococcus mucosus capsulatus* infection in the, 18; wound, a method for using Dakin's solution for continuously irrigating the, 61.
Mastoiditis, acute, with perisinus of, abcess, following influenza pneumonia, a case of, operation performed under novocaine and morphine anesthesia, 323.
Mayer, Leo, operation, tendon transplantation for flat foot, moving picture of, 259.
Meakins, Jonathan: irritable heart in soldiers and recruits, 1091.
Measles, cardiac and meningeal complications of, 283; chickenpox and, remote danger of, in children, 1109; immunization against, 706.
Mediastinal emphysema, a true case of, 1052.
Medical aeronautic congress, 492; and dental professions, the need of cooperation between the, 952; and health meetings in Toronto, 1067; and surgical treatment, the extension of institutional facilities for, 418; and surgical work as a prisoner of war, 751; candidates for parliament, 156; center, plan to make Brooklyn a, 1012; complications and sequelae of influenza, 39; diary, an interesting, 806; dietetics, a course in, 1051; economics, report of committee of the Medical Society of the State of New York on, 845; education, cost of, 613; education, report of Council of American Medical Society, 1025; education, Rockefeller money for, 445; examination of aviation candidates, observations on the, 116; fees under the workmen's compensation law, 612; institution, foreclosure sale of, 574; law, a defect in the, 697; librarians, of interest to, 1014; man, the returned, 704; men and their cars, 411; men, demobilization of, 658; men in parliament, 113, 418; opinion invading province of jury, 406; parliamentary committee, the (British), 449, 659; parliamentary committee, former constitution of the, 970; profession and the community, common interests of the, 1102; profession and trades union tactics, 417; profession, demobilization of the, 248; profession, the educational value of the war to the, 688; profession, the office of the chief medical examiner, its relation to the public, the district attorney's office and the, 166; progress, lectures on, 881; questions in parliament, 529; research laboratory at Mineola, the field of the, 210; scholarship in London, 448; service of a base hospital, the internal administration of the, 692; Society of London, women and the, 1014; Society of the State of New York, meeting of, 836; tradition, the, 1069; uses of paraffin, 244.
Medicine, a determining factor in war, 984; American, and German physicians, 1065; and politics, 607; chemists to study value of, 285; examine, for alcohol, 572; forensic, in Lima, Peru, 264; general, relation of bronchoscopy and laryngoscopy to the field of, 304; groping in, 149; interallied, fellowship of, and the Harvard medical unit, 332; military, relations of internists to, 1073; museum of, suggestions for in relation to intelligence, pedagogics and psychopathy, 807.
Meiniche's serodiagnosis of syphilis, 378.
Memory (the mnemologic phenomena) in relation to intelligence, pedagogics and psychopathy, 807.
Mental deficiency in prostitutes, a study of delinquent women at an army port of embarkation, 1017; deficiency, the problem of, 330; status as an etiological factor in hysterotraumatism, the, 490.
Meningitis, cerebrospinal, the abnormal forms of, 152; cerebrospinal, the diagnosis of the ocular paralysis in, 523; cerebrospinal, ventricular drainage by puncture of the corpus callosum in acute obstructive hydrocephalus due to, 251; mumps, and encephalitis lethargica, 619; nonluetic, positive Wassermann in the cerebrospinal fluid in, 378.
Meningococcus bronchopneumonia in influenza, 292; oxygen tension in its relation to the, 184.
Methylene blue, hexamethylenamine and, in grippe, 379.
Meyer, Alfred: influenza in a tuberculosis sanatorium, 592.
Meyer, Willy: a review of the evolution of thoracic surgery within the past fourteen years, 761, 800; etiology of thrombo-angiitis obliterans, 901; postoperative thoracic drainage, 773.
Microbism, latent, 831.
Migraines, prevention of certain, 1020.
Military organization and the treatment of the tuberculous soldier, 148.
Milk and the war, 126; brains and, 58; breast, too rich in fat, digestive disturbances due to, 665; commission of the Medical Society of the County of New York, report of, 86.
Mind and its abnormalities, the, 192.
Ministry of health bill, see *health.*
Missiles as emboli, a lecture on, 1018; in the tissues, a note on the variety and latency of organisms on, 85.
Mitchell, Clifford: a simple urine test for acidosis, 404; the iodine urine test for acidosis, 925.
Mitral lesion with cardiac asthenia, a case of, the ventricular weakness being demonstrable by the venous pulse, 33.
Mobilization after joint injuries, 571; immediate active, in the treatment of gunshot wounds of joints, 953, 999.
Mongolian idiocy and quadrupedal gait, 77.
Montgomery, Douglass W.: Rabelais, mention of the muscles, 636; seborrheic eczema of the lower lip, with deep central cracking, 438; sleep as mentioned by Rabelais, 277.
Montreal general hospital, annual meeting of the, 452; report of committee of sixteen of, 452.
Moral education, value of, 372.
Morgan's bacillus, the occurrence of, in chronic discharging wounds, 663.
Morphine habit, a new treatment for the, 420.
Morphinism, a study of the etiology and prophylaxis of relapse in, 1047.
Morris, R. T.: the two most important signs in chronic appendicitis, 55.
Moses, Henry Monroe: some experiences with U. S. A. base hospital No. 37, American expeditionary forces, 945.
Mosquito control in ponds, fishes and, 1061; eradication of the, and malaria control, 526; museum, a, 572; plague, Jerusalem freed, 950.
Mouth, some pathological conditions of the, and their treatment, 290.
Moving picture in teaching surgery (b), the moving picture with time and distance records, (c) the animated diagram in femoral hernia operation, remarks on the value of, 258, of Leo Mayer's operation, tendon transplantation for flat foot, 259; of Taylor's operation, tendon transplantation for flat foot, 259.
Muscle spasm, tonic, its significance as a clinical phenomenon, 375; Rabelais' mention of, 636.
Museum, a mosquito, 572; of medicine, national, suggestions for a, 482.
Musk, ad vocem, 447; in pneumonia, use of, not a scientific drug and subject to gross substitution, 356.
Mumps, meningitis encephalitis lethargica and, 619.
Mustard gas burns, 300.
Myocardial debility, diagnosis of, 1110.
Myocarditis, acute rheumatic, treatment of, 921.
Myoma uteri, see *Uterine myoma.*
Myopia, clinical considerations on, 798.
Myositis and arthritis, tonsillectomy in, 795.
Myotomy of the forearm in cases of digital contracture, 501.
Myristica (nutmeg) in the treatment of amebic dysentery, 354.
Myxedema, the heart in, 76.

N

N. C. A., neurocirculatory asthenia, 1068.
Narcosis, respiratory, possible benefits of, in preventing influenzal pneumonia, 657.
Nasal cauterization in the treatment of certain chronic affections (method of Pierre Bonnier), 564; obstruction in aviators, 376; origin, asthma of, 580.
Nasmith, G. G.: sanitation in war, 639.
Navy, Royal, vaccines and serums supplied to the, 290; U. S. annual report of the surgeon general, 245.
Necrosis, cell, and bacterial invasion in surgery, the role of 471 503.
Negligence army doctors accused of, 605; insufficient evidence of, 239, 566.
Neodiarsenol (Canadian neoarsphenamine), experiences with, 241 injections without ill effects, 637.

Neosalvarsan, anthrax cured by, 201.
the treatment of the pulmonary complications of influenza with calcium and, 207.
Nephrectomy, right-sided, followed by successful result, insufficient left kidney and, 1019.
Nephritides, cutaneous changes in the, 423.
Nephritis, chronic, clinical, functional and pathological observations on some cases of, 1075; from suppuration of the skin, 154; preliminary report on the presence of a filter-passing vaccine in certain diseases, with especial reference to trench fever, influenza, and, 420; trench, see *Trench nephritis*.
Nerves, injured, surgical treatment of, the mechanism of referred pain, hyperalgesia, and alcoholic injections for the relief of neuralgia, with suggestions for the, 1080; operations on the, and the late results, 33; peripheral, surgery of the, 937; peripheral, suture, 344; peripheral, war lesions of the, 904.
Nervous diseases, non-traumatic organic, in soldiers, 581.
Neuralgia, the mechanism of referred pain, hyperalgesia, and alcoholic injections for the relief of, with suggestions for the surgical treatment of injured nerves, 1080.
Neurasthenia as a self limited affection, 571.
Neuritis puerperalis traumatica, 34; what is, and how should it be treated? 883; war, 450, 709; war, and psychical treatment, 880.
Neuroses, war, treatment of, 1080.
Neustaedter, M.: syphilis and parasyphilis of the central nervous system, diagnosis, prognosis, and treatment, 266.
Newton, Richard Cole: how shall any community rid itself of tuberculosis? 993.
New York charities conference, 876; health department, politics charged in, 109; State Medical Society, health insurance and the, 748.
Noguchi's method, the etiology of influenza, a filtrable virus as the cause, with some notes on the culture of the virus by, 707.
Noma in the adult, 411.
Norris, Ford M., Jr.: syphilis of the lungs, 722.
Nose, deformities of the, resulting from syphilis, how shall we treat them? 318; throat, and ear affections complicating or following the recent epidemic of so-called influenza, with a ventured interpretation of their significance, 40.
Nostrum evil, modern advertising and the, 122.
Novarsenobenzol, intravenously, two cases of rat bite fever treated with apparent success with a single dose of, 706; Vincent's angina simulating chancre of the tonsil cured by, 537.
Nurses as anesthetists, 966; employment bureau for, 967; some of the salient duties of, 862.
Nursing situation, discusses, 923.
Nutrition of the Viennese children, state of, 536; during the war, 709; inquiry in Germany, 611.

O

Obituaries:
Adams, J. H., 1013.
Allen, B. G., 745.
Allen, E. S., 657.
Allen, M. K., 574.
Ames, Captain H. E., 327.
Anderson, Caroline V. S., 1105.
Anderson, Lieut. L. A., 651.
Andrew, B. A., 414, 447.
Appel, A. A., 701.
Baker, Mercy N., 416.
Balch, G. B., 657.
Ball, E. V., 835.
Bang, Ivar, 336.
Bateman, A. G., 837.
Bartling, Lieut. D. L., 66.
Beal, Major H. W., 23.
Beam, Wm., 879.
Beard, J. C., 493.
Beaton, Lieut. J. J., 522.
Becker, A. J., 701.
Bedinger, Captain J. van D., 151.
Bennett, Wm. H., 1013.
Betz, J. H., 701.
Bird, Lieut. U. S., 282.
Bishop, H. M., 925.
Bising, Major A. G., 365.
Blaisdell, F., 248.
Blake, C. J., 248.
Blanchard, F. R., 528.
Blanchard, Raphael, 760.
Blender, Lieut. H., 408.
Bobb, H. H., 371.
Bodine, J. A., 372.
Bold, V. J., 1105.
Boyd, Lieut. S. H., 522.
Boylan, G. H., 287.
Boutwell, Lieut. L. R., 241.
Bradley, Lieut. B. P., 408.
Bradsworth, J. H., 528.
Branaman, A, 701.
Brand, A., 1013.
Breitling, Lieut. C. A., 327.
Briggs, Capt. G., 441.
Brown, Lieut. H. W., 408.
Browne, Lieut. H. Z., 408.
Bull, Lieut W. S., 407.
Buol, Lieut G., 197.
Burnett, Capt. T. LeG., 197.
Burns, Wm. A., 1105.
Burrell, Lieut. G. O., 241.
Bush, C. B., 1013.
Cadeza, J. D. M., 701.
Calpinger, Major T. P., 40c.
Campbell, Wm. L., 879.
Carey, Lieut. C. L., 196.
Carley, W. R. A., 493.
Carlson, Capt. B. W., 23.
Caro, Capt. H., 522.
Cassell, Lieut S. L., 197.
Chamberlain, M. L., 414.
Chantemesse, André, 615.
Cocke, Capt. P. L., 197.
Comegys, Col. W. H., 740.
Cook, A. H., 574.
Cooper, J. E., 528.
Corson, Lieut. J. G., 408.
Courtney, Lieut. T. J., 241.
Cowper, Lieut. Wm. LaF., 835.
Cox, Lieut. B. W., 488.
Cracraft, Lieut. L. K., 66.
Craig, Capt. H. M., 651
Crego, F. S., 745.
Cropp, Lieut. C. F., 408.
Crummey, Capt. E. C., 488.
Cunningham, G., 614.
Currie, D. H., 70.
Davidson, Sir J. M., 746.
Davis, Lieut. R., 151.
Davison, Lieut. W. J., 365.
Day, F. H., 925.
Day, G. E., 701.
Dedaker, Lieut. F. M., 522
DeLanney, Major E. L., 151.
Dennett, Lieut. P. C., 327.
Dolbeck, G. M., 204.
Dole, C. F., 612.
Donovan, J. A., 1013.
Dorman, Lieut. J. F., 66.
Drew, L., 1107.
DuBois, M. B., 29.
Duffey, Lt. Col. F. J., 574, 784
Ebnother, C. E., 574.
Eden, J. H., 925.
Edwards, U. L., 447.
Emmett, T. A., 414, 656.
Englerth, Lieut. B. L., 651.
Evans, Capt. S. G., 784.
Ewen, Major C., 414.
Fair, Lieut. W. A., 151.
Farrish, Lieut. C. E., 447, 522.
Faust, Major W. P., 784.
Ferris, G. N., 248.
Ferguson, Lieut. T. R., 66.
Fidler, B., 574.
Field, Lieut. K. W., 408.
Finney, F., 657.
Fischer, Lieut. J. R., 408.
Fletcher, Horace, 155.
Foley, Lieut. M. J., 408.
Fox, Capt. W. H., 522.
Frank, M., 791.
Fry, H. D., 925.
Furlong, Lieut. J. A., 197.
Gabriel, M. S., 1064.
Gates, Capt. W. C., 568.
Gentile, J. S., 29.
Gibson, Lieut. B. A., 197.
Gilroy, Lieut. S. W., 197.
Gleason, W. S., 287.
Goins, Lieut. G. W., 651.
Goldthwaite, Capt. R., 651.
Goodale, A. M., 371.
Goodale, W. M., 447.
Goodglick, Lieut. T., 522.
Gorham, Lieut. B. E., 835.
Gorman, Lieut. J. F., 197.
Graham, Lieut. J. M., 835
Gray, Lieut. C. D., 197.
Greenough, C. H., 204.
Griffin, E. L., 493.
Griffith, Lieut. Col. L. T., 701.
Griggs, Wm. C., 287.
Grimshaw, O., 1013.
Griswold, H., 248.
Grove, Lieut. W. B., 327.
Guilfoyle, Capt. Wm. F., 23, 327.
Hale, Wm. H., 835.
Hall, Lieut. W. L., 740.
Hanson, H. H., 287.
Harrington, T. F., 204, 287.
Harris, J. W., 701.
Harrison, J. A., 1013.
Harrison, Lieut. W. B., 568.
Hartwig, Lieut. G. F., 241.
Hasbrouck, S., 574.
Haskell, P. T., 701.
Hastings, A. Orr, 158.
Haughey, Lieut. G. E., 408.
Hawkes, Lieut. S. J., 408.
Heard, Wm. A., 287
Hearn, Lieut. R. E., 197.
Henderson, Lieut. A., 407.
Henderson, Capt. G. E., 835.
Henderson, Lieut. S. D., 197.
Hendrickson, S., 925.
Henry, Lieut. E. G., 66.
Henry, F. P., 968.
Herbst, E. M., 371.
Hersh, J. G., 528.
Hess, Capt. J. D., 441.
Hicks, Major J. R., 407.
Hislop, Capt. John J., 784.
Hobart, J. W., 879.
Hockett, Captain G. H., 151.
Hoffman, O. W., 574.
Holbrook, Lieut. C. E., 522.
Holcombe, Lieut. C. H., 568.
Holmberg, Lt.-Col. C. E, 197
Holt, Captain E. E., 327.
Holzman, Lieut. M. M., 407.
Howes, Capt. H. M., 196.
Hull, Major R. L., 196.
Humphreys, E., 112.
Humphreys, F. H., 156.
Hurley, W. J., 701.
Hussey, J. P., 71.
Hutcheson, J. A., 657.
Hyland, E. M., 657.
Ingham, E. A., 204.
Ingham, L. T., 574.
Ivins, A. L., 371.
Jackson, F. W., 112.
Jones, E. E., 29.
Jones, Lieut. W. R., 522.
Kalaher, L. M., 327.
Keirle, N. G., 835.
Kelly, C. D., 156.
Kelly, T., 156.
Kennedy, E. E., 371.
Kern, J. V., 414.
Kerr, Lieut. J. L., 522.
Kimball, R. B., 701.
King, J. M., 204.
Kinyoun, Major J. J., 414.
Kip, H., 29.
Kirkland, N. H., 701.
Kitchens, Lieut. L. W., 282.
Kunz, G. W., 528.
Kuykendall, Capt. J. E., 522.
Landesman, M., 574.
Larkin, Lieut. A. M., 23.
Larson, Lieut. A. M., 365.
Lashelle, R. MacC., 1013.
Lennep, W. B. Van, 112.
Leonard, Lieut. J. McK., 197.
Lewis, D., 612.
Lindeman, E., 1064.
Lieser, Lieut W. A., 151.
Lowman, J. H., 204.
Luckes, Eva, 495.
Lutz, H. L., 1105.
Lyle, A., 925.
McCurdy, Major A. C., 151.
MacDonald, D., 287.
McFarland, Lieut. N. N., 408.
McHenry, R. N., 29
McKee, J. W., 879.
MacKeen, A. A., 287.
McKibbon, Capt. J. M., 23.
Macnamara, N. C., 29.
McNiel, Lieut. H. L., 197.
McQuillan, Lieut. J. A., 408.
Marstin, C. M., 112.
Martin, Lieut. W. M., 568.
Massengill, J. D., 156.
Mathews, F., 414.
Mauney, Capt. S. McA., 365.
Maury, R. B., 612.
May, C. S., 745.
Mears, J. E., 967.
Meehan, J. T., 528, 574.
Merzbach, J., 835.
Middlekauff, Lieut. C. J., 197.
Miller, Lieut. L. C., 488.
Mitchell, J. W., 447.
Mittendorf, Wm. F., 332.
Moore, Lieut. Z. J., 408
Morestin, H., 615.
Morriss, Lieut. W. S., 23.
Murphy, Lieut. W. T., 23.
Murrell, D. G., 1013.
Mynderse, H. V., 447.
Nagle, J. T., 1064.
Oberly, Capt A. S., 408, 414.
Ogilvie, G., 71.
Olcott, Lieut. F. W., 327.
Orén, Lieut. S. L., 196.
Paige, N., 835.
Painter, Wm. P., 371.
Panton, A. C., 287.
Parker, Lieut. H. R., 408.
Parliament, Lieut. D. H., 488.

Parson, Capt. R. C., 740.
Pendleton, C. H., 657.
Pennington, Lieut. J. A., 488.
Pereira, Miguel, 672.
Phelan, Lieut. E. F., 327.
Phelan, J., 70.
Poffenberger, J. C., 701.
Powers, Lieut. R. E., 414.
Powless, Lieut. J. A., 66.
Price, A. F., 574.
Prudden, Major C. E., 23.
Rafferty, H. C., 1013.
Rafferty, Lieut. Wm. F., 282.
Ray, Capt. J. E., 197.
Reath, B. B., 925.
Reed, Capt. S. J. H., 23.
Reese, Lieut. Wm. C., 197.
Reeve, R. A., 452.
Reichard, V. M., 287.
Renner, Lieut. J. W., 66.
Richards, Lieut. D. N., 197.
Richards, H. J., 925.
Riley, C. H., 204, 287.
Riley, T. L., 204.
Rix, F. R., 574.
Robe, Capt. O. W., 408.
Robertson, Lieut. C. A., 332, 365.
Robertson, S. H., 248.
Rochfort, Lieut. E. L., 365.
Roder, Lieut. R. B., 241.
Rogers, Capt. E. B., 408.
Rosenkranz, Lieut. S. V., 241.
Rosser, H. N., 287.
Rudder, Lieut. B. C., 408
Russell, Lieut. B. W., 414.
Salter, I. W., 332.
Sanders, Ed., 248.
Saunders, Lieut. R. T., 151.
Sawyer, Sir James, 374.
Saxman, N. H., 112.
Scales, J., 657.
Schrom, Lieut. R. E., 408
Schwarts, Lieut. J. L., 241.
Scott, Lieut. B. R. A., 407.
Scott, Lieut. M. H. 408
Seay, Capt. T. H., 365.
Shackelford, Wm., 493.
Shedd, Lieut. C. E., 197.
Shelton, E. B., 612.
Sheppach, Lieut. H. A. 605.
Shryer, Lieut. J. L., 197
Shrom, R. E., 287.
Simmons, H. M., 112
Siveny, J. F., 574, 613.
Slocum, Lieut. H. J., 151.
Smith, E. E., 1013.
Smith, F. J., 971.
Smith, F. R., 574.
Smith, Lieut. K. C., 651.
Smith, O. G., 287.
Smith, Capt. W. C., 151.
Smith, Wm. T., 791.
Smythe, D. L., 414.
Snowball, J. W., 879, 1105.
Solovei, Lieut. S., 282.
Soule, U. E., 574.
Sowers, Z. T., 791.
Squires, Capt. J. W., 414.
Staller, M., 528.
Starek, A. A. G., 287.
Stewart, Lieut. A. S., 441.
Stewart, E. J., 287.
Stewart, Surg. W. J. S., 651.
Strasser, T. R., 371.
Sturgis, F. R., 879.
Struse, A. M., 112.
Sudler, F., 879.
Summers, Lieut. D. K., 151.
Syrop, Lieut. E. F., 151.
Tapscott, S. T., 1013.
Taylor, Surgeon G. B., 407.
Taylor, Capt. H. F., 522.
Thompson, J. H., 1064.
Thorpe, Capt. H. L., 66.
Tirykian, H., 447.
Todd, Major J. H., 408.
Tracy, P. H., 657.
Traylor, Capt. J. H., 408.
Trezevant, R., 612.
Tufty, J. M. O., 371.
Turner, Capt. W. G., 151.
Tyson, J., 371.
Ury, Captain J. B., 66.
Van Fleet, F., 613.
Van Vrendenburg, Wm. T., 29.
Vermilyea, Lieut. C., 197.
Waleott, Capt. W. W., 605, 835.
Walker, Capt. A. G., 407.
Walker, Mary, 371.
Webster, Major H. B., 151.
Weeks, G. M., 745.
Weintz, Capt. C. H., 197.
Weisbrod, F., 835.
Weist, H. H., 447.
Wells, W. H., 528.
Weston, Lieut. H. R., 488.
White, Lieut. C. H., 23.
White, Lieut. W. M., 568.
Whitehead, A., 493.
Wilbur, H. C., 835.
Wiley, D., 925.
Williams, F. A., 791.
Williams, Lieut. J. E., 66.
Wilson, H., 414.
Wilson, H. A., 701.
Wilson, J. H., 287.
Winter, Lieut. O. L., 282.
Wolfe, G. B., 29.
Wooley, S., 156.
Zuderwood, Capt. R. B., 522.

Obstetrical conditions, the visitations of influenza, and its influence on gynecologieal and, 381.
Obstetrics, podalic version, 982; surggery, 980; technique, modern, compared with the teaching of twenty years ago, 424.
Obstruction, intestinal, three cases of unusual, 458.
Occupational therapy, course in, 111.
Ocular bulb, congenital retraction of the, 207; sensibility to pressure and its ehanges in tabes dorsalis, 787.
Ofrias, R. F.: chlorine, dichloramine-T, and catgut, 104.
Oil of chenopodium, 672; poisoning with, 876.
Omentum, torsion of the, the pathogenesis of, 24.
Oneiroscopy of epilepsy, the, 785.
Ophthalmic examinations, American board of, 370; practiee, paraspecifie serotherapy in, 200.
Ophthalmoscopy, heredity in relation to, 456.
Optic atrophy, cause of, 688; tract, bullet wounds of the, 423.
Organie functions, education of, in infancy, 697.
Orthodiagraphy, the importance of the adoption of electrocardiography and, as routine measures in the management of disorders of the heart, 1, 38.
Orthopedic military hospital, dominion, in Toronto, 158.
Osteitis deformans, case of, 853.
Osteomyelitis, acute, of the femur, 341; chronic, resulting from gunshot injuries, 937; hemorrhagic, of the femur, 341; of the tibia, ease of, 341.
Osteoplastic flap, subdural hemorrhage, 341.
Ostrich, poliey of the, 377.
Otitis, grippe, in 1918, 1020; media, acute, and of subsequent mastoid operation in some measure a reproach to pediatrics, is the present frequency of, 1071.
Otolaryngology in the war, observations on, 712.
Ovary, alternating periodical swellings of the, 1079.
Oxygen tension in its relation to the meningococcus, 184.
Ozena, 885.

P

Paget, Owen, Military organization and the treatment of the tuberculous soldier, 148; the etiology and treatment of "Spanish influenza," 436.
Palsy, Bell's facial study of etiological factors bearing on the therapeutics of, based on a review of 177 cases, 319; Erb's birth, 341.
Pan-American scientific interchange, 252.
Pancreatitis, chronic, with fat necrosis, multiple perforations of the anterior wall of the stomach, 342.
Papilloma, malignant, of the gall-bladder, 297.
Pappataci fever in Puerto Rico, 886.
Paraffin, medical uses of, 244; treatment of wounds by, 579.
Paralysis, facial, early treatment of, 635; functional, of the diaphragm in two cases with acceleration of respiration, 663; ocular, in cerebrospinal meningitis, diagnosis of the, 523; of the insane, general, the treatment of, by the introduction of salvarsanized serum into the lateral ventricle and a suggestion for the arrest of tabetic optic atrophy by the same means, 839; salvarsan-silver-sodium and the sulphoxylated product (No. 1495) in the treatment of, 119.
Paralyzed biceps, substitution of the, by the pectoralis major, 163.
Paré, Ambroise, on epidemies, 523.
Paraplegia of ten years' duration, intradural and extramedullary sarcoma of the spinal cord with, 345.
Paris academy of medicine, meeting of the, 450.
Pathogenesis of defieiency diseases and on pellagra, remarks on the, 974; of torsion of the omentum, 24; of trophic tissue disturbances following lesions of the nerves, the, 163.
Pathological conditions of the mouth and their treatment, some, 290.
Pathology of cervical ribs, 1079; of London transport, 1066.
Pathomimie elaiopathia, 26.
Patriotism, the reward of, 334.
Pearson, C. B.: a study of the etiology and prophylaxis of relapse in morphinism, 1047.
Pectoralis major, substitution of the paralyzed biceps by the, 163.
Pediatrician at home during the war, the, 1113.
Pediatrics, is the present frequency of acute otitis media and of subsequent mastoid operation in some measure a reproach to, 1071.
Pellagra, remarks on the pathogenesis of deficiency diseases and on, 974; saliva in, 1062.
Pelvis, contracted, extraperitoneal cesarean section for, 459.
Pemphigoid angina in influenza, 285.
Penis, malignant disease arising in the sebaceous glands of the, 107.
Pensions to hospital doctors, 702.
Pereussion, auseultatory, 561.
Perforations, multiple, of the anterior wall of the stomach, ehronic pancreatitis with fat necrosis, 342.
Perineal lacerations, complete, repair of, 979.
Peripheral nerve suture, 341.
Peritonitis, bilious, with apparent integrity of the biliary system, 665; hemorrhagic, two cases, 342; treatment of, with ether, 338, 665.
Pest in Dakar in 1914-5, 284.
Pestilence in Europe, danger of, and the need of an international health commission, 972.
Pharyngeal insufflation, 805.
Phenol, camphorated, treatment of tuberculosis of the lymph nodes by the x-rays and injections of, 207.
Phlebitis and septicemia, 339.
Phlegmonous gastritis, 503.
Physical education, Columbia university plans new system of, 1105; efficiency, some simple tests for, 454; training for boys, plans for, 924.
Physicians, advertising, moving against, 699; German, fellowship with, 204; German, our attitude towards, 701; indemnity insurance policy, construction of, 521; laboratory type of, 409; London, form a business union, 369; vacancies for, 370; war honors for, 740.
Physics of the chest and their relation to diseases and injuries of the thoracic organs, 931.
Physiological weight, the, 964.
Physiology of tendons, recent studies in, and their application to the operative treatment of poliomyelitis, 428.
Pittsburgh field ambulance, work of the, 793.
Pityriasis rosea is a tuberculide, 710.
Placental polyp, 425.
Plague epidemic in India, 875.
Plasma of convalescent patients, treatment of influenzal pneumonia with, 83.
Plastic work, cutaneous, two procedures of, 422.
Pleural interventions, cerebral accidents following, 1010.
Pleurisy, initial serous, in tuberculosis, the genesis of, 207.
Pleuroperitonitis, primary, subacute tuberculous, 68.
Pneumococcus, the, and Italian bacteriologists, 26.
Pneumonia, acute empyema, acute appendicitis, pneumococcic peritonitis, their differential diagnosis, 102; and empyema in the late winter of 1917-1918, 673; and influenza, prophylactic inoculation in, 79; at base hospital No. 53, A. E. F., 599; constipation treatment of, 31; epidemic, in camps and eantonments in 1918, pathology of, 776; etiology of, 36, 887; etiology of, and its serum treatment, 719; frank, specifie treatment of, 163; gonococeus, report of a probable ease, 950; in infancy and childhood without physical signs, 1118; influenza and the dangers of secondary infection in the ward treatment of, 541; influenza, and pest pneumonia, some differences between, 1072; influenzal and pestous pneumonia, 379; influenzal, bacterial protein injections in, 616; influenza, case of acute mastoiditis with perisinus abscess, following operation performed under novocaine and morphine anesthesia, 323; influenzal, empyema following, 291; influenza,

in 1837, 330; influenzal, lung puncture in the treatment of, 973; influenzal, pathology of, 26; influenzal, possible benefits of respiratory narcosis in preventing, 657; influenzal, radiographic types of, 513; influenzal, serum treatment of, 253; influenzal, treatment of, 798; influenzal, treatment of with plasma of convalescent patients, 83; lobar, a year's experience in the Presbyterian hospital with special reference to the use of antipneumococcus serum, 895; of the recent epidemic, the clinical course and prognosis of the, 229; prophylactic inoculation against, a brief history and the present status of the procedure, 74; prophylactic vaccination against, 963; staphylococcus aureus, 696; treatment of the, 888; use of musk in, not a scientific drug and subject to gross substitution, 356; varioliform hemorrhagic exanthema during, a case of, 253.

Pneumoperitoneum, radiological diagnosis by means of, 798.

Pneumothorax, artificial, absorption of nitrogen and atmospheric air in, 501; artificial, treatment of advanced tuberculosis of the lungs by, 623; hypertensive traumatic eventration of the stomach into the left hemithorax with a clinical picture of, 378; spacing of injections in the maintenance of a, 32.

Poisoning, alleged, by minute doses of rhus toxicodendron, 788; arsenical, accidental death by, workmen's compensation, 105; fatal mercurial, following sublimate injections for the cure of varicose veins, 501; gas, in warfare, as study of the effects of so-called mustard gas upon the upper respiratory tract, 312; lead, ulnar nerve tenderness in, 205; with oil of chenopodium, 876.

Poisons, deaths by, in Cook County, Ill., during the period 1905-1917, 189; protein split product, relating to the possibility of, being formed in market milk, 186.

Poliomyelitis after-cure, 445; anterior, tendon transplantation in, 344; in the army, 501; recent studies in the physiology of tendons and their application to the operative treatment of, 428.

Politics, medicine and, 607.

Polycythemia, case of, treated successfully by radiotherapy, 1019; rubra, 578.

Polyglandular compensatory syndrome, a new, 1080.

Polyneuritis, acute febrile, note on a case of, 292.

Polyp, placental, 425.

Poock van Baggen, N. J.: breathing gymnastics for the marching soldier, 101.

Population, the diminishing, of England and Wales, 703.

Post-graduate scheme for London and the provinces, 927.

Post-influenzal immunity, 788.

Powers, C. A.: no fraternizing, 288.

Practitioner, demobilized, position of the 614; general, position of the, 289; of the future, the, 442.

Pregnancy and the postpartum state, observations on the severe anemias of, 251; cerebral hemorrhage complicating, 458; corpus luteum extract in the vomiting of, 982; influenza as a complication of, 979; occurrence of epidemic influenza in, 381.

Prenatal work in New York City, 285.

Prepuce as grafting material, the, 515.

Pre-war conditions, returning to, 576.

"Prison psychoses," etiology and mechanism of the, an opinion and some case studies, 6.

Prisoners, returning, 375.

Prohibition amendment, resolutions of Medical Society of the County of New York on, 246, 505; and after, 328; anti, resolutions, 527; in Canada, 158; measure, rigid, for New York, 155; opposed to, 369; sale of alcoholic drinks, 1014.

Prophylactic inoculation against pneumonia, a brief history and the present status of the procedure, 74; in pneumonia nad influenza, 79; typhoid fever occurring after, 376.

Prophylaxis in influenza, 617.

Prostatectomy, with its preparatory and postoperative treatment, 296.

Prostatic syphilis, 618.

Prostheses, arm, the formation of amputation stumps for voluntary movement of the, 162; cinematic amputations, the utilization of the muscles of a stump to actuate artificial limbs, 1004; of limbs, 501; the triceps muscle used as a motor force in, 293.

Prostitutes, mental deficiency in, a study of delinquent women at an army port of embarkation, 1017.

Prostitution, 1016.

Protein bodies, treatment of diseases of the blood and injections with, 1019; split product poisons, relating to the possibility of, being formed in market milk, 186.

Proteose therapy by the intravenous method, 1072.

Protoplasmic activation, non-specific, 1111.

Protozoon parasites, pathogenicity, cultivation, and reproduction of, 335.

Pseudoinfluenza, 654.

Psychasthenia, surgery and, 236.

Psychiatrical tests for all recruits, 326.

Psychic disturbances during influenza, 423.

Psychical treatment, war neuroses and, 880.

Psychogenous deafness, unconscious hearing in, 207.

Psychological study of stealing in juvenile delinquency, a, 463.

Psychology of interment, some remarks on the, based on the observation of prisoners of war in Switzerland, 929; of moral insanity, the, 619; of success in medicine, the, 633.

Psychoneuroses, the use of hypnotism in the treatment of, 601.

Psychopathy, memory (the mnemologic phenomena) in relation to intelligence, pedagogics and, 807.

Psychoses, digestive, a study of the, 753; menstrual, in a debile, Lasegue's "délire de rêve" in a, 77; postinfluenzal, 1068; prison, etiology and mechanism of the, an opinion and some case studies, 6; voluntary provocation of, 709.

Psychotherapy in influenza, 283.

Public health administration, course in, 573; affairs, education in, 705; and medical education, report of committee of the Medical Society of the State of New York on, 845; board of (German) and sanitary board, the object of and service rendered by the, 581; committee of the New York Academy of Medicine; report on the prevention of influenza, 516; democracy and, 124; education, report of Medical Society of the County of New York, 86; movement, international, Red Cross starts, 369; nurses, standardization plan for work of, 1064; officers, conference of, at Ottawa, 451; order, new, in England, 572; outlook and problems of, 1037; problems, new Governor outlines policy on, 69; regulations, new, for the control of epidemic disease, 449; report of committee of the Medical Society of the County of New York on, 85; report of special committee of the Medical Society of the State of New York to consider economic methods of caring for the, 845; service, annual report of the surgeon-general of the, for 1918, 155; service bill, 203; service, reconstruction program of the, 385; service starts campaign, 370; team-work in, 124; service, United States, program of, 121; service, united program of the, with relation to venereal control among the seamen of the merchant marine, New York harbor, 668; service, United States, war activities of the, 863; work, lipovaccines with special reference to, 122.

Pulmonary and cardiac cases for diagnosis, from the children's medical division of Bellevue hospital, 426.

Pupils, inequality of the, 25.

Purgation before and after abdominal section, 261.

Putti, Vittorio: the utilization of the muscles of a stump to actuate artificial limbs, 1004.

Q

Quacks, the lords and the, 1015.

Quadrupedal gait, Mongolian idiocy and, 77.

Quinine, action of, on the blood, 33; and arsenic, prevention of grippe by, 34; and aspirin, incompatibility of, 69; researches on the elimination of, 709; synthetics, nature of amaurosis from, 368.

R

Rabelais' mention of the muscles, 636; sleep as mentioned by, 277.

Rabies, epidemic of, in Paris, 582; in England, 744; increase of, 972; return of, 879; risk of, a dog landed in a bag, 927; treatment of, in England, 249.

Rabinowitsch, T.: the sale of alcoholic drinks, 1014.

Radiation, a new form of, from the human organism, 666.

Radiodiagnosis, a, of aneurysm of the abdominal aorta, 1111; of the consolidation of fractures, the, 379.

Radiographic types of influenzal pneumonias, 513.

Radiological diagnosis by means of pneumoperitoneum, 798; diagnosis with a distended abdomen, a new method, 207; procedure for abdominal diagnosis, a new, 798; symptom of gastric ulcer, a new, 118.

Radioscopy, 76.

Radiotherapeutic treatment of local hyperhidrosis with hard rays, 422.

Radiotherapy, a case of polycythemia treated successfully by, 1019; deep, in the gynecological clinic at Erlangen, particularly from the viewpoint of the dosage of the rays in the treatment of cancer, 665; in cancer; summary of six years, experience in the treatment of malignant diseases, 351.

Radium, analysis of fifty cases of uterine bleeding from causes other than malignancy or myoma treated by, 1077; demonstration at the Howard A. Kelly hospital, 299; in cancer of the upper air and food passages, 457; in the treatment of cancer, value and limitations of, 577; institute, the, 1015; its present status as surgery's adjunct, 1081; surgery versus, in the treatment of carcinoma of the bladder, 39; treatment, a note on personal experience in, 665; treatment, notes on, 538; treatment of myoma uteri with, 1077.

Rahmet Bey, H. T. M. K.: typhus fever, 48.

Railway men, strike of, 418.

Rat-bite fever, two cases treated with apparent success with a single dose of novarsenobenzol intravenously, 706.

Raynaud, syndrome of, 931.

Reaction, Gangi's, 24; defense, in pandemic grippe, 619.

Reconstruction program of the public health service, 385; work facilitated by the Red Cross, 326.

Recruits, effect of cardiac distress on the work of, 251; psychiatrical tests for all, 326.

Rectal diseases in infancy and childhood, conditions which affect the occurrence of, 1089.

Red Cross, American, children's bureau of, the work of, in Lyons, 114; congress at Cannes, 571, 655; 927, 1016; formulates peace program, 791; hospitals in Paris, evacuation of, 451; peace work of the, 880; relief for Poland, 928; relief work in France, 1116; relief work in Siberia, 1064; starts international public health movement, 369; starts world fight on typhus, 1063.

Redfield, Casper L.: brains and milk, 58.

Reeducation, functional, of the British soldier, 827; functional, of the French and American soldier, 829; of the blind soldiers, 545; of the blinded, 285.

Regeneration of joints, 1020; tissue, on, 456; tissue, in man, 1019.

Registrants, service, some notes from the examination of five thousand selected, 300.

Registration of births and deaths in Illinois, 126.

Rehabilitation in Canada, 821; of the disabled, conference on, 416, 567, 584, 621; of the disabled soldiers, a study in, 861; of the industrially crippled, commission for the, 878.

Rehousing and medicine, 71.

Reilly, T. F.: the clinical course and prognosis of the pneumonias of the recent epidemic, 229.

Renal changes, functional, in gynecology, 920; changes in dysentery, 709; colic, diagnosis of, 976.

Research laboratory, medical, at Mineola, the field of the, 210; narcotic, bureau of, 1103; scientific medical, and the people, 581.

Resection, bilateral, surgical treatment of exophthalmic and thyrotoxic goiter, with special reference to, 260.
Respiration, artificial, lung ventilation and, 1106.
Respiratory diseases, acute, among troops with especial reference to empyema, 195; narcosis, possible benefits of, in preventing influenzal pneumonia, 657; rate and rhythm, causes and consequences of disturbances of the, 796; tract as portal of entry for infectious diseases, 86; tract, chronic obstruction of the, and scoliosis, 1060.

Restoration, functional, training for lay workers in, 856.
Resuscitation work in a casualty clearing station, 796.
Retraction, congenital, of the ocular bulb, 207.
Rheumatic conditions, fibromyositis or, 1083; manifestation in children, erythema multiforme as a, 427.
Rhinoplastic surgery, idealism in, 900.
Rhus toxicodendron, alleged poisoning by minute doses of, 788.
Rickets, observations on the cause, 75; some late manifestations of, 525.
Roberts, H. H.: the therapeutic value of the spas and health resorts of America, 321.
Robinson, Beverley: bacillus or disease, which should be treated in influenza? 519; groping in medicine, 149; practical points in the treatment of fever, 818.
Robinson, E. P.: German physicians and American medicine, 1065.
Rockefeller foundation, expenditures of the, 573; foundation, program of the, 110; money for medical education, 445.
Rocky Mountain spotted fever, envenomization suggested as etiology of, 533.
Roentgenograms of empyema, 805.
Roosevelt, hospital bed as memorial to, 790; Theodore, eugenics memorial planned to, 528.
Ross, Martin, Gonococcus pneumonia, report of a probable case, 950.
Royal Army Medical Corps, reform in the, a chance for the scientific worker, 925; Army Medical Corps, war memorial to officers and men of the, 926; College of Physicians of Edinburgh, new president of the 113; College of Surgeons of England, vacancies in the council of the, 792; Society of Medicine, social evenings at the, 448.
Rubio Institute, Madrid, work for the year 1917-18, 508.
Rupture, spontaneous, of a healthy aorta, can it occur, and how does it take place? 163.

S

St. John, J. H., Oxygen tension in its relation to the meningococcus, 184.
Saccharin, the use of, 63.
Saccharomycosis, 25.
Saccharose in consumption, 965; injections of, 207.
Sachs Georgi precipitation method, diagnosis of syphilis by the, 76.
Saliva in pellagra, 1062.
Salvarsan, an experimental study on the treatment of spirochetal diseases with, 76; cerebral edema from, 581; question, the, 1020; silver, 163; silver, treatment of syphilis with, 119; silver-sodium, 293; silver-sodium and the sulphoxylated product (No. 1495) in the treatment of paralysis, 119; treatment of spirochetal diseases, experimental studies on the, 118.
Sanderson, Raymond, Edwin Henry mond Sanderson, John D. Dickson, son, Frank M. Huntoon: Pneumonia and empyema in the late winter of 1917-1918, 673.
Sanitarians en route to the Cannes health conference, 927.
Sanitary aspects of warfare in southeastern Europe, 440; board and board of social hygiene (German), development of, up to November revolution, 581; board (German), the object of and service rendered by the board of public health and the, 581; code, amendments to, 573; condition of Lille during the German occupation, 672.
Sanitation in war, 639; of restaurant kitchens, 612.
Sarcoma, *see Cancer*.
Sawdust surgical handrub, 19.
Scabies, treatment of, in private practice, 324.
Scapular pain and tenderness, left, in heart disease and distress, 795.
Scheffel, Carl: an analysis of two hundred and sixteen industrial accidents, 685.
Schorer, Edwin Henry, F. D. Clark, Raymond Sanderson, John D. Dickson, Frank M. Huntoon; pneumonia and empyema in the late winter of 1917-1918, 673.
Sciatic nerve and its branches, flexion of the great toe, a sign of lesions of the, 198.
Sciatica, varicose veins in the etiology of, 1111.
Science, censorship and, 501.
Scientific worker, a chance for, reform in the R. A. M. C., 925.
Sclerodermia, Addison's disease and, 378.
Scoliosis, chronic obstruction of the respiratory tract and, 1060.
Scopolamine-morphine in war surgery, 687.
Scottish Women's Hospital at Royaumont, 794.
Scurvy, 524; prevention of, 1101.
Seasickness, prevention and treatment of, 794.
Sebaceous glands of the penis, malignant disease arising in the, 107.
Secondary infection, the dangers of, in the ward treatment of influenza and pneumonia, 541.
Seilin, J.: report of a case of dermatitis coccidiosa, 360.
Septicemia, forms of, due to the bacillus of tuberculosis, the typhobacillosis of Landouzy, and miliary tuberculosis, 292; phlebitis and, 339.
Sequestrum, buried, the, a post war problem, 534.
Serodiagnosis, Meiniche's, of syphilis, 378; of syphilis, the, 34.
Serologic diagnosis of syphilis, the theory and technique of the, 754.
Serology of typhus fever, especially from the viewpoint of immunization with the proteus X 19, 338.
Serotherapy, antityphoid, preparation and application of the serum, 538; paraspecific, in ophthalmic practice, 200.
Serum, antipneumococcus, lobar pneumonia, a year's experience in the Presbyterian Hospital with special reference to the use of, 895; convalescent, treatment of severe influenza with, 77; for influenza, advocates, 70; Friedmann's results obtained in tuberculous patients treated in 1913 with, 423; has normal horse, an action on experimental injection of the guinea-pig with the diphtheria bacillus, 754; human, the treatment of influenza and bronchopneumonia by the use of, 541; human, use of, in treatment of influenza bronchopneumonia, 749; plain horse, the treatment of diphtheria with, 33; polyvalent bacteriological and serological essentials for the prophylaxis and treatment of gas edema with a, 1019; salvarsanized, the treatment of paralysis of the insane by the introduction of into the lateral ventricle and a suggestion for the arrest of tabetic optic atrophy by the same means, 839; treatment, combined, in diphtheria, the advantages of, 118; treatment of diphtheria, 292; treatment of influenza, 293; treatment of influenzal pneumonia, 253.
Sex, a typical male, ensemble, case of, 902; the offspring of soldiers on leave, and the solution of the problem of the, 754.
Sexual function, disorders of the, masturbation, withdrawal, impotence, etc., in relation to conditions in the posterior urethra, 596.
Shanahan, Wm. T.: influenza and epilepsy, 575.
Sheehan, Joseph Eastman: a case of acute mastoiditis with perisinus abscess, following influenza pneumonia, operation performed under novocaine and morphine anesthesia, 323; five recent bronchoscopic and esophageal cases, 361.
Shell shock cases, care of, 196.
Shock hemorrhage, a clinical study of preoperative and postoperative blood pressure as an aid to the differentiation of, 979; shell, see *Shell shock;* some observations on the nature of, 485.
Shufeldt, R. W.: Major H. R. Allen's instantaneous method of reshaping tool handles so that they may be used by deformed or crippled hands, 269; medical and legal aspects of the automobile plague in Washington, 858; suggestions for a national museum of medicine, 482.
Shrapnel bullet, extraction of a, from the internal auditory canal, 666.
"Signe du tiroir" of the French, 1103.
Silver-salvarsan, on, 619; salvarsan, technique of treatment with, 423; sodium salvarsan, 293.
Simulation, Galen on, 526; new essays and observations on, 581.
Simpson, C. Augustus: postinfluenzal alopecia, 402.
Singers' and speakers' sore throat, 520.
Sittenfield, Maurice J.: radiotherapy in cancer: summary of six years' experience in the treatment of malignant diseases, 351.
Skin disease epidemic in Paris, 247; suppuration of the, nephritis from, 154; venereal, and genitourinary services, organization of, 758.
Sleep as mentioned by Rabelais, 277.
Smallpox epidemic in Italy, 612; in Dresden, 202.
Smith, J. M.: the *Streptococcus mucosus capsulatus* infection in the mastoid, 18.
Smith, Stephen, 330.

Society Reports:

American Association for Thoracic Surgery, annual meeting, report of, 800.
American Medical Association, annual session, report of, 1021; general meeting on medicine, 1072; health and public instruction, report of council on, 1023; judicial council, report of, 1022; medical education, report of, council on, 1025; section on diseases of children, 113; section on nervous and mental diseases, 1079; section on obstetrics, gynecology, and abdominal surgery, 1077; section on practice of medicine, 1073; social insurance, report on subcommittee on, 1027; presidential address, 983; war committee, report of, 1027.
American Public Health Association, annual meeting, report of, 79, 84, 121; committee on administration for relief during the influenza epidemic, 82; committee on bacteriology and vaccines, 82.
Bronx County Medical Society, 585.
College of Physicians of Philadelphia, 385, 544, 712.
International conference on rehabilitation of the disabled, 584, 621.
Medical Society of the County of New York, 166, 505; annual meeting, report of, 85.
Medical Society of the State of New York, annual meeting, report of, 843; meeting of, 836; section on medicine, 887, 932, section on obstetrics and gynecology, 976; First District Branch, annual meeting, report of, 536.
New York Academy of Medicine, 210, 255, 541, 623, 668, 757; public health committee on prevention of influenza, report of, 516, 541; section on medicine, 302, 345; section on obstetrics and gynecology, 381, 424, 458; section on pediatrics, 169, 126, 462; section on surgery, 215, 341, 502.
Philadelphia County Medical Society, 39, 383, 545.
Philadelphia Neurological Society, 128.
Southern Surgical Association, annual meeting, report of, 296.
Western Surgical Association, annual meeting, report of, 260.

Sodium morrhuate in tuberculosis, a note on, 455.

Solar rays, cutaneous lesions from, 755; treatment of tuberculous laryngitis, 842.

Soldiers admitted to special malaria wards, pulmonary spirochetosis, a preliminary note on spirochetes in the sputum of, 206; American, at the front still fighting, 114; American, the hospitalization of, in France, 747; and recruits, irritable heart in, 1091; and sailors, discharged, sanatoria for, 1015; and sailors, memorial hospital for, 834; blind, reeducation of the, 545; blood pressure and physical fitness of, 161; British, functional reeducation of the, 827; cardiac conditions in,

some reflections on, 32; etiology of bent back in, 281; exhausted, symptoms of hyperthyroidism observed in, 767; disabled, International conference on the, 584, 621; disabled, rehabilitation of the, conference on, 567; disabled, study in rehabilitation of the, 861; French and American, functional reeducation of the, 829; kept in France, study for the, 72; marching, breathing gymnastics for the, 101; non-traumatic organic nervous diseases in, 581; on leave, the offspring of, and the solution of the problem of the sex, 754; prevention of relapses in cases of arrested tuberculosis among, 625; returned, and communicable diseases, 200; returned, medical treatment of, 29; sick and wounded, rules for the release of, 241; tuberculous, discharged, 326; tuberculous, military organization and the treatment of the, 148; wounded, to consolidate care of, 364.

Sore throat, singers' and speakers', 520.

Spas and health resorts of America, the therapeutic value of the, 321; of America, the, 448.

Speech defects, free clinic for, 331.

Spinal cord, surgery of the, in peace and war, Hunterian lecture on the, 497; cord disease, the recognition and management of bladder symptoms in, 976; fluid of acute disease, observations on the, 1116.

Spirochetal diseases, experimental studies on the salvarsan treatment of, 118; diseases, experimental study on the treatment of, with salvarsan, 76.

Spirochetosis hemorrhagic bronchitis, Castellani's bronchopulmonary, 74; pulmonary, a preliminary note on spirochetes in the sputum of soldiers admitted to special malaria wards, 206.

Splenomegalies, idiopathic, of childhood, 785.

Sporotrichosic arthritides, 923.

Sporotrichosis, evolution and prognosis of, 874.

Sprue, etiology of, 67; tropical, note on, 1075.

Stammering, should hypnotism be used to correct, 731.

Staphylococcus aureus pneumonia, 696.

Stasis, intestinal, see Intestinal Stasis.

State Board Questions and Answers, California, 465, 547, 626; Canada, 41, 128; Ohio, 1033; Texas, 218, 305, 385; Virginia, 714, 849, 938.

Statistics, birth, in United States for 1917, 1104; of private practice, 920; vital, see *Vital statistics*.

Stealing in juvenile delinquency, a psychological study of, 463.

Stein, Arthur: A case of a typical male sex ensemble, 902.

Stenosis, congenital hypertrophic, a manifestation of the hypertonic infant, 174.

Stillman, Ralph G.: The army laboratory and the prevention of infectious disease, 996.

Stoffel's operation for caisson disease, 344.

Stomache, acute dilation of the, 366, 529.

Stones in the common duct, with analysis of fifty cases, 883; ureteral, concerning the removal by non-cutting operation, 753.

Strachstein, A.: the venereal sore peril, 775.

Streptococcus mucosus capsulatus infection in the mastoid, the, 18; pandemicus, 886; viridans infection, clinical picture of, 1017.

Strobell, C. W.: scopolamine-morphine in war surgery, 687.

Sublimentation and edema of famine, 1112.

Suhlimate kidneys, 610.

Substitution of the thumb by means of the great toe, 118.

Sudoriparous glands, adenomata of the, 1009.

Sugar tolerance in cancer, 972.

Sulphoxylated product (No. 1495) in the treatment of paralysis, salvarsan silver sodium and the, 119.

Superstition, the danger of ministering to, 609.

Suppurations, open chronic, of the chest cavity, what shall be done with, 770.

Surgery adjunct, radium, its present status as a, 1081; and influenza, value of the "no good" minor, 500; and psychasthenia, 236; biliary, factors which determine the relative degree of cure in, 263; moving picture in teaching surgery, remarks on the value of the, 258; obstetric, see *Obstetrics*; of the chest as carried out at the front, 64; of the genitourinary tract, experiences in France with, 757; of the front and evacuation hospitals, 936; of the heart, LeFort's work in, 660; of the peripheral nerves, 937; of the spinal cord in peace and war, Hunterian lecture on the, 497; oral, Vanderbilt clinic expands department of, 331; peace-time, 444; rhinoplastic, idealism in, 900; rôle of cell necrosis and bacterial invasion in, 471, 503; thoracic, a review of the evolution of, within the past fourteen years, 761, 800; use of dead grafts in, 208; versus radium in the treatment of carcinoma of the bladder, 39; war, flavine and bipp in, 106; war, scopolamine-morphine in, 687.

Surgical affections due to influenza, 842; aspects of gunshot wounds of the chest, 841; complications and sequelae of influenza, 40; complications in 1,030 cases of influenza, 262; handrub, sawdust, 19; operations at sea, 407; practice, value of biological principles in, 839; treatment of exophthalmic and thyrotoxic goiter, with special reference to bilateral resection, 260; treatment of goiter, 298; treatment of injured nerves, the mechanism of referred pain, hyperalgesia, and alcoholic injections for the relief of neuralgia, with suggestions for the, 1080; treatment, war headache and its, 885.

Suture, of large injured blood vessels, the, 570.

Symbiotes, 610.

Sympathetic nervous system in disease, the Croonian lectures on the rôle of the, lecture I, 1068.

Syms, Parker: sacral anesthesia, a preliminary report, 991.

Syndrome, Figueira's 109; a new polyglandular compensatory, 1080; of Raynaud, 931.

Syphilitic, cerebrospinal, lesions, the diagnostic value of the cerebrospinal fluid by the procedure of flocculation in, 207; chancre, contagiousness of a healed, 965; chancre, diagnosis of the, 964.

Syphilis, administration of arsenic in, 422; and its relation to infant mortality, 410; and parasyphilis of the central nervous system, diagnosis, prognosis and treatment, 266; cerebrospinal fluid in, 68; deformities of the nose resulting from, how shall we treat them, 312; diagnosis and treatment of, 536; diagnosis of, by the Sachs-Georgi precipitation method, 76; dispensary treatment of, in New York City, 670; intraspinal therapy in, 384; Meiniche's serodiagnosis of, 378; of the cranial bones, 536; of the lungs, 722; of the nervous system, some practical points in the diagnosis of, 392; prostatic, 618; reaction of precipitation in the diagnosis of, according to Meinicke and Sachs-Georgi, 754; serodiagnosis of, 34; splenic reflexes of Abrams in the treatment of, 96; the theory and technique of the serologic diagnosis of, 754; treatment of, with salvarsan-silver, 119.

T

Tabes dorsalis, ocular sensibility to pressure and its changes in, 787; visceral analgesia in, 665.

Tannin and the grippe toxin, 666.

Taylor, J. Madison: fibromyositis or rheumatic conditions, 1083; hearing and its regulation, especially in middle age and early senescence, 56.

Taylor's operation, tendon transplantation for flat foot, animated diagram of technique, 259; moving picture of, 259.

Tendon transplantation in anterior poliomyelitis, 344.

Test, iodine urine, for acidosis, the, 925; nystagmus, reliability of the, 533; of thryotoxicosis, the basal metabolism and alimentary hyperglycemia, 1073; simple urine, for acidosis, 404.

Testicle, malignant disease of the, cure of, 154.

Testis, undescended or maldescended, treatment of the, with particular reference to end results, 301.

Tetanus at the battle of the Piave, 567; formation of gibbosities in, 252; kypho-scoliosis in, 252; localized, of the extremities, etiology and pathogenesis of, 569; the treatment of, by injections of antitoxin in the lateral ventricle, 619.

Teutons, unrepentant, 882.

Therapeutic uses of pie, the, 72.

Therapeutics, red light in, 535.

Therapy, occupational, and tuberculosis, 942; proteose, by the intravenous method, 1072.

Thompson, W. Gilman: functional reeducation of the French and American soldier, 829.

Thoracic drainage, discussion on, 879; drainage, postoperative, 773, 804; organs, diseases and injuries of the, the physics of the chest and their relation to, 931; surgery, 800; surgery, a review of the evolution of, within the past fourteen years, 761, 800.

Throat, sore, singers' and speakers', 520.

Thrombo-angiitis obliterans, etiology of, 901.

Thumb, substitution of the, by means of the great toe, 118.

Thymus gland, influence of, on regeneration of bone after a traumata, 252.

Thyroid gland, hematocele of the, the causative factors of, 198.

Thyrotoxicosis, the basal metabolism and alimentary hyperglycemia tests of, 1073.

Tibialgia, periodical fever, 208.

Tissue disturbances, trophic, pathogenesis of, following lesions of the nerves, 163; regeneration, on, 456; regeneration in man, on, 1019.

Tissues, a note on the variety and latency of organisms on missiles in the, 885.

Tompkins, Ernest: should hypnotism be used to correct stammering?, 731.

Tonic muscle spasm, its significance as a clinical phenomenon, 375.

Tonsillectomy in myositis and arthritis, 795; in the young child, remote results of, 539.

Toronto, medical and health meetings in, 1067.

Tradition, the medical, 1069.

Transfusion, blood (citrate method), in hemophilia neonatorum, 171.

Traumata, the influence of the thymus gland on regeneration of bone after a, 252.

Trench fever, a critical review, 335; a treatment for, 499; fever, influenza, and nephritis, preliminary report on the presence of a filter-passing virus, with especial reference to, 420; fever, subacute, 1019; mouth, so-called, and other manifestations of Vincent's disease as a spreading infection in Canada, 797; nephritis, clinical observations on the early stages of, 664.

Trichinosis, a report on a small epidemic of, 618.

"Trimenon" (quarter-year), the first, 33.

Trophic tissue disturbances, pathogenesis of, following lesions of the nerves, 163.

Tuberculosis among European nations at war, 255; among soldiers, prevention of relapse in cases of arrested, 625; climatic illusion in the treatment of, 62; control following war conditions, 123; cost of, 741; genesis of initial serons pleurisy in, 207; hospital, another county, 967; how shall any community rid itself of, 993; human, new evidence on the cause of, 124; in an insane hospital, 922; medical officers, conference of, 333; milary, the forms of septicemia

due to the bacillus of tuberculosis, the typhobacillosis of Landouzy, and, 292; note on sodium morrhuate in, 455; occupational therapy and, 942; of the lungs advanced, treatment of, by artificial pneumothorax, 623; of the lymph nodes, treatment of, by the *x*-rays and injections of camphorated phenol, 207; pulmonary, and insanity, 205; pulmonary, standardized rest in the, treatment of, 539; saccharose in, 965; sanatoria for discharged soldiers and sailors, 1015; sanatorium in Alberta, 705; sanatorium, influenza in a, 592, 626; tuberculous lymphoma and, 1011; unmotivated nervous dyspepsia and, 245; work in France money needed for, 572.

Tuberculous bacteriemia and massive exogenous tuberculous infection in man, 432; infection, experimental evidence as to immunity from, 89; laryngitis, the solar treatment of, 842; lesions of the right and left lung, comparative prognosis of, 884; lymph nodes, bronchiectasis secondary to obstruction of the bronchi by, 169; lymphoma and tuberculosis, 1011; patients treated in 1913 with Friedmann's serum, results obtained in, 423; pleuroperitonitis, primary subacute, 68; poor, bill to aid, 573; soldier, military organization and the treatment of the, 148.

Tumors, abdominal, 500; alternating periodical, of the ovary, 1079; of the blood, 434; of the upper jaw, treatment of, with the cautery, 298.

Turck, Fenton B.: the etiology of pneumonia and its serum treatment, 719; the role of cell necrosis and bacterial invasion in surgery, 471.

Typhoid fever in Russia, 330; fever, Kernig's sign in true, 755; fever occurring after prophylactic inoculation, 376; fever, prevention of, 698; vaccine as a therapeutic agent, 144.

Typhus fever, 48, 786, 1108; and malaria, examination of the exanthema of latent, according to Weiss' procedure of observation of the capillaries, 618; again raging in Belgrade, 331; comparative mortality from, among a Christian and a Jew population, 253; epidemic rages in Moscow, 369; essays with vaccination against, 423; Red Cross starts world fight on, 1063; serology of, especially from the viewpoint of immunization with the proteus X 19, 338; spreads in Russia, 110; the struggle against, 378.

U

Ulcer, duodenal, perforated, 216; duodenal and gastric, mortality after operation for, 1062; gastric and duodenal, a new procedure for detecting, 339; gastric, a new radiological symptom of, 118; gastric, the treatment of, by rectal injection of sugar, 604; Vincent's symbiosis of chancre, 339.

Ulnar nerve tenderness in lead poisoning, 205.

Union national and international, 575.

United States army ambulance service, the, 375; public health service, program of, 121; shipping board, the work of the department of health and sanitation of the, 123.

University of Lille during the German occupation, the, 329; union with Belgium, 451.

Ureteral stones, concerning, the removal by non-cutting operation, 753.

Uretha, posterior disorders of the, sexual function, masturbation, withdrawal, impotence, etc., in relation to conditions in the, 596.

Urethral war wounds, 76.

Urobilinogen, diagnostic significance of, in the differentiation of cancer and anemia, 536.

Urological department, A. E. F., administration of the, 759.

Urologist, experiences of a, with the fighting forces in France, 757; uterine cancer, cautery methods in the treatment of, 978; inertia, 460; mucosa, distribution of adenomyomata containing, 977.

Uterine bleeding from causes other than malignancy or myoma treated by radium, analysis of fifty cases of, 1077; myoma, results in over one hundred operations for (operative versus roentgen-ray treatment), 1078; myoma, treatment of, with radium, 1077.

Uterus, and cervix, treatment of infections of the, 1086; reconstruction of the, 300; symposium on diseases of the, physiology and anatomy of endometrium changes, 977.

V

Vaccination, a Spanish apostle of, 760; against typhus fever, essays with, 423; as a war measure, 125; of school children, 363; prophylactic, against pneumonia, 963; regulations in the province of Quebec, 158.

Vaccine antigonococcus, a case of violent reaction following, 820; therapy, the most rational and effective method of treating whooping cough, 708; typhoid, as a therapeutic agent, 144.

Vaccines and serums supplied to the Royal navy, 290; bacterial, prophylactic or curable, value of, 1102; bacteriology and, report of the committee of the American Public Health Association on, 82; detoxicated, notes on, 617; in acute influenza and influenzal pneumonia, the use of, 205.

Vagabondage after the war, 242.

Varicella, herpes zoster, its causes and association with, 377.

Varicose veins, fatal mercurial poisoning following sublimate infections for the cure of, 501; in the etiology of sciatica, 1111.

Variola, strains of, 874; without exanthema, 293.

Venereal control among the seamen of the merchant marine, New York harbor, program of the united public health service with relation to, 668; disease, consultation institutes for, 456; disease control, 121; disease, demobilization and, 326; disease in the army, 383; diseases in Ontario, 1066; diseases, national crusade against, 413; disease, policy of the ostrich, 377; diseases, prevention of, 832; disease problem, the, from the public health standpoint, 668; diseases, program of the (British) National Council for combating, 496; disease, recent legislation in New York State relating to the control of, 669; disease, relation of, to crime, 744; problem, demobilization and the, 158; skin, and genitourinary services, organization of, 758; sore peril, the, 775.

Ventricular drainage by puncture of the corpus callosum in acute obstructive hydrocephalus due to cerebrospinal meningitis, 251.

Version, podalic, 982.

Vertigo, earthquake, 1011.

Vestibular reactions in five hundred and forty-one aviators, 496.

Vice conditions, report of committee of sixteen of Montreal on, 452.

Villaret's sign, flexion of the great toe, a sign of lesions of the sciatic nerve and its branches, 198.

Vincent's angina simulating chancre of the tonsil cured by novarsenobenzol, 537; disease as a spreading infection in Canada so-called trench mouth and other manifestations of, 797.

Virus, filter-passing, preliminary report on the presence of a, in certain diseases, with especial reference to trench fever, influenza, and nephritis, 420; filtrable, new researches on, 755.

Visceroptosis, 300.

Visual defects, an appreciation of, in its relation to expert examination in cases of demands for damage during war, 76.

Vital statistics at the zenith of the war, 1107; of Cohlenz, 748; of Spain, unfavorable, 1071.

Vitamines, a lecture on the practical importance of, 930.

Vivisection, bill to restrict, 923.

Vocational diseases, clinic for, 125; diseases, compensation for, 123.

Volunteer medical service corps, announcement of, 364, 568.

W

War, a lecture on the lessons of the, and on some new prospects in the field of therapeutic immunization, 750; activities of the United States public health service, 863; an appreciation of visual defects in its relation to expert examination in cases of demands for damage during, 76; babies, measure to legitimatize, 286; blinded in the, 282; care of the injured in the, and social hygiene, 34; castor oil and the, 243; committee of American Medical Association, report of, 1027; conditions, tuberculosis control following, 123; deaths, recent report on, 407; diseases, obscure, envenomization suggested as etiology of, 160; disequilibrium of the mind and nerves in, 727; educational value of the, to the medical profession, 688; effect of, on birth rate, 1108; epidemics after, 661; eugenic and social influence of the, 410; German dead in, 651; headache and its surgical treatment, 885; honors for physicians, 740; hysteria, management of, 1080; illegitimates in France, 788; industrial diseases, 1053; infant welfare in Germany during the, 491; juvenile delinquency in, 286; lesions of the peripheral nerves, 904; measure, vaccination as a, 125; medical and surgical lessons of the, 639, 688, 734, 751, 776, 821, 863, 904, 953, 999, 1053, 1091; medicine a determining factor in, 984; memorial to officers and men of the R. A. M. C., 926; milk and the, 126; neuroses, 450, 709; neuroses and psychical treatment, 880; neurosis, treatment of, 1080; new problems of malaria arising from the, 535; nutrition during the, 709; observations on otolaryngology in the, 712; one year of infant mortality in the United States during, 127; orphan fund, helping the, 114; pediatrician at home during the, 1113; pre and post, impressions in the Balkans, 1072; prisoners of, in Switzerland, some remarks on the psychology of internment based on the observations of, 929; records, some revelations of, 838; risk insurance takes over camp hospitals, 605; sanitation in, 639; some lessons of the, 624, 652; surgery, scopolamine-morphine in, 687; toll in dead and wounded, 21; tuberculosis among European nations at, 255; vagabondage after the, 242; wounds, see *Wounds;* vital statistics at the zenith of the, 1107; zone, experiences of a surgeon in the, 213.

Ward, E. H. P.: tumors of the blood, 434.

Warfare, blind of, 163; blind of, experiments of, 163; concerning concussion and contusion injuries of the eye in, 544; gas poisoning in, a study of the effects of so-called mustard gas upon the upper respiratory tract, 312; sanitary aspects of, in southeastern Europe, 440; working capacity of subjects with internal disease due to, 886.

Warren, Benjamin S., and Charles F. Bolduan: war activities of the United States public health service, 863.

Wassermann, positive, in the cerebrospinal fluid in non-luetic meningitis, 378.

Watson, Leigh F.: a new incision for appendectomy, 638.

Weil-Felix bacillus, agglutinative power of the, 709; bacillus, on the frequency of the, 456.

Weiss' procedure of observation of the capillaries, examination of the exanthema of latent typhus fever and malaria, according to, 618.

Welfare, child, see *Child:* the national, 121.

Whooping cough, vaccine therapy the most rational and effective method of treating, 708.

Wiener, Joseph: two hundred and fifty major operations under local anesthesia, 135.
Willems, Charles: immediate active mobilization in the treatment of gunshot wounds of joints, 953, 999.
Winter, Francis A.: of interest to medical librarians, 1014.
Women and the Medical Society of London, 1014; another medical college will admit, 445; in industry, 1065; U. S. training corps for, 656.
Workmen's compensation, committee of the Medical Society of the County of New York to consider, 166; law, medical fees under the, 612; *x*-ray and, 919.
Wounds, bullet, of the optic tract, 423; cerebral, the primary treatment of, by gauze packing and lumbar puncture, 457; chronic discharging, the occurrence of Morgan's bacillus in, 663; diphtheria, on, 501; extensive septic, treatment of, 75; gunshot, of joints, immediate active mobilization in the treatment of, 953, 999; gunshot, of the chest, discussion on, 840; gunshot, of the chest, surgical aspects, 841; gunshot, of the diaphragm and diaphragmatic hernia, 378; gunshot, of the pancreas, 876; gunshot, treatment, a new method of, 487; healed, latent infection of, 1109; of the inferior vena cava from exploding shell, with embolic migration of the missile, 501; of the joints, 665; treatment of, by paraffin, 579; urethral war, 76; war, notes on the treatment of, in the hospitals of the A. E. F., 301; war, of the genito-urinary organs, 734; war, treatment of, 489.
X-rays, action of the, on the chronic leucemias, 606; and injections of camphorated phenol, treatment of tuberculosis of the lymph nodes by the, 207; and workmen's compensation, 1919; photograph, expert opinion based on excluded, 919; visualization of the gut by means of a new intestinal delineator, 509.

Y

Yellow fever, contribution to the etiology of, 205; envenomization suggested as etiology of, 533.
Yersin's bacillus and influenza, 368.
Y. M. C. A. hut, the 1,500th, 111.

BINDING LIST MAR 1 1934

R
11
M433
v. 95

Medical record

1914

Biological & Medical Serials

PLEASE DO NOT REMOVE
CARDS OR SLIPS FROM THIS POCKET

UNIVERSITY OF TORONTO LIBRARY